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Barossa Gas Project Coastal Waters Operations Environmental Management Plan

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Barossa Gas Project

GEP Coastal Waters Operations Environmental Management Plan

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Project / Facility	Barossa GEP
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Rev	Owner	Reviewer(s) *Managerial/Technical/Site*	Approver
	Barossa Production Manager	**Senior Manager Environmental Approvals – WA, NA & TL**	**Barossa Project Director**
0			

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Abbreviations and definitions

Term	Definition
24/7	24 hours a day, seven days a week
3D	Three dimensional
AAPA	Aboriginal Areas Protection Authority
ABF	Australian Border Force (Cth)
ACCU	Australian Carbon Credit Units
ACF	Australian Conservation Foundation
ACMA	Australian Communications and Media Authority
AFANT	Amateur Fishermen's Association of the Northern Territory
AFMA	Australian Fisheries Management Authority (Cth)
AFZ	Australian Fishing Zone
AHO	Australian Hydrographic Office (Cth)
AIMS	Australian Institute of Marine Science (Cth)
ALAN	Artificial light at night
ALARP	As low as reasonably practicable
ALR Act	*Aboriginal Land Rights (Northern Territory) Act 1976* (Cth)
ALT	Aboriginal Land Trust
AMCS - NT	Australian Marine Conservation Society – NT
AMOSC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
AMSA-NT	Australian Marine Sciences Association Northern Territory
ANP	Autoridade Nacional Do Petróleo (ANP - National Petroleum Authority)
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018)
APCAD	Australian Parents for Climate Action Darwin and NT
AR6	Sixth Assessment Report
ARP	Asset Reference Plan
ASBTIA	Australian Southern Bluefin Tuna Industry Association
ASC	Aboriginal Sea Company
ATSIHP Act	*Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth)
ATRF	Arafura Timor Research Facility
AUV	Autonomous underwater vehicle
BAC	Balanggarra Aboriginal Corporation
BJAC	Bardi and Jawi Niimidiman Aboriginal Corporation
Barossa Development	The Barossa Development includes a Floating Production Storage and Offloading facility, subsea production system, supporting in-field subsea infrastructure and a gas export pipeline within Commonwealth waters. The Barossa Development is further described in the Barossa Development Offshore Project Proposal (OPP); available from: https://docs.nopsema.gov.au/A598153
Barossa Gas Project / Barossa Project	The proposed Barossa Gas Project amalgamates both the infrastructure of the Barossa Development and the DPD Project to extract and process natural gas from the Barossa field. Barossa Gas Project and Barossa Project are used interchangeably.
Barossa GEP	Barossa Gas Export Pipeline

Term	Definition
BMS	Barossa Management System
Booklet	Barossa Production Operations Booklet
BP	Boiling point
BTEX	benzene, toluene, ethylbenzene and xylene
BU	Bayu-Undan (pipeline)
BWO	BW Offshore
CAMBA	China-Australia Migratory Bird Agreement
CCA	Climate Change Authority
CCNT	Chamber of Commerce Northern Territory
CCR	Central Control Room
CCWA	Conservation Council of Western Australia
CDU	Charles Darwin University
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CEMP	Construction Environmental Management Plan
CEO	Chief executive officer
CER	Clean Energy Regulator
CFA	Commonwealth Fisheries Association
CH_4	methane
CHARM	Chemical hazard assessment and risk management
Climate Act	*Climate Change Act 2022* (Cth)
CM	Control measure
CMID	Common Marine Inspection Document
CMMS	Computerised Maintenance Management System
CMP	Crisis Management Plan
CMT	Crisis management team
CO_2	carbon dioxide
CO_2-e	carbon dioxide equivalents
Coastal Waters OEMP	Barossa GEP Coastal Waters Operations Environment Management Plan (i.e., this document)
COLREGs	International Regulations for Preventing Collisions at Sea
CP	Cathodic protection
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Cth	Commonwealth
CVI	Close visual inspection
CWC	Concrete weight coating
D&C	Drilling and Completions
DAF	Department of Agriculture and Fisheries (NT)
DAFF	Department of Agriculture, Fisheries and Forestry (Cth)
DAH	Dissolved aromatic hydrocarbons
DAWE	Department of Agriculture, Water and the Environment
DAC	Dambimangari Aboriginal Corporation

Term	Definition
DBCA WA	Department of Biodiversity, Conservation and Attractions Western Australia
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Cth)
DEPWS	Department of Environment, Parks and Water Security (NT)
DF	Demersal Fishery
DFAT	Department of Foreign Affairs and Trade (Cth)
DHA	Department of Home Affairs
DHAC	Darwin Harbour Advisory Committee
DGV	Default guideline value
DLI	Department of Logistics and Infrastructure (NT)
DISR	Department of Industry, Science and Resources
DIT	Department for Infrastructure and Transport (South Australia)
DITT	Department of Industry, Tourism and Trade (NT)
DLNG	Darwin liquefied natural gas plant
DNV	Det Norske Veritas (Norway)
DNP	Director of National Parks
DME	Department of Mining and Energy
DoD	Department of Defence
DoEE	Department of the Environment and Energy
DoT WA	Department of Transport Western Australia
DP	Dynamic positioning
DPD Project	Barossa Darwin Pipeline Duplication is a proposal to install, operate and decommission approximately 123 km of pipeline – comprising of approximately 23 km in Commonwealth waters (outside of the scope of this OEMP), approximately 8.26 km in NT Coastal Waters (covered by the scope of this OEMP) and approximately 91.74 km in NT Internal Waters (outside of the scope of this OEMP). The DPD Project is further described in the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) referral (EPBC 2022/09372)
DPIRD	Department of Primary Industries and Regional Development (WA)
DTFHC-NT	Department of Territory Families, Housing and Communities Northern Territory
EC	Emergency Commander
ECAP	Environmental Compliance and Assurance Plan
ECNT	Environment Centre Northern Territory
EDO	Environmental Defenders Office
EEZ	Exclusive Economic Zone
EHS	Environment, health and safety
EMBA	Environment that may be affected
EMP	Environmental Management Plan
ENVID	Environmental hazard identification workshop
EOFL	Endo of Field Life
EP	Environment Plan
EP Act	*Environment Protection Act 2019* (NT)
EP Regulations	Environment Protection Regulations 2020 (NT)
EPA	Environment Protection Authority (NT)

Term	Definition
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPO	Environmental performance outcomes
EPS	Environmental performance standard
ERP	Emergency Response Plan
ERT	Emergency Response Team
ESD	Ecologically sustainable development
EVA	Environmental Value Area
FPSO	Floating production storage and offloading vessel
FRDC	Fisheries Research Development Council
GDA	Gwalwa Daraniki Association
GEP	Gas Export Pipeline
GEP NT waters OPEP	Gas Export Pipeline (NT waters) Oil Pollution Emergency Plan (Operations Phase)
GHG	Greenhouse gas
GHS	Globally harmonised system
GMDSS	Global Maritime Distress Safety System
GVI	General visual inspection
GWP	global warming potential
HC	Habitat critical
HEV	High environmental value
HF	high frequency
HFO	Heavy fuel oil
HOCNF	Harmonised offshore chemical notification format
HSE	Health, safety and environment
HSS	Health, safety and security
IAPP	International Air Pollution Prevention
IEEC	International Energy Efficiency Certificate
IFO	Intermediate fuel oil
ILI	In-line inspection
ILT	In-line tee
ILUA	Indigenous Land Use Agreement
IMCA	International Maritime Contractors Association
IMMR	Inspection, maintenance, monitoring and repair
IMO	International Maritime Organisation
IMS	Invasive marine species
IMT	Incident management team
INMARSAT-C	International Maritime Satellite C
IOPP	International Oil Pollution Prevention
IPA	Indigenous Protected Area
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardisation

Term	Definition
ISPP	International Sewage Pollution Prevention
IUCN	International Union for the Conservation of Nature
JAMBA	Japan-Australia Migratory Bird Agreement
JARC	Jubilee Australia Research Centre
JKM	Japan Korea Marker
JRCC	Joint Rescue Coordination Centre
KEF	Key Ecological Feature
KLC	Kimberley Land Council
KMTA	Kimberley Marine Tourism Association
KP	Kilometre point
KPI	Key performance indicator
LAT	Lowest Astronomical Tide
LBL	Long baseline
LDC	Larrakia Development Corporation
LED	Light-emitting diode
LEVA	Low exposure value area
LF	low frequency
LNAC	Larrakia Nation Aboriginal Corporation
LNG	Liquefied natural gas
LTP	Long Term Plan
MAHA	Maritime archaeological heritage assessment
MARPOL	International Convention for the Prevention of Pollution from Ships 1973 (mod by the Protocol 1987)
MARS	Maritime Arrival Reporting System
MBES	Multibeam echosounder
MC	Measurement criteria
MDO	Marine diesel oil
MEG	Mono ethylene glycol
MEVA	Moderate exposure value area
MFL	Magnetic flux leakage
MFO	Marine fauna observer
MGAC	Miriuwung and Gajerrong Aboriginal Corporation
MGO	Marine gas oil
MGPS	Marine Growth Prevention System
MIAC	Mayala Inninalang Aboriginal Corporation
MNES	Matters of National Environmental Significance
MO	Marine Order
MoC	Management of change
MPNMP	Marine Parks Network Management Plan
MSI	Maritime safety information
MTWA	Marine Tourism WA

Term	Definition
NA	Northern Australia
N/A	Not applicable
N_2O	nitrous oxide
NAILSMA	North Australia Indigenous Land and Sea Management Alliance
NAXA	North Australian Exercise Area
NDC	Nationally Determined Contributions
NEBA	Net environmental benefit analysis
NGER	National Greenhouse and Energy Reporting
NGER Act	*National Greenhouse and Energy Reporting Act 2007* (Cth)
NIAA	National Indigenous Australians Agency
NLC	Northern Land Council
NLPGW	National Light Pollution Guidelines for Wildlife
NMR	North Marine Region
NOPSEMA	National Offshore Petroleum, Safety and Environmental Management Authority
NOPTA	National Offshore Petroleum Titles Administrator
NO_X	nitrous oxides
NPF	Northern Prawn Fishery
NPFI	Northern Prawn Fishery Industry Pty Ltd
NPI	National Pollution Inventory
NT	Northern Territory
NTGFIA	Northern Territory Guided Fishing Industry Association
NTASS Act	*Northern Territory Aboriginal Sacred Sites Act 1989* (NT)
NT Coastal Waters	NT waters between the TSB and the boundary of NT and Commonwealth waters 3 nm offshore from the TSB. Petroleum pipeline activities in NT Coastal Waters are governed by the *Petroleum (Submerged Lands Act) 1981* (NT)
NT Internal Waters	NT waters inshore of the TSB. Petroleum pipeline activities in NT Internal Waters are governed by the Energy Pipelines Act 2018 (NT)
NT Police, Fire and Emergency Services	Department of Police, Fire and Emergency Services Northern Territory
NTSC	Northern Territory Seafood Council
NWCS	North-West Cable System
NWMR	North-West Marine Region
NWSA	Northern Wildcatch Seafood Australia
OA	Operational Area
OCIMF	Oil Companies International Marine Forum
OCNS	Offshore Chemical Notification Scheme
ODS	Ozone-depleting substance
OECD	Organisation for Economic Cooperation and Development
OEMP	Operations Environmental Management Plan
OFOV FME	Orientation field of view full moon equivalents
OIM	Barossa Offshore Installation Manager

Term	Definition
OIW	oil in water
ONLF	Offshore Net and Line Fishery
OPEP	Oil Pollution Emergency Plan
OPGGS Act	*Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Commonwealth)
OPGGS(E)R	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth)
OPP	Offshore Project Proposal
OPRC	International Convention on Oil Pollution Preparedness, Response and Cooperation 1990
ORO	Other regional operators
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
OTL	Barossa Operations Team Leader
OVID	Offshore Vessel Inspection Database
PAH	Polycyclic aromatic hydrocarbon
PBC	Prescribed Bodies Corporate
PFAS	Perfluoroalkyl substances
PFOS	Perfluorooctane sulfonic acid
PIMP	Barossa Project Pipeline Integrity Management Plan
PLET	Pipeline end terminal
PLONOR	Pose little or no risk
PMST	Protected matters search tool
POB	Persons on board
PPUCH	Protocol for Protecting Underwater Cultural Heritage
Production Operations	Operation of the FPSO and associated infrastructure in Commonwealth waters (Operational Area 1) and the operation of the GEP in both Commonwealth and NT Coastal Waters (known as Operational Area 2) as defined in the *Production Operation Information Booklet*.
Production Operations EP	the Barossa Production Operations EP covers (among other things) operation of the Barossa GEP in Commonwealth waters
PRT	Pipeline repair tool
PSL Act	*Petroleum (Submerged Lands Act) 1981* (NT)
PTS	permanent threshold shift
RAV	Registered Australian Vessel
RBI	Risk-based inspection
RBM	Riser Base Manifold
RBU	Regional business unit
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
ROV	Remotely operated vehicle
RPT	regular public transport
Santos	Santos NA Barossa Pty Ltd
SBP	Sub-bottom profiler
SCR	Santos Client Representative
SDS	Safety data sheet
SEL	sound exposure level

Term	Definition
SEL_{cum}	cumulative sound exposure level
SFR	Statutory Fishing Rights
SIMAP	Spill Impact Model Application Package
SITREP	Situation report
SMC	Safeguard Mechanism Credits
SMF	Spanish Mackerel Fishery
SMPEP	Shipboard marine pollution emergency plan
SOLAS	(International Convention for the) Safety of Life at Sea
SOPEP	Shipboard oil pollution and emergency plan
SO_X	sulphur oxides
SPA	Sales and Purchase Agreement
SPL	sound pressure level
SSS	Side-scan sonar
STCW	International Convention on Standards of Training, Certification and Watchkeeping for seafarers
SURF	Subsea umbilicals, risers and flowlines
TL	Timor Leste
TLC	Tiwi Land Council
TPWC Act	*Territory Parks and Wildlife Conservation Act 1976* (NT)
TSB	Territorial Sea Baseline
TTS	temporary threshold shift
UCH	Underwater cultural heritage
UCH Act	*Underwater Cultural Heritage Act 2018* (Cth)
UFP	Unexpected Finds Protocol
UNFCCC	United Nations Framework Convention on Climate Change
USBL	Ultra short baseline
USV	Uncrewed surface vessel
UV	Ultraviolet light
UXO	Unexploded ordnance
VHF	Very high frequency
VOCs	volatile organic compounds
WA	Western Australia
WAFIC	Western Australian Fishing Industry Council
WAGFA	Western Australian Game Fishing Association
WAMSI	WA Marine Science Institution
WG1	Working Group 1
WG2	Working Group 2
WG3	Working Group 3
WGAC	Wunambal Gaambera Aboriginal Corporation
WWF	World Wildlife Fund

Units of measurement

Term	Definition
°	degree
°C	degrees Celsius
%	percent
bara	absolute pressure (ambient pressure + gauge pressure)
barG	gauge pressure
cP	centipoise
dB	decibel
EC_{50}	half maximal effective concentration
hp	horsepower
hr	hour
Hz	hertz
kg	kilogram
kHz	kilohertz
kL	kilolitres
km	kilometre
kW	kilowatt
L	litre
LC_{50}	lethal concentration, 50%
Log P_{ow}	octanol-water partition coefficient
m	metre
m/s	meters per second
m^2	square metre
m^3	cubic metre
mg/L	milligrams per litre
ml	millilitre
mm	millimetre
MMscfd	million standard cubic feet per day
nm	nanometre
NM	nautical mile (1.852 km)
ppm	parts per million
ppmv	parts per million by volume
sr	Steradian
t	Tonne
µg/L	micrograms/litre
µPa	micro pascal
W	Watt

1. Introduction

1.1 Coastal Waters OEMP summary

Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (OPGGS(E)R 2023) requirements
Section 35. Notice of decision on environment plan, publication of accepted plan and submission and publication of summary
Submission of summary of accepted plan (6) Within 10 days after receiving notice that NOPSEMA has accepted an Environment Plan (EP) (whether in full, in part or subject to limitations or conditions), the titleholder must submit a summary of the accepted plan to NOPSEMA for public disclosure. (7) The summary: a. must include the following material from the environment plan for the activity: i. the location of the activity; ii. description of the receiving environment; iii. a description of the activity; iv. details of environmental impacts and risks of the activity; v. a summary of the control measures for the activity; vi. a summary of the arrangements for ongoing monitoring of the titleholder's environmental performance; vii. a summary of the response arrangements in the oil pollution emergency plan; viii. details of consultation already undertaken, and plans for ongoing consultation; ix. details of the titleholder's nominated liaison person for the activity; and b. must be to the satisfaction of NOPSEMA.

This Barossa Gas Export Pipeline (GEP) Coastal Waters Operational Environmental Management Plan (Coastal Waters OEMP) is an Environment Plan for the purposes of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (OPGGS(E)R) and provided to the Northern Territory (NT) Department of Mining and Energy. The regulatory regime applicable to this GEP Coastal Waters OEMP is described in further detail in Sections 1.2 and 1.3 below.

The following Coastal Waters OEMP summary has been prepared as required by Section 35(7) of the OPGGS(E)R.

EP summary material requirement	Relevant section of EP containing EP summary material
The location of the Activity	Section 2
A description of the environment	Section 3 and Appendix C
A description of the Activity	Section 2
Details of the environmental impacts and risks	Sections 6 and 7
The control measures for the Activity	Sections 6 and 7
The arrangements for ongoing monitoring of the titleholder's environmental performance	Section 8
Response arrangements in the oil pollution emergency plan	Section 8.2.6 and Gas Export Pipeline (NT waters) Oil Pollution Emergency Plan (Operations Phase) (GEP NT waters OPEP).
Consultation already undertaken and plans for ongoing consultation	Sections 4 and 8
Details of the titleholders nominated liaison person for the Activity	Section 1.5.1

1.2 Activity overview

Santos NA Barossa Pty Ltd (Santos), as titleholder and nominated operator for the Barossa joint venture, proposes to conduct pipeline operations activities within Northern Territory Coastal Waters (Pipeline Licence NTC/PL5), as an integral part of the Barossa Gas Project. Unless expressly stated otherwise, a reference to Santos in this GEP Coastal Waters OEMP, is a reference to Santos in its capacity as nominated operator for the Barossa joint venture.

The Barossa Gas Project includes a Floating Production Storage and Offloading (FPSO) facility, a subsea production system, and supporting in-field subsea infrastructure. Gas and condensate produced from six subsea wells, will be treated and processed at the FPSO. Condensate will be loaded and exported directly from the FPSO to offtake tankers. Dry gas will be transported via the Barossa GEP to the DLNG.

The Activity described in this GEP Coastal Waters OEMP includes the transport of dry gas through the Barossa GEP and all support activities associated with inspection, maintenance, monitoring and repair (IMMR) of the infrastructure in the ~8.26 km section of the Barossa GEP located in Northern Territory (NT) Coastal Waters only. This section of pipeline is approximately 80 km north-west of Darwin, NT, and approximately 32 km south-west of the Tiwi Islands (Figure 1-1).

In accordance with the OPGGS(E)R, this GEP Coastal Waters OEMP identifies and evaluates environmental impacts and risks associated with the Activity (Section 2.2). The scope of this document excludes the operation of the remaining ~91.74 km section of the Barossa GEP (PL37) located in NT Internal Waters and the operation of the Barossa GEP (NT/PL5 and NT/PL6) in Commonwealth waters. These activities will be managed under separate NT and Commonwealth approvals.

1.2.1 Primary approvals

Activities within NTC/PL5 for the Barossa GEP (approximately 8.26 km) are authorised pursuant to approvals granted on 15 March 2024 under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) (EPBC 2022/09372) and on 15 December 2023 under the *Environment Protection Act 2019* (NT) (EP Act) (EP2022/022-001). Pursuant to EPBC 2022/09372 and EP2022/022-001, installation, pre-commissioning, operation and decommissioning of the 123 km portion of the Barossa GEP (referred to as the Darwin Pipeline Duplication Project) and associated infrastructure in Commonwealth waters (NT/PL6), NT waters (NTC/PL5, PL37) and on land was authorised. Activities relating to the remainder of the Barossa GEP (connecting the pipeline to the Barossa FPSO facility) located in Commonwealth Waters were the subject of the Barossa Area Development OPP, accepted by NOPSEMA on 13 March 2018 under the OPGGS(E)R.

1.2.2 Other associated Barossa environment plans and approvals

The scope of this GEP Coastal Waters OEMP covers the operation of the Barossa pipeline (NTC/PL5; 8.26 km in length) and inspection, maintenance monitoring and repair activities in NT Coastal Waters only (the Activity) within the defined Operational Area (OA), which is in NT Coastal Waters between the NT/Commonwealth boundary and the Territorial Sea Baseline. The Barossa Gas Project production operations activities in Commonwealth waters, which includes operation of the pipeline in Commonwealth waters (~285 km), are covered in the Barossa Production Operations EP (NT/L1, NT/PL5 and NT/PL6). The operation of the pipeline in NT Internal Waters (PL37) and on land (~91.74 km) is covered in the GEP Internal Waters OEMP.

In addition, several other approvals authorise the construction and operations activities for the Barossa Gas Project. Table 1-1 outlines both the existing and pending Commonwealth approvals, detailing the scope of the approval and the length of the Barossa GEP (where relevant).

Table 1-1: Barossa Gas Project activities and relevant Commonwealth environmental approvals

Relevant Approval	Jurisdiction	Status	Scope
Barossa Development Drilling and Completions Environment Plan	Cwlth	Accepted by NOPSEMA	Campaign for drilling and completing up to eight production wells
Barossa Subsea Infrastructure Installation Environment Plan	Cwlth	Accepted by NOPSEMA	Installation of subsea umbilicals, risers and flowlines (SURF), manifolds and floating production, storage and offloading (FPSO) moorings
Barossa Gas Export Pipeline Installation Environment Plan	Cwlth	Accepted by NOPSEMA	Installation and pre-commissioning activities of 262 km pipeline in Cwlth waters

Relevant Approval	Jurisdiction	Status	Scope
Barossa Darwin Pipeline Duplication Environment Plan	Cwlth	Accepted by NOPSEMA	Darwin Pipeline Duplication installation and preservation of 23 km of pipeline in Cwlth waters
Barossa Production Operations Environment Plan	Cwlth	Under assessment	• FPSO arrival, hook-up and commissioning • Gas / condensate production and export from six subsea wells • Operation of FPSO, subsea infrastructure, 285 km of the GEP in Cwlth waters

Approvals and regulatory submissions applicable to the construction and operation of the Barossa GEP in NT waters are listed in Table 1-2 (including those to be developed).

Table 1-2: Barossa Development activities and relevant Northern Territory waters environmental approvals and regulatory submissions

Northern Territory waters Barossa Development activity	Relevant Approval/Submission
Darwin Pipeline Duplication installation	Darwin Pipeline Duplication (DPD) Project Environmental Approval granted under s133 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) dated 15 March 2024 (EPBC 2022/09372): • Darwin Pipeline Duplication Project Referral (00-2022-09372) • Darwin Pipeline Duplication Project Preliminary Documentation Report. DPD Project Environmental Approval (granted under s 69 of the *Environment Protection Act* (NT) dated 22 December 2023 (EP2022/022-001): • DPD Project *Environment Protection Act* (NT) Referral • DPD Project *Environment Protection Act* (NT) Supplementary Environmental Report. DPD Project Coastal Waters CEMP for 8.26 km of pipeline (submitted to the Department of Industry, Tourism and Trade [now Department of Mining and Energy] was accepted on 13 November 2024 in relation to construction, pre-commissioning and preservation activities to be undertaken in NT Coastal Waters only). DPD Project Offshore Construction Environmental Management Plan (CEMP) and DPD Project Onshore CEMP (submitted to the Department of Industry, Tourism and Trade [now Department of Mining and Energy[1]] in relation to construction, pre-commissioning and preservation activities to be undertaken in NT Internal Waters and land only).
Operation of Gas Export Pipeline	DPD Project Environmental Approval granted under s133 of the EPBC Act dated 15 March 2024 (EPBC 2022/09372): • DPD Project Referral (00-2022-09372) • Darwin Pipeline Duplication Project Preliminary Documentation Report. DPD Project Environmental Approval (granted under s 69 of the *Environment Protection Act* (NT) dated 22 December 2023 (EP2022/022-001): • DPD Project *Environment Protection Act* (NT) Referral • DPD Project *Environment Protection Act* (NT) Supplementary Environmental Report. This document, the Barossa GEP Coastal Waters Operations Environmental Management Plan (OEMP) for 8.26 km of the GEP (to be submitted to the Department of Mining and Energy for acceptance in relation to Barossa GEP operations activities to be undertaken in NT Coastal Waters only). Barossa GEP Internal Waters OEMP for 91.74 km of the GEP (to be developed and submitted to the Department of Mining and Energy in relation to Barossa GEP operations activities to be undertaken in NT Internal Waters and on land only).

[1] An approved environmental management plan (EMP) is not a regulatory requirement for activities in NT Internal Waters covered by the *Energy Pipelines Act 1981 (NT)* and subsidiary *Energy Pipelines Regulations 2001 (NT).* However, it is Department of Mining and Energy (DME) policy that the environmental management components of a pipeline management plan be made public in an EMP, which demonstrates how environmental risks are controlled and reduced to a level that is as low as reasonably practicable (ALARP) and acceptable, is submitted with the pipeline management plan required under the *Energy Pipelines Regulations 2001 (NT).*

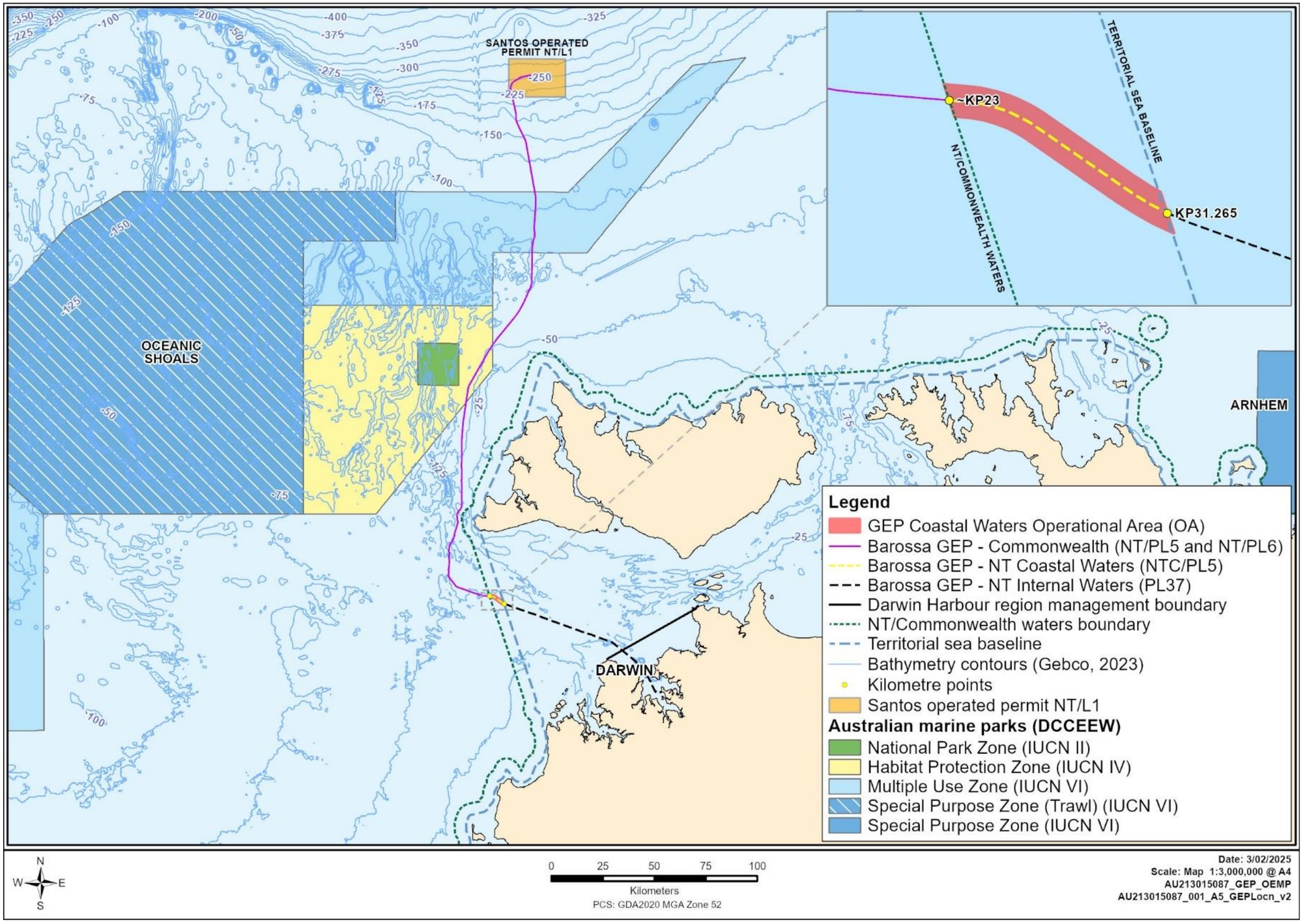

Figure 1-1: Barossa GEP location showing detail of the GEP Operational Area relevant to this GEP Coastal Waters OEMP

1.3 Purpose of this environmental management plan

OPGGS(E)R 2023 Requirements
Section 34. Criteria for acceptance of environment plan
For the purposes of section 34, the criteria for acceptance of an environment plan (the environment plan acceptance criteria) for an activity are that the plan: a. is appropriate for the nature and scale of the activity; and b. demonstrates that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable; and c. demonstrates that the environmental impacts and risks of the activity will be of an acceptable level; and d. provides for appropriate environmental performance outcomes, environmental performance standards and measurement criteria; and e. includes an appropriate implementation strategy and monitoring, recording and reporting arrangements; and f. does not involve the activity or part of the activity, other than arrangements for environmental monitoring or for responding to an emergency, being undertaken in any part of a declared World Heritage property; and g. demonstrates that: i. the titleholder has carried out the consultations required by section 25; and ii. the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate; and h. complies with the Act, this instrument and any other regulations made under this Act.

The GEP Coastal Waters OEMP has been prepared in accordance with the OPGGS(E)R for submission to DME and acceptance by the NT Minister for Mining and Energy.

The OPGGS(E)R are Commonwealth regulations that are enacted in NT by the *Petroleum (Submerged Lands) (Application of Commonwealth Laws) Regulations 2004* (NT) and apply to coastal waters between the Commonwealth/NT waters boundary and the Territorial Sea Baseline (Figure 2-1).

In accordance with the OPGGS(E)R, this GEP Coastal Waters OEMP details the environmental impacts and risks associated with the Activity and demonstrates how these will be reduced to as low as reasonably practicable (ALARP) and to an acceptable level. The Coastal Waters OEMP implementation strategy will be used to measure and report on environmental performance to demonstrate that impacts and risks are being continuously reduced to ALARP and are at an acceptable level. The environmental management of the Activity described in this GEP Coastal Waters OEMP complies with Santos' Environment, Health and Safety Policy (Appendix A) and with all relevant legislation (Appendix B).This Coastal Waters OEMP documents and considers all Relevant Persons consultation undertaken during the development of the GEP Coastal Waters OEMP (Section 4).

1.4 Environmental management plan validity

The operation of this GEP Coastal Waters OEMP commences on the date it is accepted under the OPGGS(E)R, by the NT Minister for Mining and Energy, and continues until submission and acceptance by a notification made pursuant to Section 46 of the OPGGS(E)R.

Santos may revise the GEP Coastal Waters OEMP post-acceptance, using the Management of Change (MoC) process described in Section 8.5.

1.5 Operator and titleholder details

OPGGS(E)R 2023 Requirements
Section 23. Details of titleholder and nominated liaison
(1) The environment plan must include the following details for the titleholder: a. name; b. business address; c. telephone number (if any); d. fax number (if any); e. email address (if any); f. if the titleholder is a body corporate that has an Australian Company Number (ACN) (within the meaning of the *Corporations Act 2001*). (2) The environment plan must also include the following details for the titleholder's nominated liaison for the activity a. name;

b. business address; c. telephone number (if any); d. fax number (if any) e. email address (if any). (3) The environment plan must include arrangements for notifying NOPSEMA of any of the following: a. a change in the titleholder; b. a change in the titleholder's nominated liaison for the activity; c. a change in the contact details for either the titleholder or the nominated liaison.

The titleholder details are provided in Table 1-3, with the nominated operator shown in bold.

Table 1-3: Titleholder details for Barossa activities

Title	Titleholder (nominated operator in bold)	Australian company number	Interest (%)	Contact details
Coastal and Territorial waters Licence NTC/PL5 (PSL Act)	**Santos NA Barossa Pty Ltd**	109 974 932	25.0	Business Address: Level 7, 100 St Georges Terrace, Perth, Western Australia, 6000 Telephone number: (08) 6218 7100 Fax number: (08) 6218 7200 Email address: barossa.regulatory@santos.com
	Santos Offshore Pty Ltd	005 475 589	25.0	
	SK E&S Australia Pty Ltd	158 702 071	37.5	Business Address: Level 27, 152-158 St Georges Terrace, Perth WA 6000 Telephone number: (08) 6186 2320 Fax number: None Email address: upstream@sk.com
	JERA Barossa Pty Ltd	654 004 387	12.5	Business Address: Level 36, QV1, 250 St Georges Terrace, Perth, Western Australia, 6000 Telephone number: (08) 6311 7610 Fax number: (08) 6311 7613 Email address: barossa@jeraaustralia.com.au

1.5.1 Details for nominated liaison for the activity

Details for Santos' nominated liaison person for the activity are as follows:

Name: Michael Marren
Business address: Level 7, 100 St Georges Terrace, Perth, Western Australia, 6000
Telephone number: (08) 6218 7100
Email address: offshore.consultation@santos.com
ACN: 109 974 932

1.5.2 Notification procedure in the event of changed details

If there is a change in the nominated titleholder, the titleholder's nominated liaison, or a change in the contact details for a titleholder or liaison, Santos will notify DME and NOPSEMA and provide updated details.

1.6 Environmental management framework

OPGGS(E)R 2023 Requirements
Section 21. Environmental assessment
Requirements (4) The environment plan must: a. describe the requirements, including legislative requirements, that apply to the activity and are relevant to the environmental management of the activity; and b. demonstrate how those requirements will be met.
Section 24. Other information in the environment plan
The environment plan must contain the following:

a. a statement of the titleholder's corporate environmental policy.

1.6.1 Environmental management system

Section 8.2.1contains a description of the Environmental Management System for the Activity, as relevant to ongoing management of environmental impacts and risks for the duration of the Activity.

1.6.2 Workforce training, competency and emergency preparedness

Section 8.3.1 addresses measures to ensure that each employee or contractor working on, or in connection with, the Activity is aware of the employee's or contractor's responsibilities in relation to this GEP Coastal Waters OEMP, including appropriate competencies and training. Section 8.2.6 addresses arrangements for emergencies or potential emergencies.

1.6.3 Santos environment, health and safety policy

The Activity will be conducted in accordance with the Santos Environment, Health and Safety Policy (Appendix A).

Sections 3, 4, 6, 7 and 8 reflect this policy, detailing and evaluating environmental impacts and risks and providing control measures with set environmental performance outcomes (EPOs) and standards (EPSs).

1.7 Requirements of the Activity

OPGGS(E)R 2023 Requirements
Section 21. Environmental Assessment
Requirements 21(4) The environment plan must: (a) describe the requirements, including legislative requirements, that apply to the activity and are relevant to the environmental management of the activity; and (b) demonstrate how those requirements will be met.

Relevant requirements, including legislative requirements applicable to the Activity are presented in Appendix B. with reference to relevant Coastal Waters OEMP sections where the legislation may prescribe or control how an activity is undertaken. Australia is a signatory to international conventions and agreements that oblige the Commonwealth government to prevent pollution and protect specified habitats, flora and fauna. Relevant government departments have been consulted during the development of this GEP Coastal Waters OEMP to identify applicable legislation, conventions and agreements, as detailed in Section 4.

2. Activity description

OPGGS(E)R 2023 Requirements
Section 21. Environmental assessment
Description of the activity (1) The environment plan must contain a comprehensive description of the activity including the following: a. the location or locations of the activity; b. general details of the construction and layout of any facility that is used in undertaking the activity; c. an outline of the operational details of the activity (e.g. seismic surveys, exploration drilling or production) and proposed timetables for undertaking the activity; and d. any additional information relevant to consideration of environmental impacts and risks of the activity. *Note: An environment plan will not be capable of being accepted by NOPSEMA if an activity or part of the activity, other than arrangements for environmental monitoring or for responding to an emergency, will be undertaken in any part of a declared World Heritage property (see section 34 of the OPGGS(E)R 2023 Requirements).*

2.1 Activity summary

The Activity is the transport of dry gas through the Barossa GEP and the associated support activities, of inspection, maintenance, monitoring and repair (IMMR) of the infrastructure in NTC/PL5 and environmental monitoring activities in the circumstances referred to in Section 2.5.5. Table 2-1 shows the key attributes of the activities covered by this GEP Coastal Waters OEMP. A detailed activity description is provided in Sections 2.4 to 2.7.

The Activity will be undertaken within the NT Coastal Waters operational area (OA), approximately 80 km north-west of Darwin, NT. The OA and pipeline route within the OA, are approximately 31.5 km and 32 km south of the Tiwi Islands (Cape Fourcroy), NT respectively, at their closest points, and approximately 67.5 km south-east of the Oceanic Shoals Marine Park (Figure 1-1).

The locations for activities along the Barossa GEP are described using ‘kilometre points’ (KP), where KP 0 is the beginning of the pipeline from the southern pipeline end termination (PLET C) in Commonwealth waters (Figure 2-1). The Barossa GEP traverses through NT Coastal and Internal waters where it ends at KP 122.687 at the upstream weld of the beach valve at the Darwin liquefied natural gas (DLNG) facility. The scope of this GEP Coastal Waters OEMP covers the operation of 8.26 km of the Barossa GEP between the NT/Commonwealth boundary at KP 23 and the Territorial Sea Baseline (TSB) at KP 31.265 (Figure 2-1).

Table 2-1: Summary of Coastal Waters OEMP activities and corresponding EP reference

Permit areas	Coastal and territorial waters licence NTC/PL5
Hydrocarbon type	The pipeline will contain dry natural gas. Vessels undertaking activities associated with this GEP Coastal Waters OEMP will use Group II hydrocarbon fuels such as Marine gas oil (MGO) or marine diesel oil (MDO).
Location	The pipeline within the scope of this GEP Coastal Waters OEMP is limited to activities within Northern Territory (NT) Coastal Waters from KP 23 (NT/Commonwealth boundary) to KP 31.265 (the Territorial Sea Baseline) (Figure 2-1).
Summary of key activities	Activities within the Operational Area include: • Initial start-up to steady-state and GEP pressurisation (Section 2.4) • Transporting dry natural gas from the Barossa field to DLNG • Pipeline inspection, maintenance, monitoring and repair (IMMR) • Environmental monitoring/sampling (e.g. sediment and marine growth), if required • Vessel and helicopter support operations.
Subsea infrastructure	Barossa GEP consisting of 26-inch outer diameter carbon steel with an external anti-corrosion coating and sacrificial anodes to maintain pipeline integrity and concrete coating to provide stability and protection (Section 2.3). GEP supporting structures consisting of span rectification structures (includes gravel/rocks, concrete mattresses and/or grout bags).
Water depths	Water depths range from 47 m at the TSB to 50 m at the NT/Commonwealth boundary.
Vessels	Typically, a single vessel is used to conduct IMMR and environmental monitoring activities. The size and type of vessel depends on the activities being carried out. If a repair to the pipeline is required then additional vessels may be required (Section 2.5).

Duration	Activities may be undertaken any time of year within the GEP Coastal Waters OEMP period. The operational design life of the Barossa GEP is 25 years.

2.2 Operational Area and timing of Activity

The Barossa GEP petroleum activities in NT Coastal Waters will occur within the Operational Area (OA) shown in Figure 2-1. The OA extends from the NT/Commonwealth boundary at KP 23 to the TSB at KP 31.265 (Figure 2-1), with a one km wide corridor, 500 m either side of the Barossa GEP centreline. The corridor represents the area within which the Activity as described in section 2.1 will occur.

This Coastal Waters OEMP assumes the IMMR and environmental monitoring activities in the OA may be undertaken at any time of year within the GEP Coastal Waters OEMP validity period.

The GEP infrastructure exporting gas to the DLNG facility will operate for approximately 25 years following commencement of production operations.

Planned timing of vessel activities are summarised in Table 2-2.

Table 2-2: Planned Timing of OEMP Activities

Vessel Type and #	Indicative Activities	Indicative Timing and Duration (concurrent timing shown unless specified otherwise)
Initial start-up to steady state ~4 months		
N/A	Start-up and pressurisation of GEP	~ 4 months
IMMR Vessel (1)	GEP IMMR activities	During start-up to steady state ~ 7 days within the OA
Steady Sate Operations ~25 years		
N/A	Transmission of dry gas from the FPSO to DLNG	Commencement upon completion of start-up activities and continuous thereafter for ~25 years
IMMR Vessel (1 per campaign)	• GEP inspection, maintenance and monitoring activities • USV activities • ROV operations • Environmental monitoring using routine sampling techniques and equipment	Approximately every three years after completion of start-up activities at the following indicative frequencies: • GEP inspections / maintenance / monitoring – every three to five years for up to 7 days • Environmental monitoring as required during operations, up to half a day in the OA. Required for the validity period of this GEP Coastal Waters OEMP to support campaigns as required.
IMMR Repair Vessel (1)	GEP repair activities (if required)	GEP repairs – up to 30 days Required for the validity period of this GEP Coastal Waters OEMP on an as required basis.
IMMR Repair Support Vessel (1)	• Supporting GEP repair activities (if required) • Undertake support activities via ROV (if required) • Transport of equipment to the IMMR repair vessel	GEP repairs – up to 30 days Required for the validity period of this GEP Coastal Waters OEMP on an as required basis.

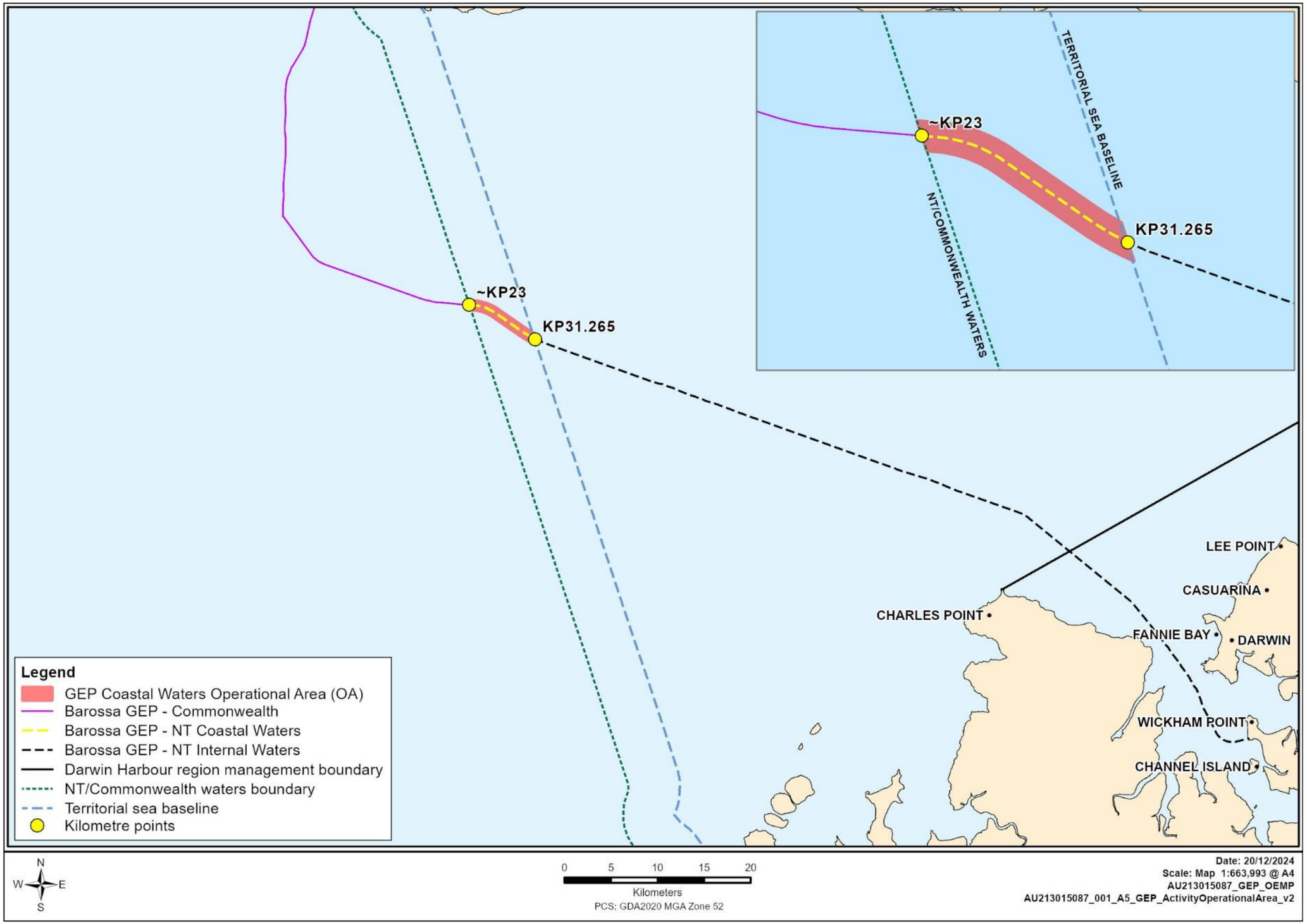

Figure 2-1: Activity Operational Area of the GEP in NT Coastal Waters

2.3 Operation of the Gas Export Pipeline

This Coastal Waters OEMP includes activities associated with operation of the GEP within the OA for transfer of dry natural gas from the Barossa field to DLNG.

2.3.1 Pipeline design

Structural design parameters of the GEP are given in Table 2-3. Nominal coordinates of KPs shown in Figure 2-1 are provided in Table 2-4 for NT waters. The GEP is designed to be stable on the seabed up to 100-year cyclonic metocean conditions.

Table 2-3: Key Barossa Gas Export Pipeline structural design parameters in NT Coastal Waters

Item	Description
Material	Carbon manganese steel linepipe Asphalt enamel anti-corrosion coating Concrete weight coating Heat shrink sleeve field joint coating Epoxy internal flowcoat coating
Pipe size	NT Coastal Waters: 26 inches
Internal diameter (mm)	619.8
Design temperature	0°C minimum and 50°C maximum
Design pressure	199 bara at 0 m LAT

Table 2-4: Barossa Gas Export Pipeline key locations in NT waters

Location	Kilometre point (KP)	Easting*	Northing*
Boundary between NT and Commonwealth waters	~KP 23	618,128.5	8,663,104.1
Territorial Sea Baseline	KP 31.265	625,835.8	8,657,503.1
26x34 inch reducer (out of scope of this GEP Coastal Waters OEMP)	KP 61.8	654,554.3	8,647,162.5
In-line tee (out of scope of this GEP Coastal Waters OEMP)	KP 62.8	655,495.8	8,646,825.4
Upstream weld of the beach valve (out of scope of this GEP Coastal Waters OEMP)	KP 122.687	702,472.3	8,614,655.7

**Coordinates in GDA 94, MGA zone 52*

2.4 Commissioning to steady-state

2.4.1 Initial start-up

Following completion of cold-commissioning of the FPSO (out of scope of this GEP Coastal Waters OEMP and is to be authorised by NOPSEMA in the Barossa Production Operations Environment Plan) there will be an initial start-up period. This is planned with the objective to establish stable production in a safe and efficient manner whilst minimising FPSO flaring to as low as reasonably practicable (ALARP). The initial start-up of the FPSO (out of scope of this GEP Coastal Waters OEMP) will take into account the requirements of the DLNG facility for commissioning prior to production ramp-up. Major steps undertaken during the initial start-up phase relevant to this GEP Coastal Waters OEMP (i.e. distribution of dry natural gas in the GEP) are as below:

- Gas treatment is established via a single train with dewpointing and carbon dioxide (CO_2) removal online. Once on-spec gas is available, initial pressurisation of the Barossa GEP can commence.
- Establishment of export gas compression

- Once DLNG has completed its commissioning (expected to take two to four weeks), the Barossa field will be ramped up to full production rates and the GEP pressurised to normal operating pressure
- Once the FPSO is in steady state, FPSO performance testing will commence (which is out of scope of this GEP Coastal Waters OEMP). On completion of the final FPSO performance test, the start-up phase is complete.

2.4.2 Initial start-up overview

Key requirements through the initial start-up phase are summarised below:

- The GEP will initially contain Nitrogen with residual MEG.
- Initial start-up of the GEP will commence after the Offshore facilities have been commissioned and started up to the point where Offshore can supply on-specification export gas for the export system pressurisation.
- The GEP will be initially pressurised (from the FPSO) to enable DLNG commissioning.
- The GEP will be initially ramped up to 50% of the normal operation rates.
- GEP ramp-up to full capacity will begin after the completion of the FPSO Blowdown Testing.
- The GEP pressure will be maintained at the point of near equal pack/de-pack during the periods it is operated at 50% or full capacity to allow sufficient Operator response time in the event of a trip.
- The initial start-up phase will be complete after the conclusion of the final FPSO Performance Test. Subsequently, the gas export system will be operated under normal operation controls.

2.4.3 Contingencies

While in communication with each other, should either the FPSO or DLNG be delayed or required to stop, the GEP can be isolated and/or maintained in standby at constant pressure and composition.

2.5 Inspection, Maintenance, Monitoring and Repair Activities

IMMR is typically conducted by ROVs or AUVs from one or more vessels that have DP capabilities. An ROV may also be launched from a USV. Divers may be used for operations on the rare occasion ROVs or AUVs cannot be used. Details of IMMR activities, including typical equipment required and potential environmental aspects, are described below and summarised in Table 2-7.

IMMR typically includes:

- general visual inspection (GVI) and close visual inspection (CVI) of the Barossa GEP
- cathodic protection (CP) surveys, including readings and GVI to determine condition of anodes
- geophysical and infrastructure surveys in the vicinity of the GEP within the OA, including:
  - multibeam echo sounder (MBES), which uses sound pulses to establish the seabed profile, position or shape of subsea infrastructure. Most MBES systems work by transmitting a broad acoustic pulse from a hull-, pole- or ROV-mounted transducer.
  - side scan sonar (SSS), which detects debris and other obstructions on the seafloor using a towed transducer that transmits high-frequency acoustic pulses.

Maintenance/repair activities may include non-routine replacement, or repair of a section of the Barossa GEP in the OA. Discharges associated with non-routine pipeline repair or replacement are summarised in Table 2-5.In-line inspection (ILI) via pigging for the GEP is not a planned activity but may be undertaken in the case where it is suspected that pipeline integrity has been compromised due to a pipeline feed gas dew point excursion (see Section 2.5.3). Similarly, it is not planned for an inline inspection tool to become stuck or damaged in the pipeline but it is a possibility that may need to be resolved (see Section 2.5.4).

If 100-year cyclonic conditions are exceeded, as part of the GEP integrity management plan, a post-cyclone survey would be triggered to identify any unacceptable movement, lateral displacement, of loss of support/scour.

Marine survey vessels, campaign or other support vessels may be used for activities as outlined in Section 2.5.

It is through implementing the IMMR regime set out in this section that Santos will meet its obligations under section 98(2) of the *Petroleum (Submerged Lands) Act 1981* (NT) to ‘maintain in good condition and repair all structures, equipment and other property in an operations area and used in connection with the operations in which he is engaged’.

2.5.1 Inspection methods

2.5.1.1 Visual inspection

External visual inspections of the Barossa GEP may be undertaken, typically using an ROV. General visual inspections can be used to confirm the results of other inspection methods, and aid in the planning of maintenance and repair activities.

Close visual inspections of the Barossa GEP system may be undertaken by divers where ROVs or AUVs cannot be used. However, due to the relative complexity (based on health and safety risk) and cost of implementing diving operations in comparison with alternative methods (e.g., ROV), other inspection methods are preferred.

2.5.1.2 Cathodic Protection Survey

Cathodic Protection (CP) survey may be performed on the external surface of the GEP using the following methods (or combination of it):

- Contact CP survey, which includes a ROV holding a CP probe and then connected to the exposed pipe steel substrate (e.g. on the field joint / girth weld area, where there is no concrete weight coating) or the probe connected to the exposed anode substrate.
- Field gradient CP survey (contactless survey), which includes a ROV holding a CP probe around 0.2 - 0.5 m above the pipeline, to measure the potential field gradient along the pipeline length without contacting the pipeline.

2.5.1.3 Marine growth removal

Removal of marine growth is typically only required for inspection purposes and is conducted at localised areas using high pressure water cleaning or brushing or a combination of these:

- Water jetting – conducted by ROV, water is pressurised to above hydrostatic pressure. Generally, water-jetting activities are through small-diameter water jets that act locally on the pipe and structure. Wash-out or induced currents are typically not experienced during this activity due to the nature of the operation.
- Mechanical brushing – typically a coarse brush is applied to the pipeline or structure on a localised area only.

2.5.1.4 Inspection and monitoring intervals

Initial ‘first in-service’ inspections will be performed nominally during the first one to two years of operations and, after that, at the intervals required on the basis of a risk based inspection program. The objective of the first in-service inspections shall be to provide operational performance information.

Inspection of the Barossa GEP at any phase of its life will be conducted in accordance with a risk-based inspection (RBI) schedule, as described in the Barossa Project Pipeline Integrity Management Plan (PIMP) - Nearshore GEP.

To determine IMMR frequency, the risk assessment typically uses:

- a threat assessment to determine threats to integrity in operation
- historical IMMR information acquired through inspection, monitoring and repair of similar assets
- nominal inspection frequencies set within the IMMR Plan.

Inspection and monitoring frequencies can range from three to five years, or as needed. The findings of the IMMR campaigns will be used to inform the future frequencies of the IMMR activities. When an IMMR activity occurs, the expected duration may be seven to 30 days depending on whether maintenance and repairs are required. Additional unplanned external or internal inspections may be performed after significant external events (such as extreme weather, sea conditions, seismic activity, third-party interactions), integrity assessments or other triggers that indicate further inspection is required.

2.5.2 Maintenance and Repairs

Anomalies identified during planned inspections and condition monitoring are reviewed, risk assessed, and managed. The risk is mitigated by actions such as repair, re-rating, upgrade, or monitoring, as appropriate.

Urgent repairs (e.g., in the event of damage requiring precautionary shutdown) are addressed in the Emergency Repair Strategy – Subsea Pipelines. The strategy outlines various repair options available in the event of a Barossa GEP leak, rupture, or severe mechanical damage, including information on aspects such as material, equipment, and potential support requirements, and repair contractors and timescales (including mobilisation)

associated with various repair options. An Emergency Pipeline Repair Reference Manual – Subsea Pipelines will be used to inform required repair work.

The Barossa Project PIMP identifies that non-urgent repairs can be made at opportune times (e.g., during facility shutdowns). Non-urgent repairs are subject to the Operational Risk Management Procedure. If a change to the Activity to that described in this GEP Coastal Waters OEMP is required as an outcome of the risk assessment, then the Santos Management of Change (MOC) Procedure will be applied.

Maintenance and repair of the pipeline in Coastal Waters may consist of the following activities:

- Excavation of the sediment around the Barossa GEP to establish the extent of any damage, and to provide appropriate access for repairs to be carried out. Typically, a jetting tool or air-lifting tool operated by a ROV or divers would be used to remove sand and rocks from around the Barossa GEP and to excavate beneath the pipeline, as required;
- Removal of concrete weight coating (CWC) and corrosion coating by ROV, divers, or specially designed CWC removal tools, using high pressure water jets or hydraulic saws;
- Free span correction using water jetting, or placement of gravel/rocks, concrete mattresses or grout bags using a ROV from a support vessel;
- In the event of a minor repair (where positive pressure has been maintained within the Barossa GEP and there has not been an ingress of seawater), a clamp repair (diver or diverless clamp) may be implemented. If a minor repair is required, the seabed around the Barossa GEP may need to be excavated to enable access for the clamp. Alternatively, the pipeline may be lifted, and grout-bags placed underneath. The pipeline may also be brought to the surface for the clamp repair.
- In the unlikely event of a major loss of containment where the contents of the line have been released and seawater ingress has occurred, removal of seawater and debris, such as marine growth and sand, that may exacerbate Barossa GEP corrosion is required. This would likely involve pushing the ingress seawater out of the Barossa GEP at the location of the breach, by pig trains being sent from both the DLNG and offshore ends of the pipeline at the FPSO to meet near the breach and force the pipeline contents and debris out of the pipeline. Pig launching and receiving is out of scope of this OEMP. The pig train would be pushed by either an inert gas (e.g., nitrogen), UV treated seawater, or chemically treated seawater (dosed with biocide, corrosion inhibitor and an oxygen scavenger); and
- In the case where a major pipeline repair is required, or an in-line inspection tool is stuck, the damaged/impacted section will be removed using divers or ROV cutting tools, and a prefabricated pipe repair spool would be installed, typically connected to the pipeline by use of either diver or diverless connectors. Once the pipeline has been repaired a hydrotest will be performed, this will use treated seawater injected at DLNG towards the FPSO, with the hydrotest water being discharged at the FPSO (which is out of scope of this OEMP) when the GEP is depressurised. The GEP is then dewatered and reconditioned ready for the reintroduction of hydrocarbons. Dewatering is performed using a series of pigs separated by inhibited MEG and pushed with dry nitrogen, the pigs would be pushed from DLNG with the treated seawater and MEG being discharged at the FPSO (which is out of scope of this OEMP and is addressed in the Barossa Production Operations Environment Plan). The pipeline will then be filled with nitrogen in preparation for recommissioning. Treated seawater (the same treatment would apply to MEG) is seawater conditioned with a hydrotest mixture such as Hydrosure, Roemex Hydro 3 or similar product that is ranked as Gold through the Offshore Chemical Notification Scheme (OCNS) or has a pseudo-ranking of Gold based on aquatic toxicity, biodegradation and bioaccumulation data. Treated seawater is typically a mixture of biocides (to prevent biofouling on the internal surfaces), an oxygen scavenger and corrosion inhibitor (to control corrosion of the pipeline) and sometimes a dye (allows for leaks to be detected through visual inspections).

2.5.3 In-line inspection contingency

In-line inspection (ILI) via pigging for the GEP is not a planned activity but may be undertaken in the case where it is suspected that the pipeline integrity has been compromised due to a pipeline feed gas dew point excursion or other unplanned event.

Internal inspection of the GEP is performed using an ILI tool (tool) equipped with Magnetic Flux Leakage (MFL) measurement technology (or other alternative technology) capable of measuring the GEP wall thickness and detecting significant anomalies. This tool is used to inspect the GEP by pushing the tool between the riser base assembly at the Barossa Field to DLNG. Deployment and retrieval of the tool is out of scope of this GEP Coastal Waters OEMP; however the tool will traverse through the NT Coastal Waters section of the GEP. Bi-directional cleaning/gauging tools are used as part of the ILI campaign prior to sending the ILI tool, to check for internal restrictions within the pipeline and to clean the pipeline.

The tool will be deployed via a temporary subsea pig launcher, which will be temporarily installed and connected to the riser base.

It is expected that up to 5 m^3 of treated seawater or treated MEG would be used per run. The tool and any treated seawater / MEG will be received at DLNG (which is out of scope of this GEP Coastal Waters OEMP). The connection and disconnection of the tool launcher may result in the release of up to nominally 125 m^3 of MEG at the riser base assembly at the Barossa Field (which is out of scope of this GEP Coastal Waters OEMP and is addressed in the Barossa Production Operations Environment Plan).

2.5.4 Stuck in-line inspection tool contingency

If an in-line inspection tool gets stuck or damaged in the GEP during the ILI campaign, it will be:

a) forced out using a high seal pig or a train of high seal pigs (which may be separated by treated seawater or MEG), resulting in a discharge at the DLNG; or

b) pushed back to the subsea receiver at the riser base (reverse flow), which may result in an unplanned event of flaring gas at Barossa FPSO; or

c) removed by sectional removal/ replacement of the GEP (Section 2.5.2).

Discharges associated with the DLNG and Barossa FPSO are out of scope of this GEP Coastal Waters OEMP.

Table 2-5: Summary of inspection, monitoring, maintenance and repair activities and equipment, and associated discharges

Activity	Equipment	Associated Discharges
Barossa GEP inspection and cleaning typically includes: • Inspection of subsea infrastructure • Post-cyclone survey (if required) • Marine growth removed during cleaning (refer Section 2.5.1.3) • Non-contact and contact CP checks, including field gradient survey technology and laser scanning • Non-destructive testing • Water jetting	• Vessel(s) • ROV and tooling • AUV • Remotely operated USV (typically with ROV) • Mechanical brushing • Ultra-high-definition phototropic equipment • SSS • MBES imaging sonar • Water jetting equipment	Discharges released to the marine environment includes: • In-situ marine growth (<5 m^3 per campaign) removed from pipeline No gas or liquid discharges
Stabilisation of subsea infrastructure with use of remediations typically includes: • Placement of gravel/rocks, grout bags and/or concrete mattresses on specific areas of the subsea infrastructure showing scour or movement; • Localised seabed excavation around structures	• Vessel(s) • Gravel/rocks and grout bags, mattress • ROV and tooling • Water jetting equipment	No gas or liquid discharges Seabed disturbance / sand movement with no associated discharges.

Activity	Equipment	Associated Discharges
Barossa GEP repair and replacement (contingency activity) typically includes: • Repair or replacement of a section of the Barossa GEP • Placement of infrastructure on the seabed. • ROV and tooling – concrete removal, coating removal, weld seam removal, marine growth removal, end preparation, water jetting, mechanical brushing, non contact and contact CP checks, non-destructive testing • ROV survey either side and nearby seabed • Cutting of the damaged infrastructure using ROV operated tooling • Installation and connection of ROV operated pipe clamps or joins • Installation of the new spool piece • Stabilisation and span rectifications, such as sediment relocation, gravel and grout bags and concrete mattresses use, if required • Diver assistance. • For large repairs, a pipelay vessel may be required.	• Vessel(s) • ROV and tooling • Pipe lift frames and installation aids • SSS • MBES imaging sonar • Remotely operated USV (typically with ROV) • Chemical use (e.g., Non-toxic dye, residual hydrocarbon production fluids)	Discharges to the marine environment include: • In-situ marine growth (<5 m^3 per campaign), concrete coating, anti-corrosion coating, metal swarf/fillings removed from pipeline • Gas and liquid discharges may include: – Minor release of hydrocarbon / residual hydrocarbon (<1 L per campaign) – Inert gas (<1 L per campaign) – Non-toxic dye (<5 L per operation)
Installation of temporary or permanent subsea instruments and retrieval of data from subsea monitoring instrumentation typically includes: • ROV installation of temporary or permanent instruments to measure e.g., pipe displacement and strain, or vibration. • ROV deployed to interrogate and retrieve data from instruments • ROV deployed to retrieve subsea instruments, recover data and re-deploy • ROV deployed for seabed sampling • Marine growth removal (water jetting or brushing) • Mechanical brushing • Pigging (contingency)	• Vessel(s) • ROV and tooling • Pig train (contingency)	Discharges to the marine environment includes: In-situ marine growth (<5 m^3 per campaign) removed from pipeline • Removal of untreated seawater and debris (marine growth and sand) in the event of seawater ingress removed by pig train (volumes unknown) No gas discharges.

2.5.5 Environmental monitoring activities

Environmental monitoring activities, such as sampling of seabed material (i.e. sediment) or investigation/sampling of biological material (i.e., marine growth) for environmental studies may be undertaken to increase Santos' understanding of the environmental impacts and risks as part of planning activities for decommissioning. Sediment sampling may be undertaken along the Barossa GEP to characterise sediment and understand baseline conditions after a loss of containment. Analytes could include total organic carbon, particle sizes, major cations, trace metals, and types of bacteria. This activity will be performed using routine sampling techniques and equipment from a vessel, such as using a dual van Veen grab sampler shown in Figure 2-2 below.

Figure 2-2: Dual van Veen grab sampler

2.6 Vessel and helicopter operations

A range of vessels required to carry out IMMR activities and environmental monitoring activities could be present and operate within the Operational Area under this GEP Coastal Waters OEMP. Vessels are selected and on-boarded in accordance with procedures to ensure contracted vessels are operated, maintained and crewed in accordance with industry standards (for example, Marine Orders) and regulatory requirements (this GEP Coastal Waters OEMP). All required audits and inspections will assess compliance with the laws of the international shipping industry, which include safety and environmental management requirements, and maritime legislation including International Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1987 (MARPOL) and other International Maritime Organisation (IMO) standards.

The vessels will display navigational lighting and external lighting, as required for safe operations. Lighting levels will be determined primarily by operational safety and navigational requirements under relevant legislation, specifically the *Navigation Act 2012* and relevant Marine Orders. The vessels will be lit to maintain operational safety on a 24-hour basis.

2.6.1 Vessel types

Vessel based IMMR activities are preferentially undertaken from May to November, outside of cyclone season, to minimise or avoid operational disruptions. However, depending on maintenance requirements, maintenance activities could occur at any time during the year. Smaller vessels will be used for inspections and larger vessels for undertaking pipeline repairs (if required).

Vessels used for inspection activities are expected to range between 30 m and 130 m in length. The vessel type and specifications will depend on availability and specific activity requirements. These vessels typically use a dynamic positioning (DP) system to allow manoeuvrability and to avoid anchoring in proximity to the Barossa GEP. The vessels may be sourced locally or from an international location. Pipeline inspections and freespan rectification activities would typically be undertaken using vessels such as the Bhagwan Dryden (57m long and 40 berths) (Figure 2-3). Environmental monitoring activities would typically be undertaken using smaller vessels.

Figure 2-3: Bhagwan Dryden, as an example of a typical IMMR vessel

Anticipated, typical IMMR vessel parameters are provided in Table 2-6.

Table 2-6: Typical IMMR vessel parameters

Parameter	Description
Draft (typical)	3.25 m
Gross tonnage	1,475 GT
Hull	Twin keel catamaran steel hull
Fuel type	Marine diesel
Total fuel volume (approximately)	130 m^3
Volume of largest fuel tank (approximately)	31 m^3
Persons on board	40

The Sapura Constructor is an example of a typical vessel that may be used for undertaking pipeline repair, which is a 117 m Class DNV vessel (Figure 2-4). The Sapura Constructor has berths for up to 120 persons and 15 divers onboard. It would be supported by up to two vessels of the same or lesser class – including a supply/support vessel and/or a hyperbaric rescue vessel. Refer to Table 2-7 for typical IMMR repair vessel parameters.

Bunkering of the repair vessels may take place either at sea or in port. Vessels will use marine diesel oil (MDO) or marine gas oil (MGO).

Figure 2-4: Sapura Constructor, as an example of a IMMR repair vessel for pipeline repairs

Anticipated, typical IMMR repair vessel parameters are provided in Table 2-7**.**

Table 2-7: Typical IMMR repair vessel parameters

Parameter	Description
Draft (typical)	7.15 m (typical)
Gross tonnage	6,200 t
Hull	Steel hull

Parameter	Description
Fuel type	Marine diesel
Total fuel volume (@ 90% capacity)	1,006 m^3
Volume of largest fuel tank	185 m^3
Persons on board	120 and 15 divers

2.6.2 Uncrewed surface vessels

Remotely operated uncrewed surface vessels (USV) may be used for launching electrical ROVs for undertaking inspections. The USV would be operated by a Vessel Master from a remote operations centre and a support vessel would be available in Darwin should any assistance be required. Figure 2-5 shows a representative large USV, Reach Remote 1 (23.9 m long, 8 m wide). They are typically fitted with radars, an emergency anchor, loud speaker, night vision, 360° camera and VHF radio. Refer to Table 2-8 for typical large USV parameters.

Figure 2-5: Reach Remote, an example of a representative USV

Table 2-8: Typical large USV parameters

Parameter	Description
Draft (typical)	5.5 m
Gross tonnage	230 t
Volume of largest fuel tank	74 m^3

2.6.3 Helicopter Support

Helicopters for crew changes usually operate from Darwin. Depending on the specific scope and operational needs, crew changes may occur during the IMMR scopes outlined in Section 2.5. If a crew change were needed, it is assumed it would be a weekly occurrence and may or may not occur in the OA for this GEP Coastal Waters OEMP.

2.6.4 Remotely operated vehicle and autonomous underwater vehicle operations

Remotely operated vehicles (ROVs) or autonomous underwater vehicles (AUVs) may be used to support IMMR and environmental monitoring activities in the OA. ROVs or AUVs can be fitted with various tools and camera systems that can be used to capture permanent records of the operations and immediate surrounding environment. The size of the vessel required to deploy an ROV or AUV, depends on the size of the ROV or AUV and the

associated launch and recovery system. The ROV or AUV is typically deployed from a vessel using a crane or an A-frame and is recovered using a winch or net. In some instances, the ROV may be placed on the seabed.

2.7 Chemical Selection and Use

Chemicals may be discharged by vessels during IMMR activities as described in Table 2-5. A risk-based approach to selecting chemical products ranked under the Offshore Chemical Notification Scheme (OCNS) is applied for those chemicals used and discharged to the marine environment. This scheme lists and ranks all chemicals used in exploring, exploiting and associated offshore processing of petroleum on the United Kingdom Continental Shelf.

Chemicals are ranked according to their calculated hazard quotients (HQ) by the chemical hazard assessment and risk management (CHARM) mathematical model (CHARM Implementation Network, 2005). The HQ is converted to a colour banding—gold and silver colour bands represent the least environmentally hazardous chemicals (Table 2-9).

Table 2-9: OCNS Chemical hazard and risk management hazard quotient and ranking

Minimum HQ value	Maximum HQ value	Colour banding	Hazard
>0	<1	Gold	Lowest
≥1	<30	Silver	
≥30	<100	White	
≥100	<300	Blue	
≥300	<1,000	Orange	
≥1,000		Purple	Highest

Chemicals not amenable to the CHARM model (i.e. inorganic substances, hydraulic fluids or chemicals used only in pipelines) are assigned an OCNS grouping based on the worst-case ecotoxicity data, with Group E and D representing the least hazard potential (Table 2-10).

Table 2-10: Initial Offshore Chemical Notification Scheme grouping

Initial grouping	A	B	C	D	E
Result for aquatic-toxicity data (ppm)	<1	≥1 to 10	>10 to 100	>100 to 1000	>1,000
Result for sediment-toxicity data (ppm)	<10	≥10 to 100	>100 to 1000	>1000 to 10,000	>10,000

Note: Aquatic toxicity refers to the Skeletonema costatum EC_{50}, Acartia tonsa LC_{50}, and Scophthalmus maximus (juvenile turbot) LC_{50} toxicity tests. Sediment toxicity refers to the Corophium volutator LC_{50} test.
Source: CEFAS Standard Procedure 2022, OCNS 011 NL Protocol Part 1: Core Elements.

Subsea chemicals accepted are CHARM-ranked Gold/Silver, or non-CHARM-ranked E/D chemicals for use and discharge without a detailed environmental risk assessment. The same applies to chemicals that are on the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) Pose Little or No Risk to the Environment (PLONOR) List. The PLONOR List, agreed upon by the OSPAR Convention, contains a list of substances that will pose little or no risk to the environment in offshore waters. If chemicals do not have a CHARM/non-CHARM ranking under the OCNS, chemicals are assigned a pseudo-ranking based on the available aquatic toxicity, biodegradation and bioaccumulation data (see Sections 2.7.1 to 2.7.3). A risk assessment, informed by the pseudo-ranking, is conducted for non-OCNS listed chemicals to provide technical justification for their use and to show their use and assessment for environmental acceptability for discharge to the marine environment.

2.7.1 Ecotoxicity assessment

Table 2-10 and Table 2-11 provide guidance in assessing the ecotoxicity of chemicals during the investigation of potential alternatives. Table 2-10 is used by the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) to group a chemical based on ecotoxicity results, ‘A’ representing the highest toxicity and risk to environment and ‘E’ the lowest. Table 2-11 shows classifications and categories of toxicity against aquatic toxicity results.

Table 2-11: Aquatic species toxicity grouping

Category	Species	LC_{50} and EC_{50} criteria
Category Acute 1 Hazard statement – Very toxic to aquatic life	Fish	LC_{50} (96-hr) ≤ 1 mg/L
	Crustacea	ELC_{50} (96-hr) ≤ 1 mg/L
	Algae, other aquatic plant species	ErC_{50} (72 or 96-hr) ≤ 1 mg/L
Category Acute 2 – Hazard statement – Toxic to aquatic life	Fish	LC_{50} (96-hr) >1 mg/L but ≤ 10 mg/L
	Crustacea	EC_{50} (48-hr) >1 mg/L but ≤10 mg/L
	Algae, other aquatic plant species	ErC_{50} (72 or 96-hr) >1 mg/L but ≤ 10 mg/L
Category Acute 3 – Hazard statement – Harmful to aquatic life	Fish	LC_{50} (96-hr) >10 mg/L but ≤ 100 mg/L
	Crustacea	EC_{50} (48-hr) >10 mg/L but ≤ 100 mg/L
	Algae, other aquatic plant species	ErC_{50} (72 or 96-hr) >10 mg/L but ≤ 100 mg/L

Source: United Nations (2023) Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

2.7.2 Biodegradation assessment

The biodegradation of chemicals is assessed using the CEFAS biodegradation criteria, which aligns with the categorisation outlined in the United Nations Globally harmonised system of classification and labelling of chemicals, Annex 9 Guidance on Hazards to the Aquatic Environment (UN, 2023). The categorisation is used as a guide when investigating potential chemical alternatives. The preference is to select readily biodegradable chemicals.

CEFAS categorises biodegradation into the groups of:

- readily biodegradable: results of >60% biodegradation in 28 days (OECD 306, 301B -F method), >70% in 28 days (OECD 301A, 301E) to an OSPAR harmonised offshore chemical notification format (HOCNF)-accepted ready biodegradation protocol
- Inherently biodegradable: results of >20% and <60% (<70%) to an OSPAR HOCNF-accepted ready biodegradation protocol
- poorly biodegradable: results from OSPAR HOCNF-accepted ready biodegradation protocol or inherent biodegradation protocol are <20%, or half-life derived from aquatic simulation tests indicate persistence.

2.7.3 Bioaccumulation assessment

The bioaccumulation of chemicals is assessed using the CEFAS bioaccumulation criteria, which aligns with the categorisation outlined in the United Nations Globally harmonised system of classification and labelling of chemicals, Annex 9 Guidance on Hazards to the Aquatic Environment (UN, 2023). The preference is to select chemicals that are not bioaccumulative.

The guides used by CEFAS are:

- non-bioaccumulative: Log Pow <3, or BCF ≤100, the molecular weight is ≥700
- bioaccumulative: Log Pow ≥3, or BCF >100, the molecular weight is <700, or if the conclusion of a weight-of-evidence expert judgement under OSPAR Agreement 2008-5 is negative.

3. Description of the environment

OPGGS(E)R 2023 Requirements
Section 21. Environmental assessment
Description of the environment (2) The environment plan must: a. describe the existing environment that may be affected by the activity; and b. include details of the relevant values and sensitivities (if any) of that environment. *Note: definition of **environment** in section 5 includes its social, economic and cultural features.* (3) Without limiting paragraph (2)(b), relevant values and sensitivities may include any of the following: a. the world heritage values of a declared World Heritage property; b. the National Heritage values of a National Heritage place; c. the ecological character of a declared Ramsar wetland; d. the presence of a listed threatened species or listed threatened ecological community; e. the presence of a listed migratory species; f. any values and sensitivities that exist in, or in relation to, part or all of: i. a Commonwealth marine area; or ii. Commonwealth land.

This section describes the key physical, biological, socioeconomic and cultural features (values and sensitivities) of the existing environment that may be affected by the Activity. The description of the environment applies to the OA, and any areas surrounding the OA that may be affected by the Activity. In this GEP Coastal Waters OEMP the area that may be affected by the impacts and risks of the Activity is described as the environment that may be affected (EMBA), or in the case of a hydrocarbon spill, low exposure value area (LEVA) (which also defines the modelled EMBA) and moderate exposure value area (MEVA). The low and moderate exposure values are listed in Table 3-3 and shown in Figure 3-1.

This section also includes details of the values and sensitivities pertaining to the EMBA. Detailed descriptions of these values and sensitivities are provided in the sections below. The results were informed by the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) protected matters reports (all matters potentially relevant to section 21 (3)), stated values in the Marine Bioregional Plans for the North Marine Region (NMR) (CoA, 2012), EPBC Act protected matters reports (Appendix C) and information obtained through consultation and the Barossa environmental studies detailed in Table 3 1.

These values and sensitivities have been identified for the purposes of environmental assessment, identifying potential environmental consequences, and developing spill response plans. More information about the reasons why these exposure values have been included and how their application in defining areas relates to impact and risk assessment and spill response planning is provided in Sections 6 and 7

Environmental studies

Extensive environmental and socioeconomic studies have been undertaken to characterise the existing environment for the Barossa Gas Project. Table 3-1 summarises the Barossa marine studies program which involved the collection of detailed baseline data to capture seasonal variability in the region, as well as supplementary surveys and desktop modelling studies to contribute to the understanding of the baseline environment. Santos refers to this description as information previously given under section 56(1) of the OPGGS(E) Regulations. Further detail and copies of the earlier studies are provided in Section 5, Appendix C and Appendix D of the OPP (ConocoPhillips, 2018) as information previously given under section 56(1) of the OPGGS(E) Regulations.

Table 3-2 summarises additional environmental, socioeconomic and cultural features studies undertaken for the Barossa Gas Project to inform the understanding of the environment (including socioeconomic and cultural features) after the initial Barossa marine studies program, including those done specifically for the DPD Project to inform this GEP Coastal Waters OEMP.

Table 3-1: Summary of the Barossa marine studies

Study type	Description of study	Reference
Field-based studies		
Metocean data collection	Collection of metocean data on the surface and through the water column from July 2014 to March 2015, within and near the Barossa field, e.g., current, conductivity, wave and wind data.	Fugro, 2015
Underwater noise survey	Collection of baseline data on ambient underwater noise (physical, biological and anthropogenic sources) at 3 locations from July 2014 to July 2015 near the Barossa development and surrounding areas.	JASCO, 2016
Benthic habitat survey	Collection of baseline data to characterise topographic features, benthic habitats and macrofaunal communities near the Barossa field location and surrounding areas, including around Evans Shoal, Tassie Shoal and Lynedoch Bank by using a specialised ROV.	Jacobs, 2016

Table 3-2: Summary of Barossa additional studies

Study type	Description of study	Reference
Shoals and shelf survey 2015: benthic habitats and fish communities	A seabed biodiversity survey of 3 shoals to the west of the Barossa field (Evans Shoal, Tassie Shoal and Blackwood Shoal) and 2 mid-continental shelf regions relevant to the pipeline route corridor. The Australian Institute of Marine Science (AIMS) performed the survey in September/October 2015, which involved characterisation of the seabed habitats, associated biota and fish communities (shoals only).	Heyward et al., 2017
Oceanic Shoals Marine Park benthic habitat and fish diversity assessment	An AIMS seabed and fish biodiversity survey conducted in September and October 2017. The survey focused on 6 key sites inside and outside of the Oceanic Shoals Marine Park, including in the Habitat Protection Zone, and Shepparton Shoal. The objective was to use this new data to update the predictive habitat model and statistically compare the proportion and spatial diversity of habitats within and outside the Oceanic Shoals Marine Park.	Radford et al., 2019
Tiwi Islands sensitivity mapping study	Collection of data on environmental, social, cultural and economic sensitivities for the Tiwi Islands. A desktop review of available data (spatial datasets) was followed by workshops with Traditional Owners to identify cultural and environmental sensitivities along the coast of the Tiwi Islands.	Jacobs, 2019
Maritime heritage assessment	A maritime archaeological assessment along the DPD route to identify potential maritime archaeological sites which are defined as wrecks (ship or aircraft) and associated material, dumped material, maritime infrastructure, and associated deposits on or under the seabed below the highest astronomical tide.	Cosmos Archaeology, 2022
Barossa pipelay light modelling	Light modelling assessment of the proposed pipelay and construction vessels, including cumulative impacts to predict the potential light impacts to turtle nesting habitat on the Tiwi Islands and hatchling behaviours.	Pendoley, 2022
Barossa pipelay Darwin Harbour lighting technical note	Desktop assessment of presence and significance of marine turtle nesting activity on beaches surrounding Darwin Harbour and likely level of impact from activity vessel lighting to flatback turtles.	Pendoley, 2022a
Benthic survey for Barossa DPD route	Collection of baseline information on the benthic habitats, sediment composition (including contaminant concentrations), macroinvertebrate (infaunal) assemblages, and water quality along the DPD route.	RPS, 2023
Desktop study Tiwi turtle programs	This desktop report reviewed publicly available literature and research relating to marine turtle activity occurring on, and around, the Tiwi Islands. A total of 19 satellite telemetry studies between 1994-2023 tracked turtles passing through or foraging in waters near the Tiwi Islands.	Pendoley, 2023
Underwater Cultural Heritage (UCH) assessment of the route of the Barossa GEP route	An independent expert assessment by Dr Brendan Corrigan for the purpose of identifying UCH places along the route of the Barossa GEP west and northwest of the Tiwi Islands ('Corrigan Report'). The Corrigan report assessment included consideration of detailed expert reports on archaeology and sedimentology along the GEP route conducted by Wessex Archaeology and Dr Posamentier; and the EDO GEP reports.	Corrigan, 2023
Wessex Archaeology	Archaeological report focusing on the Late Pleistocene and Holocene depositional and erosional history of the Arafura Sea along the GEP corridor.	Wessex Archaeology, 2023

Study type	Description of study	Reference
First Nations spiritual and cultural values in relation to the Darwin Pipeline Duplication Project	An independent expert assessment by Dr Brendan Corrigan for the purpose of identifying spiritual and cultural values relevant to the construction of the Darwin Pipeline Duplication pipeline route (including the 8.26 km route in NT Coastal Waters). The document is available on the Santos website at https://www.santos.com/wp-content/uploads/2024/09/First-Nations-spiritual-and-cultural-values-in-relation-to-the-Darwin-Pipeline-Duplication-Project.pdf.	Corrigan, 2024
First Nations archaeological desktop assessment summary report	An independent expert assessment by Dr Jodie Benton for the purpose of identifying any underwater cultural heritage places along the DPD pipeline route (including the 8.26 km route in NT Coastal Waters). The document is available on the Santos website at https://www.santos.com/wp-content/uploads/2024/09/Desktop-First-Nations-Archaeological-Assessment-Summary-Report-Darwin-Pipeline-Duplication-Project-KP0-31.pdf..	Ozark, 2024
Treated seawater discharge dispersion modelling	Treated seawater dispersion modelling report including contingency pipeline dewatering within NT Coastal Waters.	RPS, 2024a
Hydrocarbon spill modelling for Barossa GEP spill scenarios	Hydrocarbon spill scenario modelling for spill scenarios along the Barossa GEP route in NT waters, including a spill scenario in NT Coastal Waters at the NT / Commonwealth waters boundary	RPS, 2024b

3.1 Environment that may be affected (EMBA)

This section describes the key physical, ecological, socio-economic and cultural features of the existing environment that may be affected by the Activity and covers the OA and any areas surrounding the OA that may be affected by the Activity.

In this document the area that may be affected by the impacts and risks of the Activity is described as the EMBA, or in the case of a hydrocarbon spill, LEVA (which also defines the modelled EMBA), MEVA and high exposure value area (HEVA). The EMBA and MEVA are shown in Figure 3-1.

3.1.1 Determining the EMBA

Stochastic hydrocarbon dispersion and fate modelling has been applied to worst case credible hydrocarbon spill scenarios relevant to the Activity to inform the spatial extent of the EMBA (defined conservatively by the LEVA) (Section 7.6). Areas potentially contacted by hydrocarbons were determined using stochastic modelling which overlayed hundreds of individual hypothetical spill simulations from a hydrocarbon spill into a single map, with each simulation subject to a different set of metocean conditions drawn from historical records. Stochastic modelling compensates for the uncertainty associated with any single hydrocarbon spill event such that risk assessment and spill response planning are more robust and conservative by covering a wide range of possible scenarios.

Modelling considers key physical and chemical phases of hydrocarbons that pose differing environmental and socioeconomic risks, being surface, entrained, dissolved aromatic and shoreline accumulated hydrocarbons. Defining the areas that may be affected by spilled hydrocarbons depends on the concentrations of the hydrocarbons on the sea surface, in the water column and on the shoreline.

Hydrocarbon exposure threshold values defined by NOPSEMA (2019) for each of these phases were applied to the stochastic modelling outputs to determine the areas affected by the MEVA and the LEVA. The MEVA represents an area wherein contact with hydrocarbons may result in harmful impacts to biota, encompassing the maximum extent of biological impact. The LEVA represents the maximum extent of possible contact with hydrocarbons within the depth range between 0–10 m and reflects the range of socioeconomic considerations for spill response planning and scientific monitoring. For this reason, the LEVA has been used to define the modelled EMBA. Importantly, in terms of impacts to environmental values and sensitivities, the extent of a particular impact and risk may not be relevant to the full extent of the modelled EMBA, therefore, the MEVA is also referred to where relevant in this GEP Coastal Waters OEMP.

The worst-case release scenario identified as relevant to the Activity (see Section 7.6) is considered to be a release of up to 300 m^3 of MDO caused by a vessel collision rupturing a vessel fuel tank, as this represented the largest spatial extent of potential changes to ambient environment conditions. A ‘best fit’ line is drawn around the outermost limits of the low exposure value contours resulting in a highly conservative EMBA. The MEVA and EMBA are shown in Figure 3-1 and exposure values are provided in Table 3-3. Further information about the reasons why these exposure values have been selected and how their application in defining areas relates to impact and risk assessment and spill response planning is provided in Section 7.7, Section 7.6.5 and Section 7.6.6.

The EMBA is based on stochastic modelling using 300 spill simulations, using low exposure values (Table 3-3). It should be noted that the footprint of an actual spill event is more accurately represented by only one of the simulations from the stochastic modelling, resulting in a much smaller spatial footprint in the event of an actual spill. Modelling of a single simulation, representative of a single spill event, is termed deterministic modelling. This is discussed further in Section 7.6.6 and applied in the risk assessment where relevant.

The primary purpose of the EMBA is to assist with spill response planning and preparedness in the unlikely event of a hydrocarbon spill. The EMBA provides a conservative basis for assessing the range of potential socio-economic impacts and establishes a planning area for scientific monitoring during an unplanned spill event.

Table 3-3: Hydrocarbon exposure threshold values

Hydrocarbon phase	Exposure value		
	Low	Moderate	High
Surface (g/m^2)	1	10	50
Shoreline oil accumulation (g/m^2)	10	100	1,000
Dissolved hydrocarbon (ppb)	10	50	400
Entrained (ppb)	10	-N/A	100

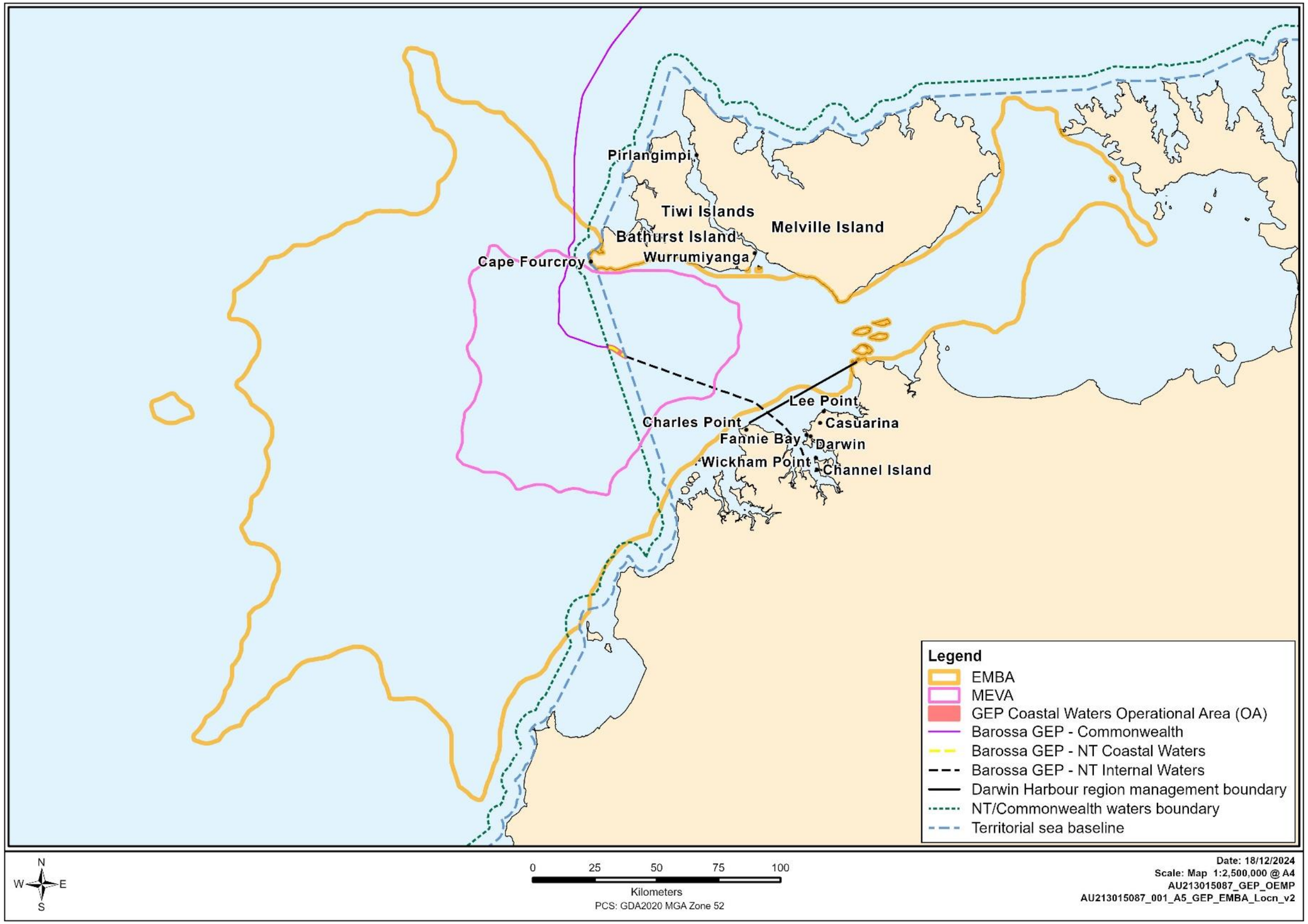

Figure 3-1: Location and extent of the EMBA and MEVA

3.2 Existing environment

This section summarises the existing environment that may be affected by the Activity and includes details of the particular values and sensitivities pertaining to the EMBA. A detailed description of the values and sensitivities of the GEP Coastal Waters OEMP was informed by:

- EPBC Act Protected Matters Search Tool (PMST) results (Appendix C),
- Stated values in the Marine Bioregional Plans for the North Marine Region (NMR) (CoA, 2012),
- Barossa Environmental Studies (Section 3),
- publicly available information (such as scientific literature, studies and government databases) and
- Information obtained through consultation.

For the purposes of the environmental assessment, identifying potential environmental consequences and developing spill response plans, the environmental values captured by the moderate hydrocarbon exposure threshold values defined by NOPSEMA (2019), representing the thresholds whereby harmful impacts to biota may result, are also identified within the area referred to as the MEVA in this section. More information about the reasons why these exposure values have been included and how their application in defining areas relates to impact and risk assessment and spill response planning is provided in Section 7.6.

3.2.1 Geographical extent

The OA is located within NT Coastal Waters, approximately 80 km north-west of Darwin, NT, approximately 31.5 km south of the Tiwi Islands, NT and approximately 66.5 km south-east of the Oceanic Shoals Marine Park. The OA and EMBA (Section 2.2 and 3.1.1) are located in the NMR, which is characterised by a monsoonal climate, complex weather patterns and currents driven predominantly by strong winds and tides (CoA, 2012). Key physical characteristics of the NMR that are relevant to the EMBA include:

- A wide continental shelf, with water depths averaging less than 70 m and ranging from approximately 10 m to a maximum known depth of 357 m
- Van Diemen Rise, which forms part of a key ecological feature (KEF) (Section 3.2.12) and includes a range of geomorphic features, such as shelves, shoals, banks, terraces and valleys
- limestone pinnacles, which forms part of a key ecological feature (KEF)—Pinnacles of the Bonaparte Basin (Section 3.2.12), valued for hard substrate in an otherwise soft sediment environment and so are important for sessile species, and
- Cultural features including Sea Country (Section 3.2.15).

3.2.1.1 Provincial bioregions

Based on the Integrated Marine and Coastal Regionalisation of Australia, version 4.0 (CoA, 2006), the provincial bioregions relevant to the EMBA and MEVA are outlined in Table 3-4 and shown in Figure 3-2. The OA and EMBA overlap the Northwest Shelf Transition Province, which is the second largest shelf bioregion and primarily features shelf and abyssal plain, and basins, with sandbanks to the west (CoA, 2005b). The EMBA also intersects the Northern Shelf Province, which is characterised as a gently sloping shelf, topped with a number of pinnacles at depths ranging from 5 m to 30 m and tidal eddies (CoA, 2012).

Table 3-4: Integrated Marine and Coastal Regionalisation of Australia provincial bioregions relevant to the Activity

Bioregion	OA	MEVA	EMBA
Northern Shelf Province	✗	✗	✓
Northwest Shelf Transition	✓	✓	✓

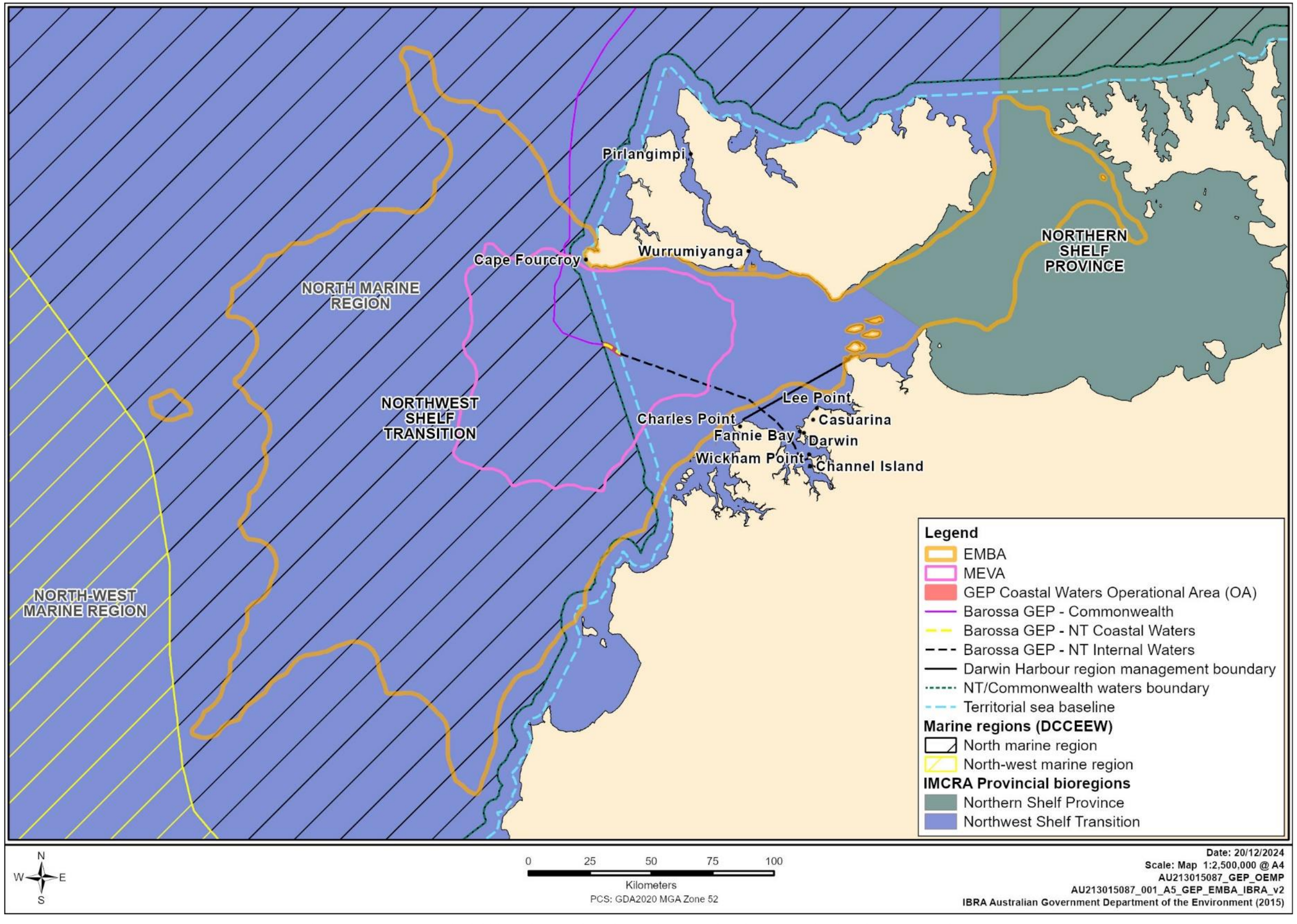

Figure 3-2: IMCRA provincial bioregions and marine regions overlapping or proximal to the EMBA and MEVA

3.2.2 Physical environment

3.2.2.1 Geomorphology

3.2.2.1.1 *Formation and history*

About 550 to 160 million years ago, the northern and western parts of Australia formed part of the northern margin of Gondwana. About 300 million years ago, crustal stretching, rifting and breakup-initiated development of an extensive basin where sediments were deposited (Baker et al., 2008 in CoA, 2012). About 135 million years ago the continent broke up, resulting in the separation of greater India and Australia.

3.2.2.1.2 *Bathymetry and seabed features*

Generally, the EMBA encompasses a wide continental shelf intersected by the carbonate bank and terrace system of the Van Diemen Rise KEF. Water depths within the majority of the EMBA range between 0 and 70 m, with a deep trench approximately 100 km wide to the west of the EMBA, ranging between 100 and 140 m deep (Figure 3-3). Recent surveys have shown that the seabed adjacent to the OA is generally flat, sandy, and featureless (RPS, 2023). Water depths in the OA range from 47 m at the TSB to 50 m at the NT/Commonwealth waters boundary.

The Carbonate bank and terrace system of the Van Diemen Rise KEF is of regional significance (Section 3.2.12.3). The feature consists of banks, terraces, channels, and valleys and the variability in water depth and substrate composition may contribute to the presence of unique ecosystems in the channels. The feature has enhanced biodiversity and productivity relative to surrounding areas and supports relatively high species diversity (DEWHA, 2012a).

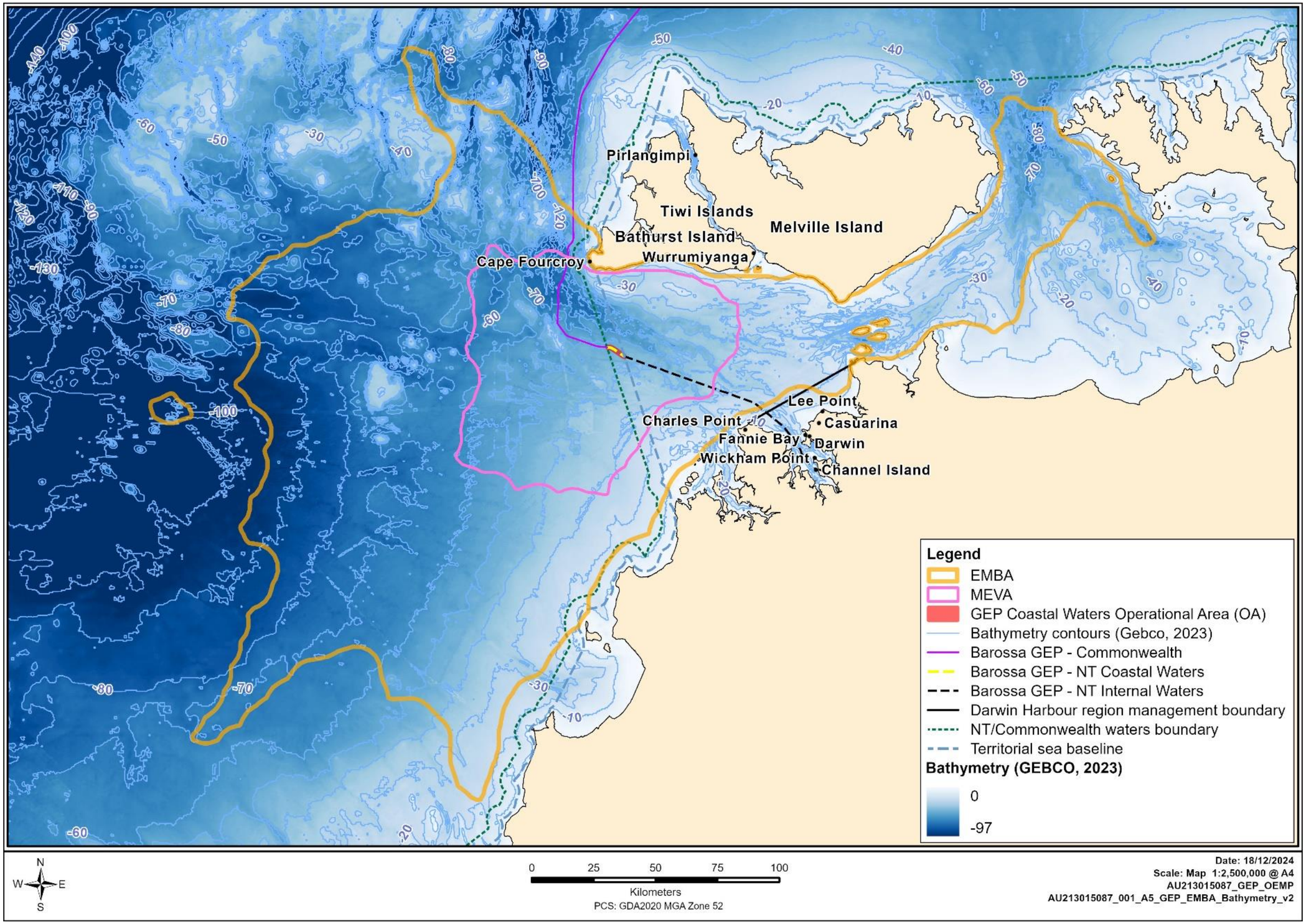

Figure 3-3: Bathymetry and seabed features overlapping or proximal to the EMBA and MEVA

3.2.3 Climate

Meteorological data for the region, recorded at the Bureau of Meteorology (BoM) weather station at Melville Island (the closest metrological station to the OA), shows a small seasonal variation in air temperatures. The mean maximum summer and winter air temperatures range between 33.9 °C in October and 31.3°C in July (BoM, 2025). The average tropical cyclone frequency for the Timor and Arafura seas region is one cyclone per year, which occur mostly between November and April (BoM, 2025).

Waters in the northern extent of the EMBA predominantly lie in the arid tropics. Monsoonal conditions usually occur from October to March (wet season), with cooler and drier conditions prevailing from April to September (dry season) (CoA, 2012).

3.2.4 Oceanography

3.2.4.1 Regional current system

Large-scale currents of the Timor and Arafura seas are dominated by the Indonesian Throughflow current system (Figure 3-4). The Indonesian Throughflow brings warm, low-salinity oligotrophic waters through a complex system of currents, linking the Pacific and Indian oceans via the Indonesian Archipelago (DSD, 2010). The strength of the system fluctuates seasonally, reaching maximum strength during the south-east monsoon, and weakening during the north-west monsoon.

The Holloway Current (Figure 3-4), a relatively narrow boundary current that flows along the north-west shelf of Australia between 100 and 200 m depth, also influences the seas in the EMBA. The direction of the current changes seasonally with the monsoon, flowing towards the north-east in summer and the south-west in winter (Fugro, 2015).

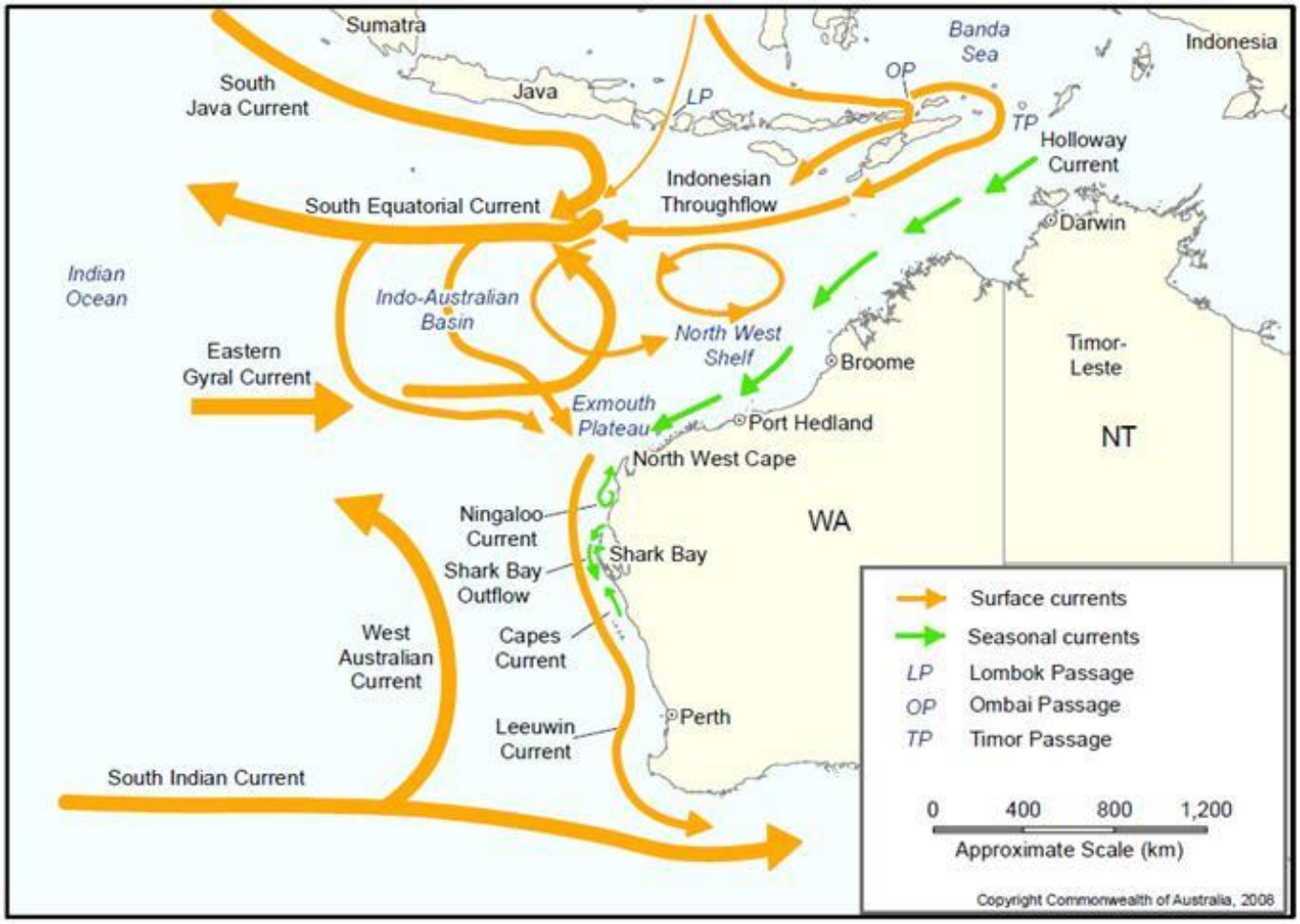

Figure 3-4: Surface currents proximal to the EMBA

3.2.4.2 Currents and tides

Water movement within the EMBA is influenced by wind and tidal activity and less by ocean currents. Smaller-scale surface currents reflect seasonal wind activity, flowing easterly to north easterly during the wet season and west to south-west during the dry season (Heyward et al., 1997).

Predicted average monthly surface current speeds are approximately 0.4 m/s within Beagle Bay just outside of Darwin Harbour (outside the Darwin Harbour Marine Management Area) and slightly less within Darwin Harbour (0.33 to 0.36 m/s in the mid-harbour) (RPS, 2024b). Predicted monthly maximum current speeds in these areas exceed 1 m/s (RPS, 2024b).

Tidal activity is typically dominated by semi-diurnal tides, with two daily high tides and two daily low tides. Tidal amplitude varies with location and distance offshore; in the Tiwi region it varies from 2 m offshore to 4 m inshore, 4–6 m in Van Diemen Gulf, while in the Beagle and Bonaparte Gulf regions the tidal range is ~6–8 m and 2–4 m respectively (IMCRATG, 1998).

3.2.4.3 Waves

Wave movements within the EMBA are expected to be composed of locally generated sea waves in response to local wind activity and swell waves created by distant wind activity. Wave height is generally between 0.6 and 0.8 m, coming from the west in the wet season and from the east in the dry season.

Cyclones and tropical storms can greatly increase wave heights by up to 8 m in the outer Timor Sea during the cyclone season (Przeslawski et al., 2011).

The wave climate offshore of the north-west shelf of Australia is normally dominated by the passage of storms over the southern Indian Ocean (Fugro, 2015). However, between October and March, the wave climate is controlled by the south-westerly monsoon winds. This combination of wind directions may lead to concurrent swells approaching from different directions. The sea wave climate also reflects the seasonal wind regime, with waves predominantly from the south-west in summer and from the east in winter.

3.2.4.4 Temperature

Surface water temperatures in the Barossa offshore development area were recorded as generally ranging between 27 °C and 30 °C, while temperatures in the upper water column of the Barossa offshore development area were recorded as reaching a maximum of 30.9 °C in summer and a minimum of 24.7 °C in spring (Fugro 2015). Mean temperatures ranged from 28.1 °C at 34 m below MSL (summer) to 12.6 °C at 253 m below MSL (summer) (Fugro, 2015). Water temperatures within the EMBA are expected to be broadly within the ranges of those observed in the development area.

3.2.4.5 Water Quality

3.2.4.5.1 *Regional overview*

Water quality in the Northwest Shelf Transition provincial bioregion is influenced primarily by the Indonesian Throughflow, which transports warm, low salinity, oligotrophic (low nutrient) waters into the region from Indonesia (CoA, 2012). Offshore waters are generally clear, with the euphotic zone extending down to 100 m across the shelf (CoA, 2012). Localised upwellings of cooler and higher-nutrient content waters occur throughout the Northwest Shelf Transition provincial bioregion; however, the influence and extent of these upwellings are mostly unknown (CoA, 2012).

3.2.4.5.2 *Offshore from Darwin Harbour*

In 2021, water sampling and analysis along the DPD route in the offshore NT waters of was undertaken (RPS, 2023), which include the OA for this Activity. Concentrations of three metals in water samples were detected above Australian and New Zealand Guidelines (ANZG; 2018) default guideline values (DGVs) (for slightly to moderately disturbed marine offshore ecosystems, at the 95% species protection level). Copper concentrations in samples from three sites at the western end of the offshore pipeline route were above the DGV; one of these exceedances was much higher than the DVG with the other two only slightly greater than the DVG, therefore it is likely an outlier and indicative of a potential contaminant (RPS, 2023).

3.2.4.6 Sediment quality

Large extents of soft substate are interspersed between the described isolated features of the Northwest Shelf Transition provincial bioregion (e.g., ridges and reef) (Przeslawski et al., 2011). Within the offshore NMR, dominant sediment types include sandy silts, very soft-to-soft silts, and very loose-to-loose silty sands with variable shell content and sand fraction ranging from coarse to fine (CoA, 2012).

3.2.5 Air quality

In the offshore areas of the OA and EMBA, there are no permanent sources of air pollution. Consequently, the air quality in this region of the EMBA is expected to be pristine, experiencing only localised and temporary anthropogenic influences (e.g. energy industry and shipping activity).

3.2.6 Shoals and banks

A number of shoals and banks occur within the EMBA (for details of named shoals and banks see Table 3-5 and Figure 3-5 noting that there are also numerous unnamed shoals and banks within the EMBA including one approximately 6 km from the OA). Few historic studies of these features exist, with most of the understanding of shoals and banks in the region derived from the 'big bank shoals' study (Heyward et al. 1997),b PTTEP surveys initiated in response to the Montara incident (Heyward et al., 2010; Heyward et al., 2011) and studies undertaken by the Australian Institute for Marine Science (AIMS) for the Barossa Development (Heyward et al., 2017; Radford et al., 2019).

The biological communities of the shoals and banks within the EMBA are well representative within the broader region (Heyward et al., 2017). AIMS' analysis of survey data showed that the most influential determinants of benthic community composition include depth and light intensity, substrate type and complexity, hydrodynamic environment and position on the continental shelf. 'Mid-shelf' locations, such as those within the EMBA, typically exhibit higher turbidity, resulting in greater light attenuation and the transition between primary producer dominated habitats (such as corals) to those featuring sessile filter feeders (e.g., sponges) is often observed at shallower depths. Consequently, coral reef communities are expected to only be associated with the shallower reefs, shoals and banks, particularly further away from the turbid coastal fringe where sponges, sea fans and to a lesser extent gorgonian soft corals are the dominant contributors to benthic communities (Heyward et al., 2017).

The shoals and banks within the EMBA are expected to support many common species, but to show variation in the abundance and diversity of substrate types and dominant benthic species, with subsets of species featuring more prominently on some shoals and banks than others (Heyward et al., 2017). Shepperton Shoal, west of the OA, is dominated by filter feeder communities (Radford et al., 2019). Other shoals and banks near the OA for which there is data on benthic communities (e.g., Flat Top Bank) show a very high degree of similarity (>90%) to the Goodrich Bank (outside of the EMBA) and Cape Helvetius (sites both inside and outside of the EMBA) sites that were surveyed by AIMS for the Barossa marine studies program. Lesser but still high (>80%) similarity was also reported for some shoals located further offshore, such as Evans Shoal (Heyward et al., 2017). A summary of the results from the 2015 Shoals and shelf survey marine studies is presented in Table 3-6.

Table 3-5: Distances to the nearest shoals and banks from the OA

Geomorphic feature	MEVA	EMBA	Water depth range (~m)[2]	Approximate distance/direction from OA
Shepparton Shoal	✓	✓	30–50	23 km W
Afghan Shoal	✓	✓	30–50	25 km N
Flat Top Bank	✗	✓	60–70	55 km WSW
Jones Bank	✗	✓	10	43 km SE
Skottowe Shoal	✗	✓	20–30	63 km E
Moresby Shoals	✗	✓	20	68 km E
Lowry Shoal	✗	✓	20	68 km E
Bowra Shoal	✗	✓	20	78 km SE
Parsons Bank	✗	✓	10–20	80 km ENE
Hancox Shoal	✗	✓	10–30	86 km E
Foelsche Bank	✗	✓	10	87 km E
Marsh Shoal	✗	✓	10–20	87 km E
Newby Shoal	✗	✓	30–70	105 km WNW
Parry Shoal	✗	✓	10-30	106 km NW
Stephens Bank	✗	✓	10–20	112 km E
Beagle Shoals	✗	✓	20–30	138 km ENE
Taiyun Shoal	✗	✓	20–30	143 km ENE
Bill Shoal	✗	✓	20	144 km ENE
Abbott Shoal	✗	✓	20	152 km ENE
Renard Shoals	✗	✓	20	158 km ENE
Ommaney Shoals	✗	✓	20	163 km ENE
Wells Shoal	✗	✓	20–30	166 km ENE
Giles Shoal	✗	✓	20–30	180 km ENE
Mataram Shoal	✗	✓	20–40	197 km ENE
Fitzpatrick Shoal	✗	✓	30–40	201 km ENE

[2] *Note: water depth range provided applies to the entire feature and is not limited to the EMBA.*

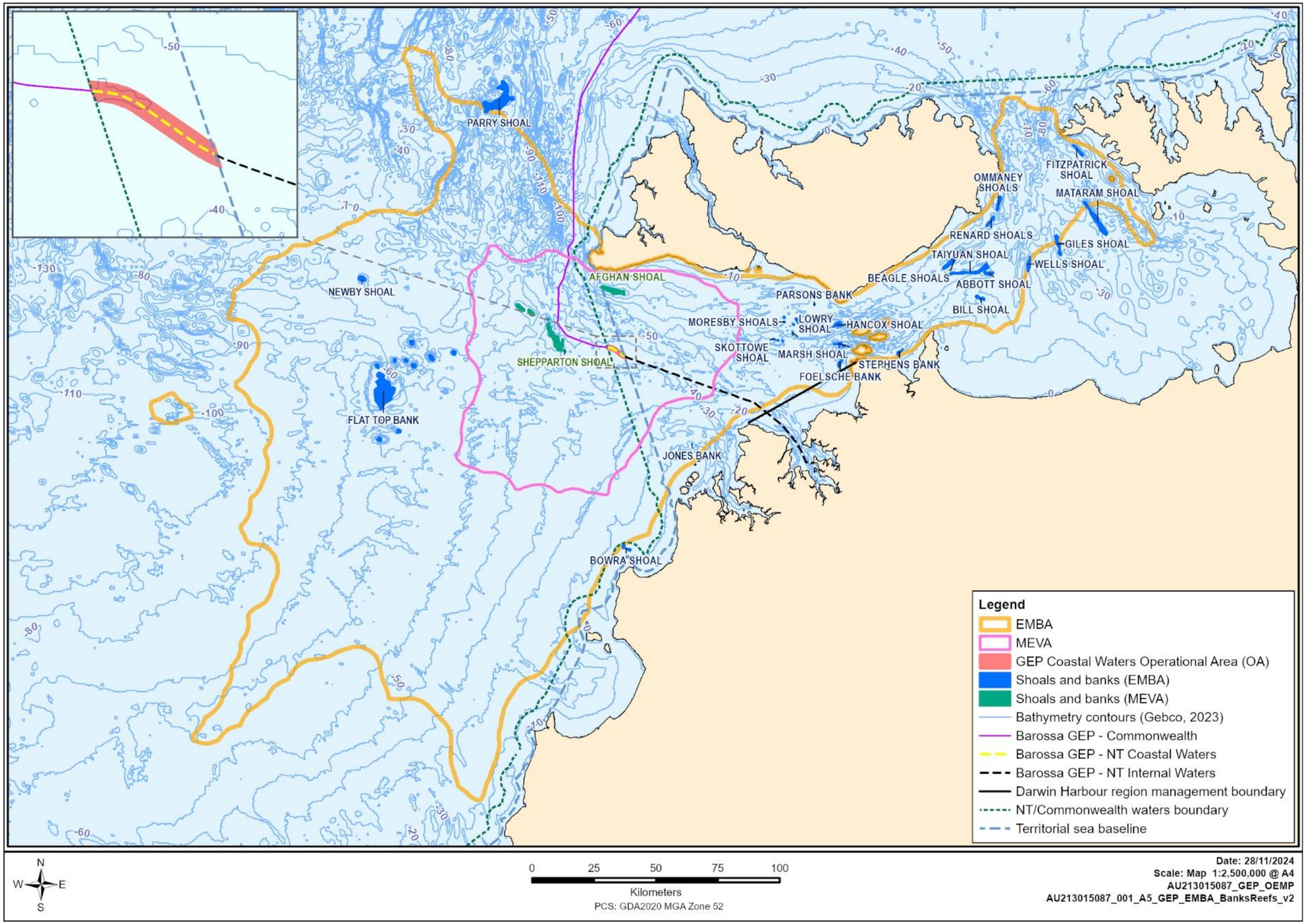

Figure 3-5: Banks and shoals overlapping or proximal to the OA, EMBA and MEVA

Table 3-6: Summary of the results of the marine studies program

Feature	Description
Oceanic Shoals AMP (within and proximal)	Surveys of benthic habitats and fish communities were undertaken by AIMS within and adjacent to the Oceanic Shoals AMP, in the proximity of the Bayu Undan pipeline, in 2017 (Radford et al., 2019). The benthic survey included six sites between Goodrich Bank and Bathurst Island as well as Shepparton Shoal (see below). Fish communities were surveyed at five of the sites. Benthic habitats at the six sites were dominated by extensive areas of seabed covered in unconsolidated sediments such as coarse sand and mud (see photo for example of habitat type). Epibenthic fauna were present at low densities, attached to areas of consolidated pavement covered in fine sediment, or on low relief rock outcropping, most commonly present around ridges or drop-offs. Light-dependent communities were absent from most sites and where present were typically sparse. Corals were very rare and outside of bare areas, non-photic filter-feeder communities (notably sponges) were the key habitat. However, these filter feeder communities were frequently sparse, with decreasing density with depth, and very little occurrence beyond 50 m water depth (Radford et al., 2019).  Fish species richness recorded at the sites surveyed was low compared to other shoals on the north-west shelf of Australia, reflecting the greater proportions of bare biotic cover and sandy substrate. Fish communities were dominated by bony fish, with sharks and to a lesser extent rays also common. Relative abundances were less than half those recorded at shoals further offshore, such as Tassie and Evans Shoals (both outside the EMBA). Richness, abundance and structure of fish communities across sites were strongly correlated with habitat characteristics, with greatest numbers linked to increased epibenthic cover (Radford et al., 2019).
Shepparton Shoal	 Shepparton Shoal is relatively shallow (~30 m) and differed from most other sites surveyed by having up to medium density filter-feeder communities (see photo for example of habitat type) predicted over most (86%) of the shoal (Radford et al., 2019). No hard or soft corals, or Halimeda communities were recorded and areas not supporting non-photic filter feeders were expected to comprise bare substrates (Radford et al., 2019). Fish were not surveyed at this site, but given the depths and habitat types present can be expected to be dominated by bony fishes, likely including stripey snapper (*Lutjanus carponotatus*), rockcod (*Epinephelus* spp), sandperch (*Parapercis* spp), threadfin bream (*Pentapodus emeryii*) surgeonfish (*Acanthurus* spp) and angelfish (*Chaetodontoplus duboulayi*).

3.2.7 Offshore reefs and islands

The EMBA does not overlap any of the key offshore reefs and islands in Commonwealth waters of the region.

Several nearshore islands fall within the EMBA, most notably the Tiwi Islands where the EMBA approaches and/or intersects parts of the south-west, south and east coastlines.

The Tiwi Islands are situated about 31.5 km north of the OA, 80 km north of Darwin and are comprised of Melville Island, Bathurst Island and nine smaller uninhabited islands off the northern and southern shores. The islands cover an area of about 8,320 km^2 and support a number of important habitats, including extensive stands of mangroves, tidal mudflats, sandy beaches, seagrass meadows and fringing reef habitats (INPEX, 2010). Many species found on the islands are not recorded anywhere else in the NT, primarily due to their isolation and climatic extremes (high rainfall) (NRETAS, 2009). The Tiwi Islands are Aboriginal freehold land owned by the Tiwi Aboriginal Land Trust (ALT) (NRETAS, 2009). A mapping exercise has been undertaken with the Tiwi Land Council (TLC) to identify environmental and socioeconomic values along the Tiwi Islands coastline (Jacobs, 2019).

The Tiwi Islands, and the small islands nearby, provide important nesting sites for marine turtles, internationally significant seabird rookeries, and some major aggregations of migratory shorebirds (DLRM, 2009). A number of BIAs for turtles are found along the coastlines of the Tiwi Islands (see Section 3.2.13.2.1). The sandy beaches on the Tiwi Islands, specifically the west coast of Bathurst Island and the north coast of Melville Island, are particularly important for marine turtle nesting. Nesting is dominated by flatback and olive ridley turtles (Chatto & Baker, 2008). However, green and hawksbill turtles also nest on the Tiwi Islands. Significant numbers of olive ridley turtles are known to nest on the beaches of Seagull Island and the north-west coast of Melville Island (Chatto & Baker, 2008), but these areas are not within the EMBA.

Five seabird breeding colonies have been reported on small offshore islands surrounding Melville and Bathurst islands (Chatto, 2001) that range in size from 2 to more than 30,000 birds (Chatto 2001). The colony on Seagull Island, off the north-west tip of Melville Island and outside the EMBA, supports a breeding BIA of about 60,000 crested terns (Woinarski et al., 2003). This is thought to be the largest breeding colony of this species and is considered an internationally significant colony (>1% global population) (NRETAS, 2009). A 20 km buffer has been designated around the BIA as a foraging zone for crested terns (see Section 3.2.13.4). The breeding period for the crested tern is from March to July, with most eggs being laid between from late April to early June (Chatto, 2001). In general, colonial seabird breeding in the NT occurs throughout most of the year, though mostly between May and November (Chatto, 2001). The extensive areas of tidal flats, particularly on the south-east of Melville Island, have also been noted as providing important wading and feeding habitats for shorebirds. The highest total count at this site was 40,000 shorebirds in 1993 with the most common species being great knots (Chatto, 2003). Other species recorded in high numbers include red-necked stints, greater and lesser sand plovers and bar-tailed godwits (Chatto, 2003).

3.2.8 Other seabed features of interest

3.2.8.1 Seamounts

Seamounts have been identified ~230 km north of the OA and may be present sporadically within the EMBA. The Barossa environmental baseline studies program (Jacobs, 2016) included sampling sites at seamounts to the west of the field. Seamounts are generally raised up from the seabed to water depths between 50 and 80 m and are characterised by predominantly sand and rubble (Jacobs, 2016). The hard substrate of the seamount slopes support epibenthic communities dominated by sponges and filter feeders such as gorgonians (e.g. sea whips, sea fans and soft corals) and feather stars. Other epibenthic species observed included holothurians (sea cucumbers), sea fans and algae (Jacobs, 2016).

Triggerfish nesting areas were apparent at the seamounts. The triggerfish (family Balistidae) appeared to make depressions in the sand and rubble at the top of the southernmost seamount surveyed, as they were observed in and around these depressions (Jacobs, 2016c). The seamounts also appeared to support schools of fish (predominantly from the families Lutjanidae, Carangidae and Caesionidae, and including larvae or juveniles) both near the top of the seamount and at depth.

3.2.8.2 Scarps

The Barossa environmental baseline studies program (Jacobs, 2016) included sampling sites at 2 scarps in water depths ranging between 160 and 190 m. The substrate of the scarps was similar and characterised by a hard bedrock pavement at the top, with a rocky profile along the ridge and sand habitats at the base (Jacobs, 2016). The scarps provided habitat for gorgonians (e.g. sea whips), feather stars and other filter feeders, sponges, and hydroid/bryozoan turf. A deep-water snapper species (possibly goldband snapper) was also observed in a rocky overhang at the base of the slope and small silver fish and one ray were observed on the sand flat at one of the scarps (Jacobs, 2016).

Scarps may be observed sporadically within the EMBA, if present likely supporting epibenthic communities, such as sponges and filter feeders and schools of fish.

3.2.9 Benthic habitats and communities

The surrounding area of the EMBA supports several types of benthic habitats supporting biota including mangroves, coral, seagrass, macroalgae, filter feeders and soft-bottom benthos. This is primarily driven by depth and seabed characteristics, notably the presence of hard substrates and benthic rugosity (Heyward et al., 2017; Radford et al., 2019; RPS, 2023).

Surveys in and adjacent to the EMBA indicate that the benthos consists mostly of soft, easily re-suspended sediments interspersed with areas of hard substrate (Smit et al., 2000; Przeslawski et al., 2011; Heyward et al., 2017; Radford et al., 2019; RPS, 2023). Overall, the diversity and coverage of epibenthos is low and organisms present are predominantly sponges, gorgonians and soft corals (Kelly & Przeslawski, 2012; Heyward et al., 2017; Radford et al., 2019; RPS, 2023). Areas of soft sediment support infauna communities, with infauna species richness tending to decrease with distance offshore (Przeslawski et al., 2011). Sampling of nearshore sediments in the Beagle Gulf found the infauna to be dominated by crustaceans, molluscs, and echinoderms (Smit et al., 2000), with crustaceans and annelids (polychaete worms) the predominant taxa in sediments along the pipeline route between the Commonwealth waters and Darwin Harbour (RPS, 2023).

Shoals and banks within the EMBA, display biological communities consistent with other similar areas in the broader region (Heyward et al., 2017). 'Mid-shelf' locations, such as those within the EMBA, typically exhibit higher turbidity, resulting in greater light attenuation and the transition between primary producer dominated habitats (such as corals) to those featuring sessile filter feeders (e.g., sponges) is often observed at shallower depths. Shepperton Shoal, is dominated by filter feeder communities (Radford et al., 2019). Other shoals and banks within the EMBA for which there is data on benthic communities (e.g., Flat Top Bank) show a very high degree of similarity (>90%) to the Goodrich Bank and Cape Helvetius sites that were surveyed by AIMS for the Barossa marine studies program.

The hard substrate of the seamount slopes support epibenthic communities dominated by sponges and filter feeders such as gorgonians (e.g., sea whips, sea fans and soft corals) and feather stars. Other epibenthic species observed included holothurians (sea cucumbers), sea fans and algae (Jacobs, 2016). Triggerfish nesting areas were apparent at the seamounts. The triggerfish (family Balistidae) appeared to make depressions in the sand and rubble at the top of the southernmost seamount surveyed, as they were observed in and around these depressions (Jacobs, 2016). The seamounts also appeared to support schools of fish (predominantly from the families Lutjanidae, Carangidae and Caesionidae, and including larvae or juveniles) both near the top of the seamount and at depth.

Scarps may be observed sporadically within the EMBA, if present likely supporting epibenthic communities, such as sponges and filter feeders and schools of fish.

Surveys of mid-shelf benthic habitats of the EMBA indicate that corals are generally rare, predominantly in areas of <30 m water depth and more likely to develop in areas of steeper bathymetry (Heyward et al., 2017; Radford et al., 2019). Corals in turbid waters are likely dominated by members of the genus Turbinaria (IMCRATG, 1998), while Acropora and Montipora species are reported to occur in clearer waters at the Vernon Islands (IMCRATG, 1998; Smit et al., 2000; Calnan, 2006). However, in general extensive hard coral reefs are unlikely to be present in the EMBA.

No seagrasses were recorded during benthic surveys at mid-shelf locations in the EMBA (Heyward et al., 2017; Radford et al., 2019) or at Shepperton Shoal. Seagrasses within NT waters are not well described (Butler and Jernakoff, 1999), but seagrass distribution in the region is disjointed, not common in large open bays and typically found in and around inshore islands, small bays and inlets (Roelof et al., 2005). Seagrass communities are confined to the intertidal area, with high turbidity restricting light penetration in the coastal shelf areas to water depths of up to 20 m (DEWHA, 2008).

3.2.10 Shoreline habitats

Shoreline habitats are defined as those habitats that are adjacent to the water along the mainland and of islands that occur above the lowest astronomical tide (LAT) and most often in the intertidal zone. The EMBA intersects shorelines on the NT mainland, notably around Cape Hotham (excluding Darwin Harbour), at some coastal islands, including the south, south-east and south-western coasts of the Tiwi Islands, and other scattered locations in the NT, including the western tip of Cobourg Peninsula (Figure 3-1). Sections 3.2.10.1 to 3.2.10.4 describe the shoreline habitats within the EMBA.

3.2.10.1 Mangroves

Mangroves are common and widely distributed along coastlines of the NT (Chatto & Baker, 2008), and extensive mangals occur at many, if not most, of the tidal flats, estuaries and tidal creeks along the mainland coast and on islands that fall within the EMBA.

Coastal habitat surveying undertaken following the Montara spill (Duke et al., 2010) estimated mangroves to cover ~90% of the shorelines in Darwin Harbour and ~73% between Darwin Harbour (Mandorah) and Point Blaze. Mangroves also occur less extensively in areas of the EMBA east of Darwin, including Cobourg Peninsula. At the Tiwi Islands, the southern shorelines within the EMBA do not support the more extensive mangroves that occur within tidal creeks that open to the north coast and in Apsley Strait.

Mangroves are important primary producers and have several ecological and economic values. For example, they play a key role in reducing coastal erosion by stabilising sediment with complex root systems (Kathiresan & Bingham, 2001). They are recognised for their capacity to help protect coastal areas from the damaging effects of erosion during storms and storm surge. Mangroves are important in the filtration of runoff from land, which helps maintain water clarity for the coral reefs that are often found offshore in tropical locations (NOAA, 2010).

The muddy sediments that occur in mangrove forests are home to a variety of epibenthic, infaunal and meiofaunal invertebrates (Kathiresan & Bingham, 2001). Crustaceans known to inhabit the mud in mangrove systems include fiddler crabs, mud crabs, shrimps and barnacles. Within the water channels of the mangrove systems, various finfish are found from the smaller fish such as gobies and mudskippers (which are restricted to life in the mangroves) through to larger fish such as barramundi (*Lates calcarifer*) and the mangrove jack (*Lutjanus argentimaculatus*). Mangroves and their associated invertebrate-rich mudflats are an important habitat for migratory shorebirds from the northern hemisphere, as well as some avifauna that are restricted to mangroves as their sole habitat (Garnet & Crowley, 2000).

3.2.10.2 Intertidal mud/sand flats

Intertidal mud/sand flats form when fine sediment carried by rivers and/or the ocean is deposited in a low-energy environment. Due to the large tidal ranges, intertidal flats are common along NT coastlines and often extensive at low tide, frequently occurring adjacent to, or in conjunction with, mangrove communities in the EMBA. Duke et al (2010) indicates that intertidal mud/sand flats occur along >75% of the shore within the Darwin Harbour region and >66% of the coast between Mandorah and Point Blaze. The south-eastern coast of Melville Island also contains reasonably large areas of mud and sand flats that are exposed at low tides (Chatto & Baker, 2008). There is a large amount of intertidal mudflat, backed by extensive mangroves and open saline wetlands, in Fog Bay (southern section) and around parts of the Perron Islands (AMOSC, 2019), with this area of Fog Bay and Darwin Harbour both listed as Nationally Important Wetlands. Section 3.2.12.2 describe the wetlands of international and national importance that intersect the EMBA.

Intertidal flats are highly productive components of shelf ecosystems, responsible for recycling organic matter and nutrients through microbial activity. This microbial activity helps stabilise organic fluxes by reducing seasonal variation in primary productivity providing a more constant food supply. Intertidal sand and mudflats support a wide range of benthic infauna and epifauna which graze on microscopic algae and bivalves, molluscs, polycheate worms and crustaceans (Zell, 2007).

The high abundance of invertebrates found in intertidal sand and mudflats provides an important food source for finfish and rays which swim over the area at high tide. Mudflats have also been shown to be nursery areas for flatfish. During low tide, these intertidal areas are important foraging areas for resident and migratory shorebirds (see Section 3.2.13.4).

3.2.10.3 Sandy beaches

Sandy beaches are those areas within the intertidal zone where unconsolidated sediment has been deposited and eroded by wave and tidal action. Sandy beaches can vary from low to high energy zones, the energy experienced influences the beach profile due to varying rates of erosion and accretion.

Sandy habitats are important for both resident and migratory seabirds and shorebirds (see Section 3.2.13.4). While sand flats and beaches generally support fewer species and numbers of birds than mudflats of similar size; some species such as the beach thick knee (*Esacus giganteus*) are commonly associated with sandy beaches (Garnet & Crowley, 2000). Sandy beaches can also provide important habitat for turtle nesting (see Section 3.2.13.2.1), with female turtles traversing the intertidal beach to lay eggs in the supra-tidal zone (outside the EMBA).

Sandy beaches intersected by the EMBA include part of the extensive stretches along northern Fog Bay up to Point Paterson, at Point Blaze and on many of the islands, including the Tiwi Islands. Turtle nesting on Fog Bay and Tiwi Islands beaches within the EMBA is dominated by flatback and to a lesser extent olive ridley turtles, with the southern beaches of the Tiwi Islands supporting less activity than south-west and northern beaches (Chatto & Baker, 2008).

3.2.10.4 Rocky shorelines

Rocky shores can include pebble/cobble, boulders and rocky cliffs (often at the landward edge of reef platforms). Rocky shorelines can vary from habitats where there is bedrock protruding from soft sediments to cliff–like structures that form headlands. Within the EMBA rocky shorelines occur on the Cobourg Peninsula as well as a number of islands. The Cobourg Peninsula coastlines include numerous rocky headlands and there are intermittent scattered low lateritic cliffs in the Anson-Beagle bioregion (IMCRATG, 1998).

Rocky shorelines are an important foraging area for seabirds and habitat for invertebrates found in the intertidal splash zone.

3.2.11 Plankton

Plankton abundance and distribution is patchy, dynamic and strongly linked to localised and seasonal productivity (Evans et al., 2016). Fluctuations in abundance and distribution occur both vertically and horizontally in response to tidal cycles, seasonal variation (light, water temperature and chemistry, currents and nutrients) and cyclonic events.

In northern Australia, nutrients and detritus (debris) carried by large river outflows combine with sediments and particulate organic matter resuspended by the tides and generally remain trapped within coastal areas to depths of up to ~20 m (or up to 45 nautical miles [Nm] offshore). The coastal waters within this zone generally do not mix with adjacent offshore waters, and as a result support distinctly different and more productive phytoplanktonic communities (made up of small, often microscopic, free-floating plants) than offshore waters, where nutrients are derived primarily from the ocean and atmosphere (DEWHA, 2008d).

Within the EMBA, plankton communities are likely to reflect this regional pattern, varying with depth and distance offshore. Communities of phytoplankton in coastal waters bloom and decay in response to seasonal changes in water flows, resuspension of sediments by cyclones, strong tidal currents, monsoon winds and wind-generated waves (DEWHA, 2008d). In deeper offshore areas, productivity is likely to be more dependent on internal nutrient cycling and upwellings of productive oceanic waters, such as around the shoals and pinnacles associated with KEFs of the region (see Section 3.2.12.3).

Table 3-7: Habitats within the OA, MEVA and EMBA (IMCRA provincial bioregions)

Category	Receptor	OA presence	MEVA presence	EMBA presence	
				Northern Shelf Province	Northwest Shelf Transition
Benthic habitats	Coral reefs	✗	✓	✓	✓
	Seagrass	✗	✓	✓	✓
	Macroalgae	✗	✓	✓	✓
	Non-coral benthic invertebrates	✓	✓	✓	✓
Shoreline habitats	Mangroves	✗	✗	✓	✓
	Intertidal platforms	✗	✗	✓	✓
	Sandy beaches	✗	✗	✓	✓
	Rocky shorelines	✗	✗	✓	✓

3.2.12 Protected areas and key ecological features

Protected areas and key ecological features identified in the OA, MEVA and EMBA are listed in Table 3-8 and are illustrated in Figure 3-6 and Figure 3-7. No threatened ecological communities are overlapped by the OA, MEVA or EMBA.

There are no National heritage places or world heritage property in the OA, MEVA or EMBA.

Table 3-8: Protected areas and key ecological features within the OA, MEVA and EMBA and approximate distance from the OA boundary

Value/sensitivity name	OA presence	MEVA presence	EMBA presence	Approximate Distance to OA
Protected areas				
Australian marine parks				
Oceanic Shoals Marine Park	✗	✗	✓	67.5 km
Joseph Bonaparte Gulf Marine Park	✗	✗	✓	182 km
Marine national parks				
Garig Gunak Barlu	✗	✗	✓	220 km
Wetlands of international importance (Ramsar site) and national importance				
Cobourg Peninsula	✗	✗	✓	220 km
Key ecological features				
North Marine Region				
Carbonate bank and terrace system of the Van Diemen Rise	✗	✓	✓	9 km
Pinnacles of the Bonaparte Basin	✗	✗	✓	173 km

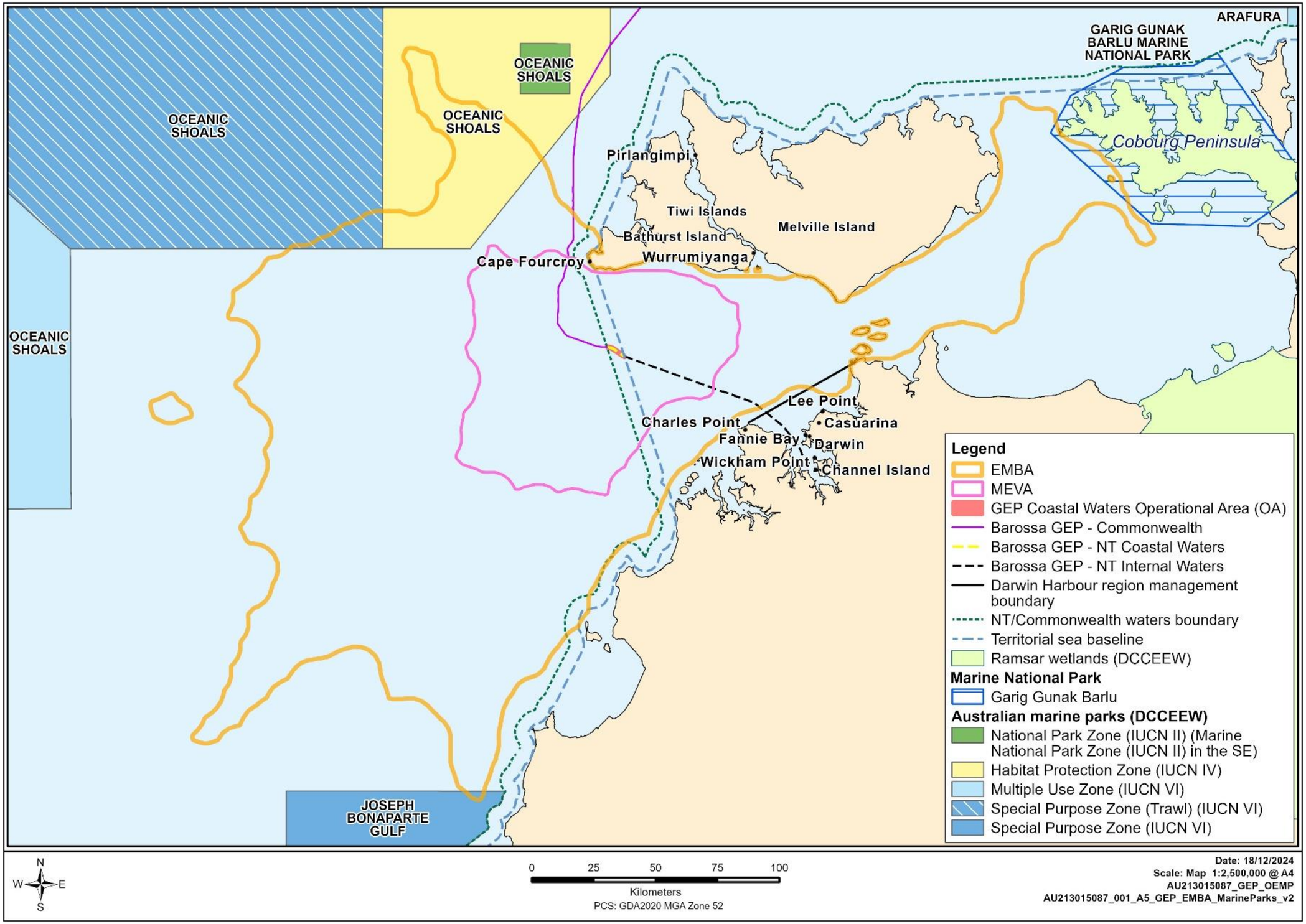

Figure 3-6: Marine parks and protected areas overlapping or proximal to the EMBA and MEVA

3.2.12.1 Marine parks

The OA and MEVA do not intersect any Australian marine parks or Territory/State marine parks, management areas or reserves. The EMBA overlaps two Australian Marine Parks (AMPs) and a marine national park, which are identified in Table 3-8 and Figure 3-6.

Marine parks are divided into management zones (Figure 3-6) and managed in accordance with the North Marine Parks Network Management Plan (DNP, 2018a), as is the KEF identified in the NMR. The values for these AMPs that overlap the EMBA are summarised in Table 3-9.

In agreement with the states and NT governments, the Australian Government has committed to establish AMPs as a component of the National Representative System of Marine Protected Areas (Director of National Parks, 2012). In November 2012, the Commonwealth Marine Reserves Network was proclaimed with the purpose of protecting the biological diversity and sustainable use of the marine environment. Commonwealth marine reserves were renamed as Australian Marine Parks in October 2017 and there are six marine regions in the Australian Marine Parks Network, namely the Coral Sea, South-west, Temperate East, South-east, North, and North-west.

Management plans for AMPs were developed and enacted on 1 July 2018. Under these plans, AMPs are allocated conservation objectives (International Union for Conservation of Nature [IUCN] Protected Area Category) based on the Australian IUCN Reserve Management Principles in Schedule 8 of the EPBC Regulations 2000. These principles determine what activities are acceptable within the different zones of the AMP network.

Garig Gunak Barlu is managed by the NT Parks and Wildlife Commission and declared under the *Cobourg Peninsula Aboriginal Land, Sanctuary and Marine Park Act 1981* (NT). The Cobourg Marine Park Plan of Management (NT Government, 2011) expired in 2021.

Table 3-9: Marine park values overlapping the EMBA

Value sensitivity	Management zone(s)	Values overlapping the EMBA
AMP		
Joseph Bonaparte Gulf	• Multiple Use Zone (IUCN VI) • Special Purpose Zone (IUCN VI)	The Joseph Bonaparte Gulf Marine Park values (DNP, 2018a): • ecosystems representative of the Northwest Shelf Transition—dynamic environment influenced by strong tidal currents, monsoonal winds, cyclones and wind-generated waves • a range of species, including species listed as threatened, migratory, marine, or cetacean under the EPBC Act • sea country, which is valued for Indigenous cultural identity, health and wellbeing • commercial fishing, tourism, mining, and recreation, including fishing, are important activities in the Marine Park
Oceanic Shoals	• Special Purpose Zone (Trawl) (IUCN VI) • Multiple Use Zone (IUCN VI) • National Park Zone (IUCN II) • Habitat Protection Zone (IUCN IV)	The Oceanic Shoals Marine Park values (DNP, 2018a): • ecosystems representative of the Northwest Shelf Transition • 2 KEFs -carbonate bank and terrace systems of the Van Diemen Rise and the pinnacles of the Bonaparte Basin • a range of species, including species listed as threatened, migratory, marine, or cetacean under the EPBC Act • BIAs that include foraging habitat for marine turtles • sea country, which is valued for Indigenous cultural identity, health and wellbeing • commercial fishing, tourism, and recreation, including fishing, are important activities.

Value sensitivity	Management zone(s)	Values overlapping the EMBA
Marine National Park		
Garig Gunak Barlu	• Multiple Use A Zone • Multiple Use B Zone	• Multiple Use A and B zones provide for multiple use of the park's resources, including commercial fishing activities. Multiple Use A zone has more intensive fishing, such as prawn trawling and netting. These zones also provide protection of important conservation and scientific values • provides BIAs for dolphins, seabirds and marine turtles • habitat critical to the survival of flatback, green and olive ridley turtles • habitats, feeding areas, dispersal and migratory pathways, and spawning sites for numerous fish and crustacean species of fisheries significance *Note: The EMBA intersects the perimeter of the marine park with no predicted shoreline or surface oil contact at or above low threshold values.*

3.2.12.2 Wetlands of international importance

The Ramsar Convention on Wetlands is an intergovernmental treaty that aims to conserve wetlands of international importance. Ramsar wetlands are recognised as MNES under the EPBC Act (DSEWPaC, 2010). No Ramsar or nationally important wetlands occur within the OA. The EMBA intersects with one Ramsar wetland – Cobourg Peninsula (Table 3-8, Figure 3-6).

The Cobourg Peninsula comprises both coastal and inland wetlands and was declared a Ramsar sites in 1974. Important habitat for seabirds throughout the peninsula includes intertidal forested wetlands and mudflats, seasonal freshwater marshes and permanent freshwater pools. Four coral reefs are located within the Coburg Peninsula Ramsar site: Popham Creek, Kuper Point, Sandy Island No. 1, and Sandy Island No. 2 (AECOM, 2011). A total of 595 marine fish species from 117 families have been recorded from the Cobourg Peninsula area (BMT WMB 2011).

Bird species richness within the Cobourg Peninsula is high, with 236 bird species having been recorded including 89 waterbird species, 21 of which are migratory (MBT WBM, 2011). The Cobourg Peninsula supports habitat and conditions that are important for waterbird breeding. At least six seabird species are known to occupy the Cobourg Peninsula for breeding purposes, with notable breeding colonies found on sandy, coral rubble islands and headlands (BMT WMB 2011).

In addition to providing important habitat for seabirds, the Cobourg Peninsula is known to provide important nesting habitat for six marine turtle species including the green turtle (*Chelonia mydas*), flatback turtle (*Natator depressus*), leatherback turtle (*Dermochelys coriacea*), Olive Ridley Turtle (*Lepidochelys olivacea*), hawksbill turtle (*Eretmochelys imbricata*), loggerhead turtle (*Caretta carreta*). The dugong (*Dugong dugon*) is also known to forage within waters around the site. Additionally, several nationally threatened species are known from the site.

3.2.12.3 Key ecological features

Key ecological features (KEFs) are those components of the marine ecosystem that are important for biodiversity or the ecosystem function and integrity of a Commonwealth marine area. No KEFs overlap the OA. The EMBA overlaps two identified KEFs:

- Carbonate bank and terrace system of the Van Diemen Rise
- Pinnacles of the Bonaparte Basin

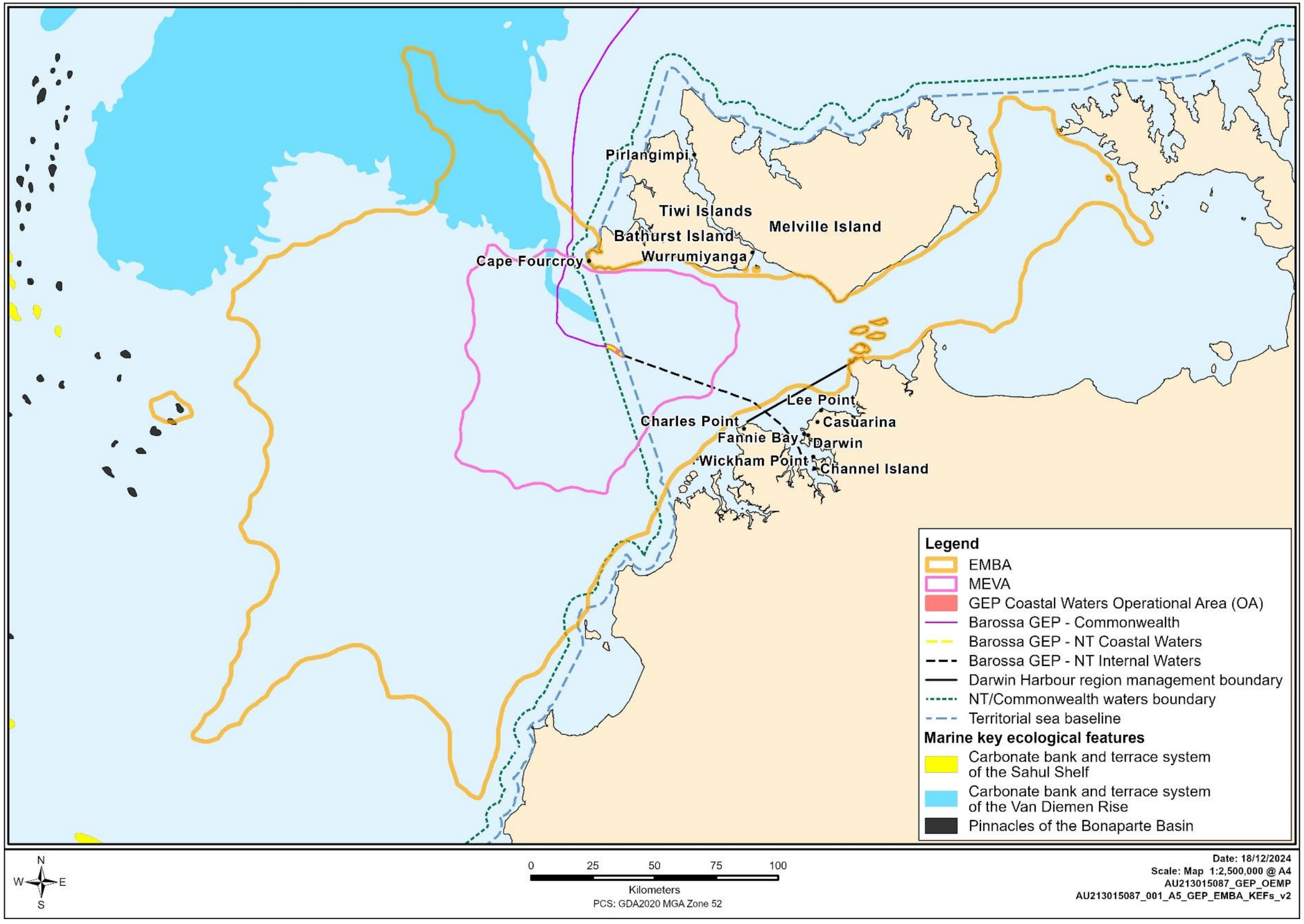

Figure 3-7: Key Ecological Features overlapping or proximal to the EMBA and MEVA

3.2.12.3.1 *Carbonate Bank and Terrace System of the Van Diemen Rise*

The EMBA and MEVA overlap the Carbonate Bank and Terrace System of the Van Diemen Rise KEF (Figure 3-7). The EMBA overlaps approximately 2,467 km^2 (7.89%) of the Carbonate Bank and Terrace System of the Van Diemen Rise KEF (Figure 3-7). The Carbonate Bank and Terrace System of the Van Diemen Rise covers about 31,278 km^2 and forms part of the larger system associated with the Shaul Banks to the north and Londonderry Rise to the east. The value of this KEF is 'unique seafloor feature with ecological properties of regional significance' (DEWHA, 2012a) and it is considered important both for its role in enhancing biodiversity and local productivity relative to its surrounds and for supporting relatively high species diversity. The KEF is characterised by carbonate terrace, banks, channels, and valleys, with variability in water depth and substrate composition contributing to unique ecosystems in the channels.

The carbonate banks and shoals found within the Van Diemen Rise make up 80% of the banks and shoals, 79% of the channels and valleys, and 63% of the terrace found across the NMR. The carbonate banks and shoals rise from depths of 100 to 200 m to within 10 m of the surface (Anderson et al., 2011).

A 2010 survey by Geoscience Australia and AIMS mapped the seabed environments of the Van Diemen Rise (Anderson et al., 2011). The study surveyed 784 km² towed video transects at 77 sites including banks, terraces, valleys and plains within the Van Diemen Rise. The shallow banks sampled contained complex benthic features with diverse and often dense epibenthic assemblages. A total of 175 video characterisations were recorded from 13 bank sampling sites in the study area from depths of 11 to 54 m (mean depth of 34 m). The sites were characterised by mostly low-lying rock outcrops with hard corals and octocorals (18% and 99% occurrence, respectively) along with smaller colonies of bryozoa and ascidians. The rocky outcrops were interspersed by small areas of relatively barren coarse-grained soft sediments (Anderson et al., 2011).

The KEF provides habitat for a high diversity of sponges, soft corals, and other sessile filter feeders, epifauna and infauna, along with olive ridley turtles, sea snakes and sharks. Rich sponge gardens and octocorals have been identified on the eastern Joseph Bonaparte Gulf along the banks, ridges, and some terraces. Plains in deep hole/valleys are characterised by scattered epifauna and infauna that include polychaetes and ascidians. Epibenthic communities such as the sponges found in the channels are likely to support fish and second-order consumers. Pelagic fish such as mackerel, red snapper and a distinct gene pool of gold band snapper are found in the Van Diemen Rise.

3.2.12.3.2 *Pinnacles of the Bonaparte Basin*

The EMBA overlaps approximately 10 km^2 (1.97%) of the Pinnacles of the Bonaparte Basin KEF (Figure 3-7). The limestone pinnacles of the Bonaparte Basin are located in the mid-outer shelf of the western Joseph Bonaparte Gulf and comprise of 61% of the limestone pinnacles in the Northwest Marine Region and 8% of the total limestone pinnacles found within the Australian Exclusive Economic Zone (EEZ) (Baker et al., 2008). The pinnacles are found in waters 30 to 80 m deep and provide hard substrate for sessile species. The pinnacles are thought to be remnants of the calcareous shelf and coastal features from previous low sea-level stands and have been recorded to be up to 50 m in height and range from 50 to 100 km long (Baker et al., 2008; Heyward et al., 1997).

Diverse communities of sessile benthic invertebrates including hard and soft corals, sponges, whips, fans, bryozoans and aggregations of demersal fish species such as snappers, emperors and groupers have been recorded (Brewer et al., 2007). Foraging and general use has been recorded within the pinnacles by marine turtles and the area has also been suggested to be used by freshwater and green sawfish as well as humpback whales (Donovan et al., 2008). The pinnacles have been recognised as a sponge biodiversity hotspot supporting greater diversity and communities than the surrounding seafloor (NERP MBH, 2014).

The Pinnacles of the Bonaparte Basin are defined as a KEF as they are a unique seafloor feature with ecological properties of regional significance. Their biodiversity value relates to both the benthic and pelagic habitats (CoA, 2012). The hard substrate of the pinnacles is likely to support a high number of species, although a better understanding of the species richness and diversity associated with these structures is required.

3.2.12.4 Commonwealth heritage areas

Australia's listed heritage places comprise natural, Indigenous, and historic heritage places which are either entirely within a Commonwealth area, or outside the Australian jurisdiction and owned or leased by the Commonwealth or a Commonwealth Authority. Significant heritage places are identified and grouped (by type) into lists that guide the protection and management of heritage values. Those heritage places located in the EMBA are shown in Figure 3-15 and have been described in Sections 3.2.14 and 3.2.15.

3.2.13 Threatened and migratory fauna

The PMST identified a number of threatened and migratory species (matters of national environmental significance, or MNES) listed under the EPBC Act with the potential to occur in marine or shoreline habitats in the EMBA. Fauna that may be present in the OA, MEVA and EMBA are presented in Table 3-10.

An examination of the species profile and threats (SPRAT) database (DCCEEW, 2022b) showed some threatened species were not expected to occur in significant numbers in the marine and coastal environments (within the EMBA) due to their terrestrial distributions. Species that may occur on shorelines include shorebirds, but terrestrial mammals, reptiles (such as pythons) and bird species that do not have core habitats along shorelines have been excluded. These species are unlikely to come into contact with a hydrocarbon spill and therefore are not discussed further.

An additional species, the grey nurse shark (*Carcharias taurus*; EPBC-listed Vulnerable), has been included in this GEP Coastal Waters OEMP as they were reported as occurring within or near the EMBA during surveys as part of the Barossa Marine Studies Program.

A compilation of tracking data from marine turtle telemetry studies on and around the Tiwi Islands indicates turtle foraging areas and migration pathways do overlap with the EMBA (Pendoley, 2023) (Table 3-11). The report identified that the waters surrounding the Tiwi Islands are traversed by marine turtles nesting in other areas of northern Australia, including olive ridleys from the Wessel Islands, flatback turtles from WA, QLD and the NT, green turtles from WA and from Groote Eylandt, and loggerhead turtles from WA. Collectively, these data indicate that marine turtle migratory pathways are largely restricted to the waters inside of the 100 m depth contour (i.e., waters less than 100 m deep).

Table 3-10: Threatened and migratory marine fauna that may be present in the OA, MEVA and EMBA

Marine fauna		EPBC Act 1999	Territory Parks and Wildlife Conservation Act 1976	OA		MEVA		EMBA	
Scientific name	Common name			May be present	Values or sensitivities	May be present	Values or sensitivities	May be present	Values or sensitivities
Fishes, sharks, and rays									
Anoxypristis cuspidata	Narrow sawfish	Migratory	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat likely to occur within area	✓	Species or species habitat known to occur within area
Carcharhinus longimanus	Oceanic whitetip shark	Migratory	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	species or species habitat may occur within area
Carcharodon carcharias	Great white shark	Migratory, Vulnerable	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Glyphis garricki	Northern river shark	Endangered	Endangered	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Breeding known to occur within area
Glyphis glyphis	Speartooth shark	Critically Endangered	Vulnerable	✗	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area
Isurus oxyrinchus	Shortfin mako	Migratory	✗	✗	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area
Isurus paucus	Longfin mako	Migratory	✗	✗	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area
Mobula alfredi	Reef manta ray	Migratory	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area
Mobula birostris	Giant manta ray	Migratory	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area
Pristis clavata	Dwarf sawfish	Migratory, Vulnerable	Vulnerable	✓	Species or species habitat known to occur within area	✓	Species or species habitat known to occur within area	✓	species or species habitat known to occur within area
Pristis pristis	Freshwater sawfish / largetooth sawfish	Migratory, Vulnerable	Vulnerable	✓	Species or species habitat may occur within area	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area
Pristis zijsron	Green sawfish	Migratory, Vulnerable	Vulnerable	✓	Species or species habitat known to occur within area	✓	Species or species habitat known to occur within area	✓	Species or species habitat known to occur within area
Rhincodon typus	Whale shark	Migratory, Vulnerable	Data deficient	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	species or species habitat may occur within area.
Sphyrna lewini	Scalloped hammerhead	Conservation Dependent	✗	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area	✓	Species or species habitat known to occur within area
Carcharias taurus	Grey nurse shark	Migratory, Vulnerable	✗	✗	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Marine mammals									
Balaenoptera borealis	Sei whale	Migratory, Vulnerable	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Foraging, feeding or related behaviour likely to occur within area.
Balaenoptera edeni	Bryde's whale	Migratory	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Species or species habitat likely to occur within area
Balaenoptera musculus brevicauda	Pygmy blue whale	Migratory, Endangered	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat likely to occur within area	✓	Migration route known to occur within area
Balaenoptera physalus	Fin whale	Migratory, Vulnerable	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Foraging, feeding or related behaviour likely to occur within area
Dugong dugon	Dugong	Migratory	✗	✗	N/A	✓	Species or species habitat known to occur within area	✓	Breeding known to occur within area
Megaptera novaeangliae	Humpback whale	Migratory	✗	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area
Orcaella heinsohni	Australian snubfin dolphin	Migratory, Vulnerable	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area	✓	Breeding known to occur within area.

Marine fauna		EPBC Act 1999	Territory Parks and Wildlife Conservation Act 1976	OA		MEVA		EMBA	
Scientific name	Common name			May be present	Values or sensitivities	May be present	Values or sensitivities	May be present	Values or sensitivities
Orcinus orca	Killer whale, orca	Migratory	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area
Sousa sahulensis	Australian humpback dolphin	Migratory, Vulnerable	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area	✓	Breeding known to occur within area
Tursiops aduncus	Spotted bottlenose dolphin	Migratory	✗	✓	Species or species habitat likely to occur within area	✓	Species or species habitat known to occur within area	✓	Species or species habitat known to occur within area
Marine reptiles									
Caretta caretta	Loggerhead turtle	Vulnerable Migratory Listed Marine	Vulnerable	✓	Species or species habitat likely to occur within area	✓	Species or species habitat known to occur within area	✓	Foraging, feeding, or related behaviour known to occur within area
Chelonia mydas	Green turtle	Vulnerable Migratory Listed Marine	✗	✓	Congregation or aggregation known to occur within area	✓	Foraging, feeding or related behaviour known to occur within area	✓	Breeding known to occur within area
Crocodylus porosus	Salt-water crocodile	Migratory	✗	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area
Dermochelys coriacea	Leatherback turtle	Vulnerable Migratory Listed Marine	Critically Endangered	✓	Species or species habitat likely to occur within area	✓	Foraging, feeding or related behaviour likely to occur within area	✓	Foraging, feeding or related behaviour known to occur within area
Eretmochelys imbricata	Hawksbill turtle	Vulnerable Migratory Listed Marine	Vulnerable	✓	Species or species habitat likely to occur within area	✓	Species or species habitat known to occur within area	✓	Breeding known to occur within area
Lepidochelys olivacea	Olive ridley turtle	Vulnerable Migratory Listed Marine	Vulnerable	✓	Congregation or aggregation known to occur within area	✓	Breeding known to occur within area	✓	Breeding known to occur within area
Natator depressus	Flatback turtle	Vulnerable Migratory Listed Marine	✗	✓	Congregation or aggregation known to occur within area	✓	Foraging, feeding or related behaviour known to occur within area	✓	Breeding known to occur within area
Seabirds and shorebirds									
Acrocephalus orientalis	Oriental reed-warbler	Migratory	✗	✗	N/A	✗	N/A	✓	Species or species habitat may occur within area
Actitis hypoleucos	Common sandpiper	Migratory	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area		Species or species habitat known to occur within area
Anous stolidus	Common noddy	Migratory	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Breeding known to occur within area
Apus pacificus	Fork-tailed swift	Migratory	✗	✗	N/A	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area overfly marine area
Arenaria interpres	Ruddy Turnstone	Migratory, Vulnerable	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Calidris acuminata	Sharp-tailed sandpiper	Migratory, Vulnerable	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Roosting known to occur within area
Calidris alba	Sanderling	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Calidris canutus	Red knot	Vulnerable Listed Marine Migratory	Endangered	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area overfly marine area

Marine fauna		EPBC Act 1999	Territory Parks and Wildlife Conservation Act 1976	OA		MEVA		EMBA	
Scientific name	Common name			May be present	Values or sensitivities	May be present	Values or sensitivities	May be present	Values or sensitivities
Calidris ferruginea	Curlew sandpiper	Critically endangered Listed Marine Migratory	Critically Endangered	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area overfly marine area
Calidris melanotos	Pectoral sandpiper	Migratory	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area overfly marine area
Calidris ruficollis	Red-necked stint	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Calidris subminuta	Long-toed stint	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Calidris tenuirostris	Great Knot	Migratory, Vulnerable	Critically Endangered	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Calonectris leucomelas	Streaked shearwater	Migratory	✗	✓	Species or species habitat known to occur within area	✓	Species or species habitat known to occur within area	✓	Species or species habitat known to occur within area
Cecropis daurica	Red-rumped Swallow	Migratory	✗	✗	N/A	✗	N/A	✓	Species or species habitat may occur within area
Charadrius dubius	Little ringed plover	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Charadrius leschenaultii	Greater sand plover	Vulnerable Listed Marine Migratory	Vulnerable	✗	N/A	✗	N/A	✓	Species or species habitat known to occur within area
Charadrius mongolus	Lesser Sand Plover, Mongolian Plover	Migratory, Endangered	Endangered	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Charadrius veredus	Oriental plover	Migratory	✗	✗	N/A	✗	N/A	✓	Roosting known to occur within area overfly marine area
Cuculus optatus	Oriental Cuckoo, Horsfield's Cuckoo	Migratory	✗	✗	N/A	✗	N/A	✓	Species or species habitat known to occur within area
Epthianura crocea tunneyi	Alligator Rivers Yellow Chat	Endangered	Endangered	✗	N/A	✗	N/A	✓	Species or species habitat may occur within area
Erythrura gouldiae	Gouldian Finch	Endangered	Vulnerable	✗	N/A	✗	N/A	✓	Species or species habitat likely to occur within area
Erythrotriorchis radiatus	Red goshawk	Endangered	Vulnerable	✗	N/A	✗	N/A	✓	Species or species habitat likely to occur within area
Falco hypoleucos	Grey Falcon	Vulnerable	Vulnerable	✗	N/A	✗	N/A	✓	Species or species habitat likely to occur within area
Fregata ariel	Lesser frigatebird	Migratory	✗	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area	✓	Breeding known to occur within area
Fregata minor	Great frigatebird	Migratory	✗	✓	Species or species habitat likely to occur within area	✓	Species or species habitat likely to occur within area	✓	Breeding known to occur within area
Gallinago megala	Swinhoe's snipe	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Gallinago stenura	Pin-tailed Snipe	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour likely to occur within area

Marine fauna		EPBC Act 1999	Territory Parks and Wildlife Conservation Act 1976	OA		MEVA		EMBA	
Scientific name	Common name			May be present	Values or sensitivities	May be present	Values or sensitivities	May be present	Values or sensitivities
Glareola maldivarum	Oriental pratincole	Migratory	✗	✗	N/A	✗	N/A	✓	Roosting known to occur within area overfly marine area
Hirundo rustica	Barn swallow	Migratory	✗	✗	N/A	✗	N/A	✓	Species or species habitat likely to occur within area
Limicola falcinellus	Broad-billed sandpiper	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Limnodromus semipalmatus	Asian dowitcher	Vulnerable Migratory	✗	✗	N/A	✗	N/A	✓	Species or species habitat likely to occur within area
Limosa lapponica baueri	Nunivak bar-tailed godwit	Endangered	Vulnerable	✗	N/A	✗	N/A	✓	Species or species habitat known to occur within area
Limosa lapponica menzbieri	Bar-tailed godwit (northern Siberian)	Migratory Endangered	Critically Endangered	✗	N/A	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area
Limosa limosa	Black-tailed Godwit	Migratory, Endangered	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Motacilla cinerea	Grey Wagtail	Migratory	✗	✗	N/A	✗	N/A	✓	Species or species habitat may occur within area
Motacilla flava	Yellow Wagtail	Migratory	✗	✗	N/A	✗	N/A	✓	Species or species habitat likely to occur within area
Numenius madagascariensis	Eastern curlew	Migratory, Critically Endangered	Critically Endangered	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Species or species habitat known to occur within area
Numenius minutus	Little Curlew	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Numenius phaeopus	Whimbrel	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Pandion haliaetus	Osprey	Migratory	✗	✗	N/A	✗	N/A	✓	Species or species habitat known to occur within area
Phaethon lepturus	White-tailed tropicbird	Migratory	✗	✓	Species or species habitat may occur within area	✓	Species or species habitat may occur within area	✓	Breeding known to occur within area
Phaethon rubricauda	Red-tailed tropicbird	Migratory	✗	✗	N/A	✗	N/A	✓	Species or species habitat may occur within area
Pluvialis fulva	Pacific golden plover	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Pluvialis squatarola	Grey plover	Migratory, Vulnerable	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Rostratula australis	Australian painted snipe	Endangered	Endangered	✗	N/A	✗	N/A	✓	Species or species habitat may occur within area overfly marine area
Sternula albifrons	Little tern	Migratory	✗	✗	N/A	✓	Breeding known to occur within area	✓	Breeding known to occur within area
Tringa brevipes	Grey-tailed Tattler	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area

Marine fauna		EPBC Act 1999	Territory Parks and Wildlife Conservation Act 1976	OA		MEVA		EMBA	
Scientific name	Common name			May be present	Values or sensitivities	May be present	Values or sensitivities	May be present	Values or sensitivities
Tringa glareola	Wood Sandpiper	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Tringa incana	Wandering Tattler	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Tringa nebularia	Common Greenshank, Greenshank	Endangered, Migratory	✗	✗	N/A	✗	N/A	✓	Species or species habitat known to occur within area
Tringa stagnatilis	Marsh Sandpiper, Little Greenshank	Migratory	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area
Tyto novaehollandiae Kimberli	Masked Owl (northern)	Vulnerable	Vulnerable	✗	N/A	✗	N/A	✓	Species or species habitat known to occur within area
Tyto novaehollandiae melvillensis	Tiwi Masked Owl	Endangered	Endangered	✗	N/A	✗	N/A	✓	Species or species habitat likely to occur within area
Geophaps smithii smithii	Partridge Pigeon (eastern)	Vulnerable	Vulnerable	✗	N/A	✗	N/A	✓	Species or species habitat likely to occur within area
Melanodryas cucullata melvillensis	Tiwi Islands Hooded Robin	Critically Endangered	Critically Endangered	✗	N/A	✗	N/A	✓	Species or species habitat likely to occur within area
Xenus cinereus	Terek Sandpiper	Migratory, Vulnerable	✗	✗	N/A	✗	N/A	✓	Foraging, feeding or related behaviour known to occur within area

Table 3-11: Summary of turtle species usage of Tiwi Island beaches and waters

Species	Use of Tiwi Islands beaches and waters					
	Nesting	Inter-nesting	Migration	Foraging	Overlap with OA	Overlap with EMBA
Olive ridley	Yes	Yes	Yes	Unknown	No	Yes (migration)
Flatback	Yes	Yes	Yes	Yes (WA, NT nesting stocks)	Yes (internesting)	Yes (migration)
Green	Yes	Yes*	Yes	Yes (WA, Scott Reef, NW Shelf, Ashmore stock, NT stocks)	No	Yes (migration)
Hawksbill	Yes	Yes*	Yes	Unknown	No	Unknown
Loggerhead	No	No	Yes	Yes	No	Yes (migration)
Leatherback	No	No	Unknown	Unknown	No	Unknown

** assumed based on nesting*

3.2.13.1 Marine mammals

3.2.13.1.1 *Whales*

Bryde's whale

Bryde's whales (*Balaenoptera edeni*; Migratory) are distributed across tropical and warm temperate waters with individuals recorded in all Australian states, except the NT (Ceccarelli et al., 2011). The species typically moves between 40 °N and 40 °S, with these movements seeming to be primarily linked to prey availability (Kato, 2002). Bryde's whales are thought to be divided into offshore and onshore forms with the distinction between the 2 based on prey preference (Ceccarelli et al., 2011). The offshore form is found in deeper waters (500 to 1,000 m) and is thought to migrate seasonally in favour of warmer waters in winter months. The onshore form generally inhabits waters over 200 m and displays no distinct migratory movements (Jenner et at., 2001). A noise monitoring study undertaken for the Barossa project detected Bryde's whales almost year-round from January to October (McPherson et al., 2016) and this species has been encountered off Browse Island (Ceccarelli et al., 2011). Bryde's whales may occasionally transit through the EMBA in small numbers.

Fin whale

Fin whales (*Balaenoptera physalus*; Vulnerable under the EPBC Act; Migratory) are widely distributed from polar to tropical waters and have been recorded in all Australian states, other than the NT (Bannister et al., 1996). Fin whales feed on planktonic crustacea, such as Antarctic krill, and primarily forage in high latitudes.

The species rarely occupies inshore waters and displays well defined migratory movements (essentially north south) between polar, temperate, and tropical waters (Ceccarelli et al 2011; Bannister et al. 1996). Research by Aulich et al. (2022; 2019) found that fin whales migrate along the WA coast from Cape Leeuwin to as far north as Dampier (19°S). After arriving at Cape Leeuwin in April, the species migrates north along the coast to the Perth Canyon, where they are suggested to aggregate and feed from May to October. This is thought to be a part of the migratory pathway of the species from Eastern Antarctic waters to Australian waters. Furthermore, it has been suggested that there are separate fin whale sub-populations on the east and west coasts of Australia (Aulich et al., 2022; 2019). Within Australian waters, the Bonney Upwelling is thought to be an important foraging ground for this species (TSSC, 2015c; Bannister et al., 1996).

The Australian fin whale distribution is unclear due to limited observations, but the species is thought to be present from Exmouth along the southern coastline to Qld. There are no known mating or calving areas in Australian waters and no BIAs have been developed for fin whales (TSSC, 2015c). Given their distribution and movements, fin whales are unlikely to occur in the EMBA.

Humpback whale

The humpback whale (*Megaptera novaeangliae*; Migratory) has a wide distribution with recordings throughout Eastern Antarctic waters and offshore from all Australian states (IUCN-MMPATF, 2023b; Bannister et al., 1996). These whales migrate between summer feeding grounds in Antarctica and winter breeding and calving grounds in the sub-tropical and tropical inshore waters of north-west Australia (Jenner et al., 2001). Although the exact timing of migration varies annually due to a number of factors including water temperature, the northbound migration peaks between late July and early August, and the southbound migration peaks between late August and early September (Jenner et al., 2001).

There has been a steady recovery in the humpback whale population that migrates along the WA coast since the closure of commercial whaling, and as a result the species was removed from the EPBC Act threatened species list in 2022 (TSSC, 2022).

Humpback whales breed and calve in the NWMR between Broome and the northern end of Camden Sound in the months of June to September each year (DCCEEW, 2024j) and a breeding and calving BIA for humpback whales is recognised in nearshore waters adjacent to the northern half of the Dampier Peninsula and encompasses Camden Sound (DCCEEW, 2024j).

Relatively few humpback whales have been known to travel north of Camden Sound (Jenner et al., 2001) and noise monitoring undertaken for the Barossa project did not detect any humpback whale calls in the Timor Sea (McPherson et al., 2016).

There are no BIAs for this species within the EMBA and given the available information on its distribution, it is considered unlikely to occur within the EMBA.

Pygmy blue whale

The blue whale (Balaenoptera musculus; Endangered under the EPBC Act; Migratory) has four distinct sub-species, two are found in the southern hemisphere—the pygmy blue whale (Balaenoptera musculus brevicauda; Indo-Australian and Tasman-Pacific populations) and Antarctic blue whale (Balaenoptera musculus intermedia; CoA, 2015a). As southern blue whales occur in waters south of 60°S and pygmy blue whales north of 55°S (CoA, 2015a), only pygmy blue whales are discussed below.

The pygmy blue whale is known to migrate along the WA shelf edge at depths between the 500 m and 1,000 m depth contours from the NW Cape south to Geographe Bay (CoA, 2015a). A biologically important migration corridor is recognised in the deep offshore waters off WA (IUCN-MMPATF, 2023a). The northerly migration toward the calving grounds near the equator occurs in March/April to June (Thums et al., 2021; CoA, 2015a). Noise monitoring for the Barossa project in the Timor Sea detected the presence of blue whales over 400 km north-east of the migration BIA for the species in the months of May to August during their north-bound seasonal migration. No detections of the species were made during the period of their southward migration (McPherson et al., 2016). The southerly migration to the feeding grounds in the high latitudes of the southern hemisphere occurs in September to December (CoA, 2015a). Pygmy blue whales appear to travel as individuals or in small groups when making their migrations (Woodside, 2014). Telemetry data collected from tagged pygmy blue whales indicates their migration patterns, highlighting a journey from the coastal waters of Western Australia to the surrounding marine regions of Indonesia (Sahri et al. 2022)

Generally, this species travels alone or in small groups based on acoustic data. Pygmy blue whale calls from noise loggers deployed around Scott Reef from 2006 to 2009 for the Woodside Browse project found 78% of calls to be from single whales, 18% from whale pairs and 4% from 3 or more whales (Woodside, 2014).

Possible foraging areas for pygmy blue whales in the wider region include Scott Reef off the northern coast of Western Australia (CoA (2015a), and along the Timor Trough (Burton et al. 2023; Ferreira et al. (2024). These areas are likely to provide important feeding grounds for the species, supporting their migratory and ecological needs. The steep gradient features of the Scott Reef location tend to stimulate upwelling and thus increased productivity (seasonally variable) (ConocoPhillips, 2018). There are no known breeding areas of significance to blue whales in the EMBA.

There are no BIAs for pygmy blue whales identified within the EMBA and, if present, are likely to be transient and in low numbers.

Sei whale

Sei whales (*Balaenoptera borealis*; Vulnerable under the EPBC Act; Migratory) are thought to have a wide distribution, but their distribution limits are unclear as this species is often confused with Bryde's whales. Sightings are rare, but the species may be seen in coastal and offshore waters throughout Australia (DCCEEW, 2024j; Bannister et al., 1996). The species is able to utilise a diverse range of marine habitats, which has been attributed to a combination of dynamic physical and prey processes (DCCEEW, 2024j).

Sei whale migratory movements are well defined with distinct north-south movements as the species migrates between polar, temperate, and tropical waters for foraging and breeding. The species feeds intensively between the Antarctic and sub-tropical convergences on planktonic crustacea (Ceccarelli et al., 2011; Bannister et al., 1996). There are no known mating or calving areas in Australian waters and the species is thought to infrequently occur in the NW region (Ceccarelli et al., 2011).

There are no BIAs for this species in Australian waters. However, it is possible that individual sei whales may occasionally occur within the EMBA.

3.2.13.1.2 *Dolphins*

Australian humpback dolphin

The Australian humpback dolphin (*Sousa sahulensis*; Migratory and vulnerable, previously/also known as the Indo-pacific humpback dolphin, *Sousa chinensis*) occurs in water of the Sahul Shelf, from northern Australia to the Kikori Delta in Papua New Guinea, and Bird's Head Seascape in West Papua (Jefferson & Rosenbaum, 2014). Although distribution, life history and habitat preferences of this species are poorly understood, the Australian humpback dolphin is thought to be associated with shallow coastal, estuarine, and tidal river waters less than 20 m in depth (Hanf et al., 2022).

In Australia, humpback dolphins occur along the northern Australian coastline from Shark Bay in WA to southern Queensland (Raudino et al., 2018; Hanf et al., 2022). In the NWMR, this species is thought to inhabit coastal waters up to the 30 m isobath (Hanf et al., 2022), but Australian humpback dolphins have been recorded up to 60 km offshore near Barrow Island, the Montebello Islands (approximately 80 km from the mainland coast and 20 km from Barrow Island), and the western Lowendal Islands (Raudino et al., 2018). Available abundance estimates indicate that this species occurs in small populations with an average of up to 89 individuals and a maximum of 0.19 individuals per km² (Parra & Cagnazzi, 2016).

There are breeding BIAs for Australian humpback dolphins that overlap the EMBA.

Australian snubfin dolphin

The Australian snubfin dolphin (*Orcaella heinsohni*; Migratory and vulnerable), previously known and only recently differentiated from the closely related Irrawaddy dolphin (*Orcaella brevirostris*), is a poorly known species inhabiting shallow coastal and estuarine waters and tidal rivers. The species typically occurs in water depths of less than 20 m in the vicinity of freshwater outflows but has been recorded up to 23 km offshore (Bouchet et al., 2021). The Australian snubfin dolphin is likely to occur in higher densities in areas of complex habitat type which provide a variety of prey types (Palmer et al., 2014).

In Australia, this species occurs in coastal waters of Qld, NT, and north-western Australia. The population in Australian waters is thought to be continuous with the Papua New Guinea species but separate from populations in Asia. Breeding is thought to occur throughout the year for this species.There are no BIAs that overlap the EMBA.

Spotted bottlenose dolphin (Indo-pacific bottlenose dolphin)

The spotted bottlenose dolphin (Arafura/Timor Sea populations; *Tursiops aduncus*; Migratory) is primarily found in nearshore continental shelf waters less than 200 m deep, with rocky or coral reefs, sandy, soft sediments, or seagrass beds (DSEWPaC, 2012a). Small populations also occur in the inshore waters of some oceanic islands (Ceccarelli et al., 2011).

In Australia, migration patterns for the species are variable, including year-round residency in small areas, long-range movements and migration (DCCEEW, 2023j). The species occurs in NT open coastal waters, primarily within the continental shelf and around oceanic islands. Spotted bottlenose dolphins forage in a wide range of habitats and in deeper waters than most dolphins. Groups are resident at Browse Island, Rowley Shoals and other island and reef complexes in offshore waters (Ceccarelli et al., 2011). There are no BIAs for this species within the EMBA

Orca

The largest member of the dolphin family, killer whales, or orca (*Orcinus orca*; Migratory) are a cosmopolitan species with a vast global distribution across a wide range of habitats. However, they appear to be primarily concentrated in coastal waters and cooler regions of high productivity as they are carnivores with a diet that varies seasonally and regionally (DCCEEW, 2023j; Bannister et al., 1996).

Globally, killer whales are known to migrate; however, specific routes and seasonal movement patterns are not known in detail and are thought to relate to prey availability (Bannister et al., 1996).

Killer whales are distributed throughout Australian waters, typically observed moving along the continental slope and shelf, and near seal colonies (Bannister et al., 1996). Migration movements within Australian waters include a summer migration from subantarctic islands to Macquarie Island (DCCEEW, 2023j). While killer whales are known to undertake seasonal migrations and follow regular migratory routes, little is known about these movements (DCCEEW, 2023j).

Killer whales are often observed around seal colonies and may be associated with humpback whale migrations, neither of which occur in the vicinity of the EMBA. No BIAs or migration routes have been identified for this species within the EMBA, although they may occur in low numbers.

3.2.13.1.3 *Dugong*

Dugongs (*Dugong dugon*; Migratory) occur in tropical and sub-tropical coastal and inland waters. They are commonly found in shallow areas to 25 m depth but have been observed in waters up to 37 m deep (Marsh, n.d.). Dugong feeding aggregations tend to occur in large seagrass meadows within wide shallow protected bays,

shallow mangrove channels and in the lee of large inshore islands. Although the movements of most individuals are limited to tens of kilometres in the vicinity of seagrass beds some individuals travel up to 1,000 km (Hobbs & Willshaw, 2015; Whiting, 2008).

Dugongs in the Torres Strait have large home-range sizes compared to other regions, likely due to the vast areas of seagrass, including over 13,000 km^2 of deep-water seagrass, the largest continuous area in Australia (Deutsch et al., 2022). This, along with large seagrass beds in shallow water around reefs, enables dugongs to travel long distances while staying relatively close to accessible food sources (Deutsch et al., 2022).

In northern Australia, the Darwin region supports a dugong population travelling over 300 km between rocky reef habitats (Whiting, 2008), and key sites for dugong conservation have been identified around Cobourg Peninsula, Croker Island and the north coast of the Tiwi Islands (PWSNT, 2003). Aggregations at these sites rank in the top eight dugong populations in Australia (PWSNT, 2003). Dugongs tracked in the INPEX Ichthys Project baseline surveys were recorded around the Vernon Islands, south of Melville Island, and spent time in Darwin Harbour and around the Tiwi Islands (INPEX, 2010).

There are no BIAs for dugong within the EMBA, but the species is likely to occur in suitable habitats.

3.2.13.2 Marine reptiles

3.2.13.2.1 *Marine turtles*

Flatback turtle

Flatback turtles (*Natator depressus*; Vulnerable under the EPBC Act; Migratory) are known to occur along the WA, NT and Queensland coastlines, and forage widely across the Australian continental shelf and into the continental waters off Indonesia and Papua New Guinea (CoA, 2017b). Flatback turtles are primarily carnivorous, predominantly feeding on soft-bodied invertebrates. This species breeds in the region, with the highest density rookeries found to be winter at Cape Domett and summer at Eighty Mile Beach, while moderate to lesser density nesting in winter occurred in the North Kimberley offshore islands (Tucker et al., 2021). Flatback turtles that nest within the Pilbara region typically migrate along the continental shelf to foraging grounds as far north as Darwin at the end of the nesting season, returning to breed at varying intervals of a year or more (Thums et al., 2020; CoA, 2017b). Tracking studies have shown individuals migrating from northern WA into Queensland waters and (conversely) from Deliverance Island in Queensland to Kimberley waters, with the waters around the Tiwi Island supporting migrating and foraging flatbacks (Pendoley, 2023).

Flatback turtles nesting within the NT are from the Arafura Sea breeding and genetic stock, with unknown long-term trends for this stock (CoA, 2017b). Nesting has been recorded on the Tiwi Islands, with flatback turtles the predominant nesting species on the southern and south-western beaches that fall within the EMBA (Pendoley, 2023). The greatest proportion of activity occurs on the west coast of Bathurst Island (Chatto & Baker, 2008) with nesting females numbering around 11 to 100 per year, which is comparable to or smaller than other nesting sites of the Arafura Sea genetic stock. Nesting and internesting occurs year-round with a peak from June to September, and hatchling emergence peaking between July and September (CoA, 2017b).

The Recovery plan for marine turtles in Australia defines a 60 km internesting buffer around the Tiwi Islands (CoA, 2017b). Whittock et al. (2016) defined suitable internesting habitat as waters up to 16 m deep within 5 to 10 km of the coastline, and unsuitable internesting habitat as waters over 25 m deep and more than 27 km from the coastline. They also tracked internesting flatback turtles from 5 different mainland and island rookeries and found that these turtles not only stayed in waters less than 44 m deep but were associated with a mean depth of under 10 m (Whittock et al., 2016). To date there is no evidence indicating flatback turtles in deep offshore waters during the internesting period (Pendoley, 2019). There are BIAs for flatback turtle internesting within the OA and EMBA.

Green turtle

Green turtles (*Chelonia mydas*; Vulnerable under the EPBC Act; Migratory) are predominately found off the WA, NT, and Queensland coastlines (CoA, 2017b). The green turtle is the most common marine turtle breeding in the NWMR, with WA supporting one of the largest remaining populations worldwide (DSEWPaC, 2012b). Green turtles travel up to 3,100 km between nesting and feeding areas (Ferreira et al., 2021; DSEWPaC, 2012b) and forage on algae, seagrass and mangroves, including on offshore coral reefs across northwestern Australia (Ferreira et al., 2021; CoA, 2017b).

In the NT, nesting sites occur mostly from the western end of Melville Island to near the Queensland border (NT Government, n.d). The Cobourg Peninsula green turtle genetic stock is the closest to those on the Tiwi Islands and they nest between October and April, with peak nesting period between December and January. Nesting in the Tiwi Islands includes the beaches within the EMBA on the south-west of Bathurst Island (Chatto & Baker, 2008; Pendoley, 2023). Nesting sites for the species in the Bonaparte or Van Diemen bioregions are Black/Smith Point and Lawson Island, east of the Tiwi Islands near Cobourg Peninsula (Chatto & Baker, 2008).

Green turtles are likely to be encountered within the EMBA, mainly within reef areas, and internesting is expected between October and April (CoA, 2017b). There is a BIA for green turtle foraging within the EMBA and critical habitat for green turtles overlaps the waters of the EMBA.

Hawksbill turtle

Hawksbill turtles (*Eretmochelys imbricata*, Vulnerable under the EPBC Act and TPWC Act: Migratory) predominately occur along northern Australian coastlines (WA, NT and Queensland), with 3 recognised stocks: north Queensland stock located in the north Great Barrier Reef and Torres Strait; north-east Arnhem Land stock in the NT; and WA stock located on the North West Shelf. On a global scale, WA provides one of the largest remaining hotspots for this species, and these migrating hawksbill turtles traverse shallow continental-shelf waters less than 200 m deep following the coastline and a migratory corridor along the Pilbara coast (Fossette et al., 2021). Hawksbill turtles are omnivorous and feed on algae, sponges, soft corals, and soft bodied invertebrates foraging in waters ranging from 1.5 to 84 m deep (Fossette et al., 2021). This species is typically associated with rocky and coral reef habitats, often returning to a small foraging area, and is expected to be found within these habitats along the WA coastline, from Shark Bay to the northern extent of the NWMR, migrating over 4,600 km from their nesting site (Crommenacker et al., 2022; Barr et al., 2021; CoA, 2017b). Unlike green turtles, there is little evidence that hawksbill turtles nesting elsewhere in WA, NT, or Queensland migrate to the Tiwi Islands to forage (Pendoley, 2023) and the islands are not listed as an important nesting, foraging, or internesting site for this species (CoA, 2017b).

In the NT, nesting occurs on islands concentrated around north-eastern Arnhem land and Groote Eylandt (NT Government, n.d) and is reported to occur from July to December (DSEWPaC, 2012b). Nesting on the Tiwi Islands has been recorded at Seagull Island and northern Melville Island (Chatto & Baker, 2008). There are no BIAs for the hawksbill turtle within the EMBA.

Leatherback turtle

Leatherback turtles (*Dermochelys coriacea*; Endangered under the EPBC Act; Critically Endangered under the TPWC Act; Migratory) are known to forage and migrate throughout the open offshore waters of Australia, with foraging more common along the east coast and Bass Strait. Leatherback turtles are pelagic throughout their life and feed almost exclusively on jellyfish. Records of leatherback turtles nesting in Australia are sparse, and limited to Queensland, NSW, and NT (DCCEEW, 2024j; CoA, 2017b), with scattered isolated nesting (one to 3 nests per year) in Qld and the NT (Limpus & McLachlin, 1994). Due to the lack of significant nesting sites in Australian waters, leatherback turtles are likely migrants from neighbouring countries foraging in Australia (Limpus, 2009). There are no BIAs for the leatherback turtle within the EMBA.

Loggerhead turtle

Loggerhead turtles (*Caretta caretta*; Endangered under the EPBC Act; Vulnerable under the TPWC Act; Migratory) range along most of the Australian coastline and throughout the NWMR (CoA, 2017b). This species is carnivorous and mainly feeds on benthic invertebrates in a wide range of habitats from nearshore to waters 55 m deep (CoA, 2017b). Breeding aggregations occur on Australia's east (Queensland, NSW) and west coasts. Loggerhead turtles have one genetic breeding stock within WA, with approximately 3,000 females supporting the third-largest population in the world (CoA, 2017b; Limpus, 2008; Baldwin et al., 2003).

Capable of large migrations, individual loggerhead turtles from both WA and eastern Australian waters have been recorded foraging in the NT, and further afield in Indonesia and Papua New Guinea (Perez et al., 2022; Pendoley, 2023). In the Kimberley region, loggerhead turtles are thought to be transient or end-of-migration foragers with no documented nesting sites in the area (Tucker et al., 2021). Although loggerhead turtles forage in the Oceanic Shoals Marine Park, the Arafura Sea, and the Gulf of Carpentaria, they are not known to breed in the region. Loggerheads found within the EMBA most likely come from the WA population, nesting outside the EMBA (CoA, 2017b). No BIAs for loggerhead turtles intersect the EMBA.

Olive ridley turtle

Olive ridley turtles (*Lepidochelys olivacea*; Endangered under the EPBC Act; Vulnerable under the TPWC Act; Migratory) are known to nest in the NT and on western Cape York (Queensland), with low density nesting recorded on the Kimberley coast, in the Dampier Peninsula and along Camden Sound (Tucker et al., 2021; CoA, 2017b). This species is primarily carnivorous and feeds on soft-bodied invertebrates in waters between 15 m and 200 m in depth. Olive ridley turtles migrate through oceanic waters, travelling up to 1,130 km between their nesting and foraging grounds (Cáceres-Farias et al., 2022; CoA, 2017b; Whiting et al., 2005). All reported olive ridley movements were largely restricted to within the 100 m depth contour (Pendoley, 2023).

Olive ridley turtles are known to nest on the Tiwi Islands on the west coast of Bathurst Island and the north coast of Melville Island. These turtles are part of the NT genetic stock, significant at both a national and international level (CoA, 2017b). The NT genetic stock nests throughout the year, with peaks between April and June, and most hatchlings emerge between June and August (CoA, 2017b).

Internesting habitat for this species encompasses nearshore waters along the north, west and east coasts of the Tiwi Islands. Tracking studies showed these turtles remain close to shore in waters less than 55 m deep within 37 km of the nesting beach during the internesting interval (Whiting et al., 2007; 2005). Migrating olive ridley turtles tracked from the Tiwi Islands typically moved in a northeast and west/south-westerly direction, to foraging grounds ~300–400 km to the west in the Joseph Bonaparte Gulf or up to 1,200 km away in the Arafura Sea and Gulf of Carpentaria (Pendoley, 2023). Olive ridley turtles may be encountered in the shallow waters of the Tiwi Islands, with BIAs for foraging and nesting intersecting the EMBA.

3.2.13.2.2 *Crocodiles*

The salt-water crocodile (*Crocodylus porosus*; Migratory) were listed under the EPBC Act to regulate commercial hunting which caused a significant decline in the population (DCCEEW, 2024j). Salt-water crocodiles are found across northern Australia and occur within the nearshore marine and estuarine waters of the Kimberley coast (DCCEEW, 2024j). Larger populations within the major river systems of the Kimberley occur in the rivers draining into the Cambridge Gulf, the Prince Regent and Roe River systems of the east and northwest Kimberley (DCCEEW, 2024j). There is limited availability of nesting habitat for this species within its distribution, with only the Ord, King and Roe River systems typically providing suitable nesting vegetation for the species (DCCEEW, 2024j). There are no BIAs for the salt-water crocodile within the EMBA, but given their widespread distribution, they are likely to be present within the EMBA.

3.2.13.2.3 *Sea snakes*

Sea snakes are typically distributed in shallow inshore regions and the Tiwi Islands, which provide suitable seabed habitat and clear waters. However, they are also found further offshore at atolls, including the shoals/banks in the Timor Sea (Guinea, 2013).

Most sea snakes are observed in water depths ranging between 10 and 50 m (RPS, 2010) and generally have shallow, benthic feeding patterns. Some species are known to dive deeper than this, but non-pelagic species seldom, if ever, dive deeper than 100 m (Heatwole, 1975). Very few species are known to inhabit deep pelagic environments, given they are air-breathing (Guinea, 2006).

Distribution and movements of sea snakes are largely species-dependent with some species, such as the pelagic yellow-bellied sea snake, known to travel large distances, while others, such as the olive sea snake, usually reside in a particular area.

3.2.13.3 Sharks, rays, and other fish

3.2.13.3.1 *Sharks*

Grey nurse shark

The grey nurse shark (*Carcharias taurus*; Vulnerable and migratory under the EPBC Act) has a wide but patchy tropical and temperate distribution in the Indo-West Pacific and Atlantic oceans. There are 2 distinct subpopulations in Australia on the east and west coast. The west coast population inhabits coastal and continental shelf waters from south west Western Australia (WA) (Albany) up to the North West Shelf (FRDC, 2019) and although one aggregation site has been documented, data on their distribution along the WA and NT coastline is lacking (Hoschke et al., 2023). Grey nurse sharks undertake large-scale movements to potentially capitalise on seasonal prey aggregations, with individuals migrating 1,294 km along the WA coast from SW WA to Ningaloo, and 1,500 km on the east coast (Dwyer et al., 2023; DCCEEW, 2024j; Jakobs et al., 2019). Grey nurse sharks are thought to move further north along the coast when from May to December with lower sea temperatures. Individuals have been caught near Browse Island and off Bali, Indonesia (Hoschke et al., 2023; Momigliano & Jaiteh, 2015). During the Barossa marine studies program, 4 grey nurse sharks were observed at seamounts in waters 130 m deep, one possibly pregnant (Jacobs, 2016). This was considered unusual as neither of the subpopulations are known to extend that far north and are generally associated with shallower, more coastal waters (DCCEEW, 2024j). Given grey nurse sharks have been observed at seamounts and oceanic coral reefs in the Timor Sea, the species may be present around reefs, banks, and seamounts in the EMBA.

Mako sharks

Shortfin mako (*Isurus oxyrinchus*; Migratory) and longfin mako (*Isurus paucus*; Migratory) sharks are both highly migratory epipelagic species. The shortfin mako is a common shark in tropical and temperate waters above 16 °C (Groeneveld et al., 2014), and as such widespread throughout Australian waters except for the Torres Strait, Arafura Sea and Gulf of Carpentaria (FRDC 2019; Birkmanis et al., 2020; Kyne et al., 2021a). Shortfin mako sharks exhibit sexual and developmental segregation; juveniles spend 90% of their time near the surface whereas adults dive much deeper (Groeneveld et al., 2014). In contrast, the wide but patchy distribution and biology of the rarely encountered longfin mako is less well documented (Kyne et al., 2021a). This epipelagic shark also inhabits tropical and warm-temperature waters. In Australia, longfin mako sharks are found from Geraldton in WA across the Northern Territory and Queensland down to Port Stevens in NSW (FRDC, 2019; Rigby et al., 2019). These species may be rarely encountered within the EMBA.

Oceanic whitetip shark

The oceanic whitetip shark (*Carcharhinus longimanus*; Migratory) is a highly mobile globally widespread species found in tropical and warm temperate waters between 18 to 28°C from the surface to at least 180 m, venturing close to shore where the continental shelf is narrow (Kyne et al., 2021a). Within Australian waters, this rarely encountered species is found in warmer waters from Cape Leeuwin in WA across northern Australia down to Sydney (Kyne et al., 2021a). Oceanic whitetip sharks have been globally assessed as Critically Endangered by the IUCN, overfished by SAFS, and listed on CITES Appendix II (FRDC, 2019). It is possible that individuals of this species may be encountered within the EMBA.

Northern river shark

Northern river sharks (*Glyphis garricki*; Endangered under the EPBC Act and TPWC Act) are rare and although their distribution is uncertain, they are known to occur in the Ord and King Rivers, King Sound and Joseph Bonaparte Gulf in WA, along with the South and East Alligator Rivers and the Wessel islands in NT (Udyawer et al., 2021; FRDC, 2019; DSEWPaC, 2010). These sharks are thought to segregate during various life stages, occupying rivers, estuarine systems, macrotidal embayments as well as inshore marine habitats (Kyne et al., 2021a; FRDC, 2019; DSEWPaC, 2010). Although the northern river shark has been recorded in offshore waters, the frequency of this occurrence is unknown.

The Sawfish and River Shark Multispecies Recovery Plan (CoA, 2015b) recorded observations of adults and juveniles in marine waters north of Derby, WA while pupping and juveniles occur in King Sound and Cambridge Gulf. Under the recovery plan, all aggregations, and areas of biologically important behaviours such as breeding, foraging, resting, or migrating are considered critical to the survival of the species. Individuals may be encountered in low numbers within the EMBA.

Speartooth shark

The speartooth shark (*Glyphis glyphis*; Critically Endangered under the EPBC Act; Vulnerable under the TPWC Act) has been recorded as occurring in macrotidal rivers and estuary environments, with juveniles and sub-adults utilising large tropical river systems as their primary habitat (Kyne et al., 2021b; Stevens et al., 2005). It is thought that their marine distribution may be limited to the coastal marine environment outside of rivers (Udyawer et al., 2021; FRDC, 2019). While the speartooth shark is known to inhabit the Wenlock/Ducie/Port Musgrave river system in Qld and various rivers of the Van Diemen Gulf in the NT, new populations of this species were recently discovered in the Daly River, NT and the Ord River, WA (Kyne et al., 2021b). It has been recorded in tidal rivers and estuaries with turbid waters with fine muddy substrates in temperatures ranging from 27 to 33 °C (Pillans et al., 2009).

Remaining populations throughout Australia are considered isolated with questionable viability. Both species were listed as threatened in 2001 due to their limited geographical distribution and low population estimates, and the population decline is likely to continue (DSEWPaC, 2010).

Scalloped hammerhead shark

The scalloped hammerhead shark (*Sphyrna lewini*; Conservation Dependent under the EPBC Act) is a coastal and semi-oceanic species globally distributed in tropical and warm-temperate waters from the intertidal zone to at least 275 m in depth, with newborns found in coastal zones (Kyne et al., 2021a; FRDC, 2019). Recent studies suggest that the Indo-Pacific population (including Australia) is genetically distinct from the Atlantic and Caribbean populations. There is likely to be 2 subpopulations in Australian waters (WA and the rest of Australia), with the non-WA subpopulation connected to Papua New Guinea and Indonesia by shallow water habitats along northern Australia (Green et al., 2022). Across northern Australia, the pupping season peaks from October to January (TSSC, 2018). This mobile species has a broad Australian range from NSW and Qld across the NT to WA (Bartes & Braccini, 2021; Kyne et al., 2021a; FRDC, 2019). Scalloped hammerhead sharks are known to occur within the EMBA.

White shark

The white shark (*Carcharodon carcharias*; Vulnerable under the EPBC Act; Migratory) is primarily a temperate species with a wide Australian range and 2 subpopulations; eastern Australasia (from Papua New Guinea along Australia's east coast and Macquarie Island to the south-western Pacific, including waters off New Caledonia, Vanuatu and Tonga) and a southern-western population (from western Victoria across southern Australia and up the WA coast; DSEWPaC, 2013; FRDC, 2019; Kyne et al., 2021a). Although the species has been recorded south from central Qld to up to Ningaloo Reef and may occur further north on both coasts, white sharks are not known to aggregate within the NWMR or NMR and are most likely to be found south of North West Cape (DSEWPaC, 2012a; 2012c). The reasons for movements to north-western WA are unknown and little information is available on their reproduction in Australian waters (McAuley et al., 2016; DSEWPaC, 2012c). White sharks are unlikely to be seen in the EMBA.

3.2.13.3.2 *Rays*

Manta ray

The giant manta ray (*Mobula birostris*; Migratory) and reef manta ray (*Mobula alfredi*; Migratory) are globally distributed in both tropical and temperate waters. Giant manta rays are considered to be the more migratory and oceanic species of the 2, and individuals of this highly mobile species are not expected to be resident in Australian waters (Kyne et al., 2021a; Couturier et al., 2015). While considered more solitary and less frequently sighted than reef manta rays, giant manta rays can be found in large numbers engaging in foraging, mating, or cleaning activities and exhibit seasonal habitat preferences frequenting offshore seamounts and islands (Marshall et al., 2022a).

The reef manta ray typically utilises productive nearshore habitats, including island groups, atolls and continental coastlines (Marshall et al., 2022b), and is coastally distributed across the north of Australia to approximately 30°S on both coasts (Armstrong et al., 2020). While reef manta rays demonstrate a high degree of site fidelity in tropical and subtropical waters, this species has also been shown to travel up to 700 km, undertake seasonal migrations and traverse international waters (Couturier et al., 2015). Reef manta rays are often sighted in high numbers, predominately when undertaking foraging activities or migrating. There are no known foraging or breeding aggregation areas for these species within the EMBA. Based on the habitat preferences of these rays, it is unlikely that either species would occur in large numbers although individuals may transit through the area.

3.2.13.3.3 *Other fish*

Dwarf sawfish

The dwarf sawfish (*Pristis clavata*; Vulnerable under the EPBC Act and TPWC Act; Migratory) is primarily found in shallow coastal and estuarine areas, from Cairns in Queensland around the north of Australia to the Pilbara coastline in WA, with juveniles thought to remain in estuarine waters (FRDC, 2019; DEWHA, 2009). Sawfishes feed on a variety of teleost fishes and benthic invertebrates, including cephalopods, crustaceans, and molluscs (Lear et al., 2023; Thorburn et al., 2007; 2008; Pogonoski et al., 2002).

Green sawfish

The green sawfish (*Pristis zijsron*; Vulnerable under the EPBC Act and TPWC Act; Migratory) is most common in shallow coastal and estuarine areas, but this species has been recorded in water depths of up to 70 m from Cairns, Queensland across to Broome, WA (FRDC, 2019; DEWHA, 2008a). Green sawfish appear to have limited tidally influenced movements, occupying only a few square kilometres within the coastal fringe, and strongly associated with mangroves and adjacent mudflats (Lear et al., 2023). Baseline surveys for Chevron's Wheatstone project identified green sawfish habitat and juvenile nursery areas within the north-eastern lagoon of the Ashburton Delta and in Hooley Creek near Onslow. Although their spatial and temporal distribution in these creeks is variable with changing tidal and environmental conditions, they typically return to inshore waters to breed and pup during the wet season (Chevron, 2011). Sawfishes feed on a variety of teleost fishes and benthic invertebrates (Lear et al., 2023; Thorburn et al., 2007; 2008; Pogonoski et al., 2002).

Largetooth sawfish

The largetooth sawfish (*Pristis pristis*; Vulnerable under the EPBC Act; Migratory) inhabits the sandy or muddy bottoms of river, estuarine and marine environments within north-west Australia and has a patchy distribution including the Fitzroy, Durack, Robinson and Ord rivers in WA. Newborns and juveniles occur primarily in the freshwater areas of rivers and in estuaries, while adults mostly occupy marine and estuarine environments (FRDC, 2019; DSEWPaC, 2012c).

Whale shark

The whale shark (*Rhincodon typus*; Vulnerable under the EPBC Act; Migratory) is globally distributed in tropical and warm temperate seas, except the Mediterranean. There are 2 distinct subpopulations, with approximately 75% of the global population in the Indo-Pacific, and the remaining 25% in the Atlantic Ocean (Vignaud et al., 2014 in FRDC, 2019). Ningaloo Reef in WA is a known aggregation site, and whale sharks congregate off Christmas Island from December to January. These aggregations are thought to be linked to seasonal prey fluctuations (TSSC, 2015g). The species is an epipelagic filter feeder with a diet of planktonic and nektonic species, including small crustaceans and smaller schooling fish species (DCCEEW, 2024j). Whale sharks are known to be highly migratory with migrations of over 20,000 km recorded (Guzman et al., 2018). Migration along the northern WA coastline broadly follows the 200 m isobath and typically occurs between July and November (TSSC, 2015g).

Wilson et al. (2006) recorded 6 whale sharks departing Ningaloo Reef and traveling north-east into the Indian Ocean. Meekan and Radford (2010) showed that whale sharks migrated up the coast from Ningaloo Reef and individually dispersed over a broad area; either north-west into the open Indian Ocean, northward towards Sumatra and Java, or north-east towards the Timor Sea; and Thomson et al., (2021) more recently recorded whale sharks tagged in Ningaloo Reef traveling to the North West Shelf. Due to their widespread distribution, highly migratory whale sharks may occur in low numbers within the EMBA.

3.2.13.4 Seabirds and shorebirds

3.2.13.4.1 *Threatened species*

Alligator Rivers yellow chat

The Alligator Rivers yellow chat (*Epthianura crocea tunneyi*; Endangered under the EPBC Act and TPWC Act) is a small insectivorous bird that occurs mostly within the Kakadu National Park. The species' range and numbers are thought to have declined after habitat loss from cattle grazing, and habitat degradation caused by feral pigs and water buffalo. Its total population size is now very small, only around 100 individuals. (National Environmental Science Program Threatened Species Research Hub, 2019). Historically this species inhabits coastal grassy floodplains, however sightings have become rare and anecdotal. It is thought likely that there are small, undiscovered groups of chats, but that the overall population is still likely to be very small and to have suffered decline over time (National Environmental Science Program Threatened Species Research Hub, 2019). Given the areas historically observed to be inhabited by this species, it is unlikely to occur within the EMBA.

Asian dowitcher

The Asian dowitcher (*Limnodromus semipalmatus*; Vulnerable under the EPBC Act; Migratory) is a large, distinctive wader with a long neck, long legs, and a long, straight, snipe-like bill (DCCEEW, 2024j). In Australia, this bird is only a regular visitor to coastal areas between Broome and Port Hedland and the Port McArthur tidal wetlands in the Gulf of Carpentaria, arriving from August (DCCEEW, 2024f). It roosts in sheltered coastal environments such as estuarine and intertidal mudflats, lagoons, creeks and saltworks, and feeds on inter-tidal mudflats (DCCEEW, 2024f). Only a small proportion of the non-breeding population arrive in Australia, occasionally recorded in the NT and rarely in western and eastern Australia (DCCEEW, 2024j). In the NT, the Asian dowitcher is found in Darwin and Arnhem Land (DCCEEW, 2024j). No sites of international significance are listed in the NT for this species (Birdlife Australia, 2020). The Asian dowitcher typically leaves north-west Australia by the end of April to return to northern hemisphere breeding grounds (DCCEEW, 2024j; DCCEEW, 2024j). Given the areas historically observed to be inhabited by this species, individuals may seasonally occur within the EMBA.

Australian painted snipe

The Australian painted snipe (*Rostratula australis*; Endangered under the EPBC Act and TPWC Act) is a wading bird that has been recorded in wetlands of all Australian states, most frequently recorded in the Murray-Darling Basin and in smaller numbers and less frequently at scattered locations in WA and NT (DCCEEW, 2024j; DEPWS, 2021a). The most northerly breeding records are from near Derby and Taylor's Lagoon, near Broome and at Tarrabool Lake on the Barkly Tablelands. Although this species is only occasionally recorded in northern Australia, it has been recorded in northern WA and NT from McMinns Lagoon near Darwin and Yellow Waters in Kakadu (DCCEEW, 2024j; DEPWS, 2021a; Trainor et al., 2017; Knuckey et al., 2013). While this species generally inhabits shallow terrestrial freshwater and occasionally brackish wetlands and other waterlogged areas, the Australian painted snipe requires shallow wetlands with areas of bare wet mud and canopy cover nearby for breeding (DCCEEW, 2022a). The PMST report states that this species or habitat may occur within the area. However, as the Australian painted snipe primarily inhabits freshwater wetlands, it is unlikely to occur in the EMBA.

Black-tailed godwit

Black-tailed godwits (*Limosa limosa*; Endangered under the EPBC Act; Migratory) are found in all states and territories of Australia during the non-breeding (austral summer) season, with coastal regions supporting the highest densities of the species. This bird usually first arrives in north-west Australia from late August, and most have departed the NT by mid April (DCCEEW, 2024e). The largest populations are found on the north coast between Darwin and Weipa (DCCEEW, 2024e). Roosting usually occurs in sheltered bays, estuaries, and lagoons with large intertidal mudflats and/or sandflats. Feeding habitat includes areas of mud or soft, wet sand within sandflats, intertidal mudflats, saltmarshes, and the beaches of oceanic coastlines, bays, and estuaries (DCCEEW, 2024e). Areas of importance to the species in the NT include Darwin Harbour, North Darwin (the Beagle Gulf coastline), Legune Wetlands and Milingimbi Coast, but none of these are considered to have international significance (Birdlife Australia, 2020). Given the areas historically observed to be inhabited by this species, individuals may seasonally occur within the coastline of the EMBA.

Common greenshank

The common greenshank (*Tringa nebularia*; Endangered under the EPBC Act; Migratory) is widespread in coastal regions, occurs in all types of wetlands and has the widest distribution of any shorebird in Australia (DCCEEW, 2024h). The species is sparsely scattered through most of the NT (DCCEEW, 2024h), with important areas in the Kakadu National Park, Milingimbi coast, and the south-west coastline of the Gulf of Carpentaria, but no sites of international significance in the NT (Birdlife Australia, 2020). The common greenshank roosts around wetlands, in shallow pools and puddles, or slightly elevated on rocks, sandbanks or small muddy islets (DCCEEW, 2024h). They occur in estuaries and mudflats, mangrove swamps and lagoons (DCCEEW, 2024h). During feeding, the birds pick from the surface (DCCEEW, 2024h) while wading in shallow water along the edge of tidal estuaries, muddy claypans, saltworks and saltpans (DCCEEW, 2024h). The species arrives in Australia from August, with

most leaving by March and April, but some overwintering also occurs (DCCEEW, 2024h). Given the areas historically observed to be inhabited by this species, individuals may seasonally occur within the EMBA.

Curlew sandpiper

The curlew sandpiper (*Calidris ferruginea*; Critically Endangered under the EPBC Act and TPWC Act; Migratory) has a broad distribution and has been recorded along the coasts of all Australian states and territories (DCCEEW, 2024j). In WA, curlew sandpipers occur in large numbers at Port Hedland Saltworks, 80 Mile Beach, Roebuck Bay, and Lake Macleod, but is rarely recorded in the north-west Kimberley. In NT, curlew sandpipers mostly occur around Darwin, north to Melville Island and Cobourg Peninsula, and east and south-east to Gove Peninsula, Groote Eylandt, and Sir Edward Pellew Island (TSSC, 2015e). Although the species prefers intertidal mudflats in sheltered coastal areas to forage in nearshore waters or mud at the edge of wetlands, they are also widespread inland in smaller numbers (TSSC, 2015e). The curlew sandpiper migrates along the East Asian-Australasian Flyway (Flyway) from their breeding grounds in Siberia to Australia, generally arriving from late August/early September and departing by mid-April. Some non-breeding individuals may stay in Australia (TSSC, 2015e). The PMST report states that this species or habitat may occur within the area and individuals may be present within the EMBA based on their known NT distribution.

Eastern curlew

The eastern curlew (*Numenius madagascariensis*; Critically Endangered under the EPBC Act and TPWC Act; Migratory) is the world's largest species of shorebird (DCCEEW, 2024j; Menkhorst et al., 2017). Eastern curlews migrate annually to breeding grounds in Russia and north-eastern China before returning to Australia in August to forage primarily on crabs in intertidal mudflats (Menkhorst et al., 2017; Bamford et al., 2008). In Australia, the species has a continuous distribution from Barrow Island and Dampier Archipelago in WA through the Kimberley and along the NT, Qld, NSW coasts including the Torres Strait islands (TSSC, 2015f). There has been an increase at 2 sites in the Darwin region between 2009 and 2015, at Lee Point numbers have increased by 9% per year and 17% per year at East Arm Wharf in Darwin Harbour (Lilleyman et al., 2016). This local increase may be due to changes in roosting behaviour and an increase in suitable high tide roosting habitat. The PMST report states that this species or habitat may occur within the area, and individuals may fly over and be present within the EMBA.

Gouldian finch

The gouldian finch (*Erythrura gouldiae*; Endangered under the EPBC Act; Vulnerable under the TPWC Act) is a small, brightly coloured bird endemic to northern Australia, with its range extending from the Cape York Peninsula, QLD through to the Kimberly region, WA (O'Malley, 2006) with a northern extent of the Top End of the Northern Territory. The species has suffered substantial population declines throughout its range across Australia, with fewer than 2,500 mature birds estimated. Due to the population decline of the species, small populations of the animals are distributed in parts of the Kimberly and the Northern Territory. Within the NT, the gouldian finch is known to inhabit 6 areas: Yinbirrie Hills, Limmen Gate National Park, Kakadu National Park, Bradshaw Field Training Area, Newry Station, and Keep River National Park. The diet of the gouldian finch consists of seed from a range of grass species and insects (O'Malley, 2006). Due to their habitat and diet, and their restriction to mainland Northern Territory, it is unlikely that they will be present within the EMBA.

Great knot

The great knot (*Calidris tenuirostris*; Vulnerable under the EPBC Act; Critically Endangered under the TPWC Act; Migratory) is a medium-sized migratory shorebird with relatively short legs, a slender medium-length bill and a wingspan of about 58 cm (DCCEEW, 2024d). The species breeds in north-east Siberia and far north-east Russia and migrates along the East Asia-Australasian Flyway to overwinter in the southern hemisphere (DEPWS, 2021c). Most that reach Australia settle along the northern coastline between north-west WA and the Gulf of Carpentaria, but significant numbers reach eastern Queensland and there are reports of great knots from most Australian coastal areas. The species is common in the NT from Darwin to the south-west Gulf of Carpentaria (DCCEEW, 2024d) with internationally significant numbers recorded in North Darwin (Beagle Gulf coastline) and the Milingimbi Coast (Birdlife Australia, 2020). It prefers sheltered coastal habitats with extensive tidal mudflats or sandflats, including estuaries, lagoons, inlets, and bays. Great knots are gregarious and frequently occur in large flocks with other shorebirds (including red knots), especially when roosting during high tides. They specialise in feeding on bivalves, but also consume other marine invertebrates. Prey are captured on or just below the surface of wet mud or sand (Garnet et al., 2011, DEPWS, 2021c). Given the areas historically observed to be inhabited by this species, individual birds may fly over and feed in coastal zones within the EMBA.

Greater sand plover

Greater sand plovers (*Charadrius leschenaultia*; Vulnerable under the EPBC Act and TPWC Act; Migratory) are shorebirds that migrate from breeding areas in Mongolia, Siberia, and China to coastal areas of all Australian states with the area around Darwin an internationally important site. This species occurs in the greatest numbers in northwestern Australia and is widespread between Northwest Cape and Roebuck Bay in WA, with scattered records between Roebuck Bay and Darwin. Greater sand plovers are recorded from most of the coastline of the NT, with significant areas around the Joseph Bonaparte Gulf, from Anson Bay to Murgenella Creek (including the

south coast of the Tiwi Islands), the northern Arnhem coast, and the Port McArthur area (TSSC, 2016). In Australia, greater sand plovers are almost entirely coastal, inhabiting sheltered muddy, sandy, or shelly beaches, large intertidal mudflats, saltmarshes, estuaries, sandbanks, coral reefs, rocky islands rock platforms, tidal lagoons, and coastal dunes. Greater sand plovers feed on molluscs, worms, crustaceans, and insects they find in wet sand or mud on open intertidal flats (DCCEEW, 2023e). The PMST report states that this species or habitat is likely to occur within the area, and individuals may fly over and be present within the EMBA.

Grey Falcon

Grey falcon (*Falco hypoleucos*; Vulnerable under the EPBC Act and TPWC Act) occur throughout much of the arid and semi-arid zones of Australia, in areas of sparsely timbered lowland plains, typically on inland drainage systems. The species has been recorded across the NT, including on the Tiwi Islands (DEPWS, 2021i). Grey Falcons use nests built by other bird species and prefer those in the tallest trees along watercourses. The Grey Falcon is a specialist predator of birds, particularly parrots and pigeons (TSSC, 2020). Birds may fly over and feed in coastal zones within the EMBA.

Grey plover

Grey plovers (*Pluvialis squatarola*; Vulnerable under the EPBC Act; Migratory) have been recorded along the coast in all states of Australia, with small numbers regularly recorded in the NT (DCCEEW, 2024g). Migrating birds arrive in northern Australia between August and October with many continuing their migration to southern regions. Plovers which have remained along the northern coastline for the non-breeding season leave between February and April (DCCEEW, 2024g). Some non-breeding individuals may stay in Australia. The species usually roosts in sheltered, sandy areas including unvegetated sandbanks or sand-spits, or other sheltered environments such as estuaries or lagoons, and are often seen in small numbers on mangrove mudflats (DCCEEW, 2024g). Kakadu National Park, Milingimbi coast, and the south-west coastline of the Gulf of Carpentaria have been identified as areas of importance to this species in the NT, but they do not represent sites of international significance (Birdlife Australia, 2020). In Australia, grey plovers feed by pecking and probing for worms, molluscs, and crustaceans mostly in mud or soft, wet sand of sandflats, intertidal mudflats, saltmarshes, and beaches (DCCEEW, 2024g). Given the areas historically observed to be inhabited by this species, individuals may seasonally fly over and be present in coastal zones within the EMBA.

Lesser sand plover

The lesser sand plover (*Charadrius mongolus*: Endangered under the EPBC Act and TPWC Act; Migratory) is a small to medium sized shorebird with a short stout bill and short grey legs. The lesser sand plover breeds in central Asia and eastern Russia. Two subspecies occur in Australia as seasonal migrants: Charadrius mongolus mongolus and Charadrius mongolus. stegmanni. In Australia, Charadrius mongolus stegmanni is more common in northern Australia, while Charadrius mongolus. mongolus is more common in eastern Australia (DEPWS, 2021d). After breeding during the northern summer on mountain steppes and tundras of inland eastern Russia (Charadrius mongolus. mongolus) or sand dunes, shingle and other open habitats of eastern Siberia (Charadrius mongolus. stegmanni), those that overwinter in Australia migrate southwards along the East Asian-Australasian Flyway. These non-breeding birds occur almost exclusively along the coast, where they forage on sheltered intertidal mudflats and sandflats, sandy beaches, estuaries and mangroves. Inland saline wetlands close to the coast are also used occasionally. They feed on marine worms, molluscs, crustaceans and insects, which are captured on or just below the surface of sand or mud. Given the areas historically observed to be inhabited by this species, individuals may fly over and feed in coastal zones within the EMBA.

Masked Owl (northern)

Masked owl (northern) (*Tyto novaehollandiae kimberli*; Vulnerable under the EPBC Act and TPWC Act) is distributed widely across northern Australia in tall open eucalypt forests (DEPWS, 2021e). The masked owl (northern) roosts in monsoon rainforests, and also forages in more open vegetation types, including grasslands. Individuals typically roost in tree hollows and may also roost among dense foliage (DCCEEW, 2024j). The diet of the masked owl (northern mainland) mostly comprises mammals up to the size of possums (Garnett & Crowley 2000). Due to their habitat and prey preferences, and their restriction to the Tiwi Islands, it is unlikely that they will be present within the EMBA.

Nunivak bar-tailed godwit

Nunivak bar-tailed godwit (*Limosa lapponica baueri;* Vulnerable under the EPBC Act) breeds in west Alaska and north-east Siberia and overwinters mostly in northern and eastern Australia and New Zealand. In the NT, bar-tailed godwits have been reported along almost the entire coastline, including all major islands (DCCEEW, 2024j). After breeding during the northern summer on the arctic tundras of western, migration southwards along the East Asian-Australasian Flyway to overwinter in Australasia. During this non-breeding season (the austral summer), godwits in the NT usually congregate in flocks near the coast. They forage on intertidal mudflats or in shallow water, feeding on worms, molluscs, and crustaceans (DEPWS, 2021b). Birds may fly over and feed in coastal zones within the EMBA.

Partridge pigeon (eastern)

Partridge pigeon (eastern) (*Geophaps smithii smithii*; Vulnerable under the EPBC Act and TPWC Act) occur across northern Australia in lowland eucalypt open forests and woodlands, with grassy understoreys. Their diet comprises seeds, mostly of grasses but also from Acacia and other woody plants. The species forages entirely on the ground, and flies infrequently (DEPWS, 2021i). Due to their habitat and diet preferences, it is unlikely that they will be present within the EMBA.

Red goshawk

The red goshawk (*Erythrotriorchis radiatus*; Endangered under the EPBC Act; Vulnerable under the TPWC Act) occur across northern Australia, from near Broome in the south-west Kimberley to south-eastern Queensland. Within this range it generally occurs in taller forests characteristic of higher rainfall areas, but there are some isolated recent records from central Australia. It appears to be unusually common on the Tiwi Islands (DEPWS, 2021g). The preferred habitat is tall open eucalypt forest and riparian areas (including paperbark forest and gallery forests). The conspicuous basket–shaped stick nest is typically placed in large trees near watercourses (Aumann and Baker-Gabb, 1991). Red goshawks eat mostly birds, especially parrots and pigeons; rarely they also prey on mammals, reptiles, and large insects (Debus et al., 2020). Birds may fly over and feed in coastal zones within the EMBA.

Red knot

The red knot (*Calidris canutus*; Vulnerable under the EPBC Act; Endangered under the TPWC Act; Migratory) is a migratory omnivorous shorebird which utilises the intertidal mudflats, sandflats and sandy beaches of sheltered coastal areas, estuaries, bays and other similar marine habitats (DCCEEW, 2024c). The red knot is present throughout coastal and offshore Australia, with large numbers regularly recorded in the north-west of Australia (Clarke, 2011; Bamford et al., 2008). The red knot breeds in Siberia and spends the non-breeding season in Australia and New Zealand, arriving in northern Australia in late August to early September and also settles in eastern Australia and New Zealand (DCCEEW, 2024c; Watkins, 1993). During the non-breeding season, the red knot occurs on tidal mudflats or sandflats feeding on invertebrates, especially shellfish (Garnet et al., 2011). Both north-western and south-eastern Australia are key areas for red knots. The Gulf of Carpentaria is an important staging area for migrating birds headed to south-eastern Australia and New Zealand. The NT region between the Daly River and Bynoe Harbour, along with the northern Arnhem Land coast from Boucaut Bay to Buckingham Bay are important areas (Chatto, 2003), with North Darwin (Beagle Gulf coastline) considered to have international significance (Birdlife Australia, 2020). Birds may fly over and feed in coastal zones within the EMBA.

Ruddy turnstone

The ruddy turnstone (*Arenaria interpres*; Vulnerable under the EPBC Act; Migratory) is a migratory shorebird that leaves its breeding grounds in the northern hemisphere from mid-July to early September (DCCEEW, 2024a) and has an almost cosmopolitan non-breeding distribution, common throughout Australasia and widespread within Australia (DCCEEW, 2024a). This species tends to arrive in the NT and WA from August onwards (DCCEEW, 2024a). Ruddy turnstones typically roost along platforms and shelves of rock, shingle, or gravel beaches, but can also be found along sand, coral, or shell beaches, and along shoals, cays, and dry ridges. In north Australia, they are known to occur in a wide variety of habitats and may prefer wide mudflats (DCCEEW, 2024a). The species feeds mainly on maggots from rotting seaweed in the upper intertidal (DCCEEW, 2024a). Bynoe Harbour and Castlereagh Bay in the NT are reported to be important areas (DCCEEW, 2024a) with the Milingimbi Coast considered to have international significance for this bird (Birdlife Australia, 2020). Given the areas historically observed to be inhabited by this species, individuals may seasonally fly over and be present in coastal zones within the EMBA.

Sharp-tailed sandpiper

The sharp tailed sandpiper (*Calidris acuminata*; Vulnerable under the EPBC Act; Migratory) is a small-medium size wader that is widely distributed throughout Australia (DCCEEW, 2024j). The majority (>90%) of the non-breeding population migrates to Australia (DCCEEW, 2024b). They arrive in Australia from mid-August/early September with most birds then moving slowly south to southeast Australia (DCCEEW, 2024j). In the NT, the species mostly occurs in the northern coastal regions (DCCEEW, 2024j), with Darwin Harbour, North Darwin (Beagle Gulf coastline), Kakadu National Park, the Legune Wetlands, Milingimbi coast and Nhulunbuy (Gove Peninsula) considered to be important areas (Birdlife Australia, 2020). Internationally significant numbers have been recorded at Kakadu National Park and Milingimbi coast (Birdlife Australia, 2020). Sharp tailed sandpipers often roost at the edges of wetlands, on wet open mud or sand, in shallow water, or in short sparse grass or saltmarsh, but also occasionally on sandy beaches, stony shores or rocks (DCCEEW, 2024j). They typically feed on seeds, worms, molluscs, crustaceans, and insects (DCCEEW, 2024j), foraging at the edge of the water of wetlands or intertidal mudflats, either on bare wet mud or sand, or in shallow water (DCCEEW, 2024j). The PMST report states that this species is known to occur (roost) within the area, and it is likely to seasonally occur in the EMBA.

Tiwi Islands hooded robin

Tiwi Islands hooded robin (*Melanodryas cucullata melvillensis;* Critically Endangered under the EPBC Act and TPWC Act) distribution is restricted to the Tiwi Islands. Tiwi Islands hooded robin occur inhabits more open forests and woodlands and forages on ground-dwelling invertebrates in areas of thinner ground-cover (DEPWS, 2021c). The breeding season (of other subspecies) is spring–summer. The nests are typically placed in the forks of trees, mostly <3 m above ground. The typical foraging behaviour of Tiwi Islands hooded robin is by quietly perching on tree branches, or trunks, and then suddenly pouncing to take prey on the ground (Fitri & Ford 2003; Higgins & Peter 2002). Due to their habitat and prey preferences, and their restriction to the Tiwi Islands, it is unlikely that they will be present within the EMBA.

Terek sandpiper

The terek sandpiper (*Xenus cinereus*; Vulnerable under the EPBC Act; Migratory) is primarily a coastal species, more common in northern and eastern parts of Australia than southern regions (DCCEEW, 2024j). It is one of the commoner shorebird species in tropical mangrove-lined estuaries, often occurring in small numbers among much larger flocks of other migratory shorebirds (DCCEEW, 2024i). They feed primarily on crustaceans and insects, in the supralittoral or upper littoral zone, where a film of water covers the sand, but may also forage in the lower littoral zone on exposed rock platforms (DCCEEW, 2024i). In the NT, widespread records occur from Darwin, north to Melville Island, and east to the western section of the Gulf of Carpentaria, around Gove Peninsula, Groote Eylandt, Sir Edward Pellew Island and the mouth of the McArthur River (DCCEEW, 2024j). Important areas are considered to include Darwin Harbour, North Darwin (Beagle Gulf coastline), Kakadu National Park, the Legune Wetlands and Milingimbi Coast, with the Kakadu and Milingimbi Coast identified to have international significance (Birdlife Australia, 2020). The preferred roosting habitat for this bird is in or among mangroves (DCCEEW, 2024j). Terek sandpipers migrate south from their Arctic breeding grounds, passing through the Torres Strait and arriving around Cairns and Darwin in August. Most individuals visiting Australia seem to remain on the north coast, leaving by late April (DCCEEW, 2024i). This species is likely to seasonally occur in the EMBA.

Tiwi masked owl

The Tiwi masked owl (*Tyto novaehollandiae melvillensis*; Endangered under the EPBC Act) is a subspecies of the masked owl (*Tyto novaehollandiae*) that occurs only on Bathurst and Melville Islands. Tiwi masked owls occur mainly in the forests and woodlands but may roost in monsoon forests or mangroves and may forage over the treeless plains and grasslands (Ward, 2010). Individuals typically roost in tree hollows but may also roost among dense foliage. Masked Owls breed in large tree hollows, which usually form in large rainforest trees. It is likely that individual home ranges are large. The diet of the Tiwi Masked Owl mostly comprises mammals up to the size of possums (DEPWS, 2021f). Due to their habitat and prey preferences, and their restriction to the Tiwi Islands, it is unlikely that they will be present within the EMBA.

3.2.13.4.2 *Migratory species*

Most migrant birds are expected to fly over the regional area as part of their large-scale transitory movements and are unlikely to land on the sea for significant periods of time (ConocoPhillips, 2018). Considering this, and the general absence of landing areas at a regional offshore scale, the majority of seabird activity is likely to comprise foraging and migration pathways. While seabirds spend much of their lives at sea, migratory shorebirds overfly offshore areas during migratory periods and typically do not interact with the sea surface (ConocoPhillips, 2018; DSEWPaC, 2012d). Migratory wetland species do not interact with open offshore waters but may land on offshore infrastructure while flying between land masses (ConocoPhillips, 2018).

Shorebird migration patterns are seasonal and vary according to species (DSEWPaC, 2012e), but generally shorebirds migrate to northern Australia from August to November. The majority of birds remain in northern Australia, while others disperse southwards (Bennelongia, 2011). On northern beaches migratory shorebirds peak in November then again in March as the majority of birds begin their return to the northern hemisphere between March and May. Most migratory shorebirds do not breed in Australia and juvenile birds may spend several years in Australia before reaching maturity and returning north to breed (DEWHA, 2008c). Species listed as migratory under the EPBC Act that may occur in the EMBA are outlined in Table 3-10.

3.2.13.5 Biologically important areas and habitat critical

Table 3-12 and Figure 3-8 to Figure 3-9 show the biologically important areas (BIAs) in relation to the EMBA.

BIAs are spatially defined areas where aggregations of individuals of a species are known to display biologically important behaviour such as breeding, foraging, nesting, internesting or migration. Habitat critical to the survival of marine turtles provides areas for turtle activities, long-term maintenance of the species, maintain genetic diversity and long-term evolutionary development and re-introduction of populations or recovery of the species.

Habitat critical to the survival of three EPBC Act-listed marine turtles (habitat critical – HC) in relation to the EMBA are presented in Table 3-12 and shown in Figure 3-9.

Table 3-12: Biologically important areas and habitat critical to the survival of a species identified in the EMBA and MEVA

Species	BIA	Distance to the OA (km)	MEVA	EMBA	Habitat critical to the survival of a species within the EMBA and distance to OA
Marine mammals					
Indo-Pacific humpback dolphin	Breeding	39	✗	✓	✗
Marine reptiles					
Flatback turtle	Internesting	Overlaps	✓	✓	✓ Overlaps OA & EMBA (nesting June–September)
Green turtle	Foraging	65	✓	✓	✓ 91 km; Overlaps EMBA (nesting December-January)
Olive ridley turtle	Internesting	20	✓	✓	✓ 11 km; Overlaps EMBA (nesting May–July)
	Foraging	60	✓	✓	
Leatherback turtle	Reproduction	135	✗	✗	✓ 185 km (nesting December– January)
Hawksbill turtle	Internesting	100	✗	✓	✗

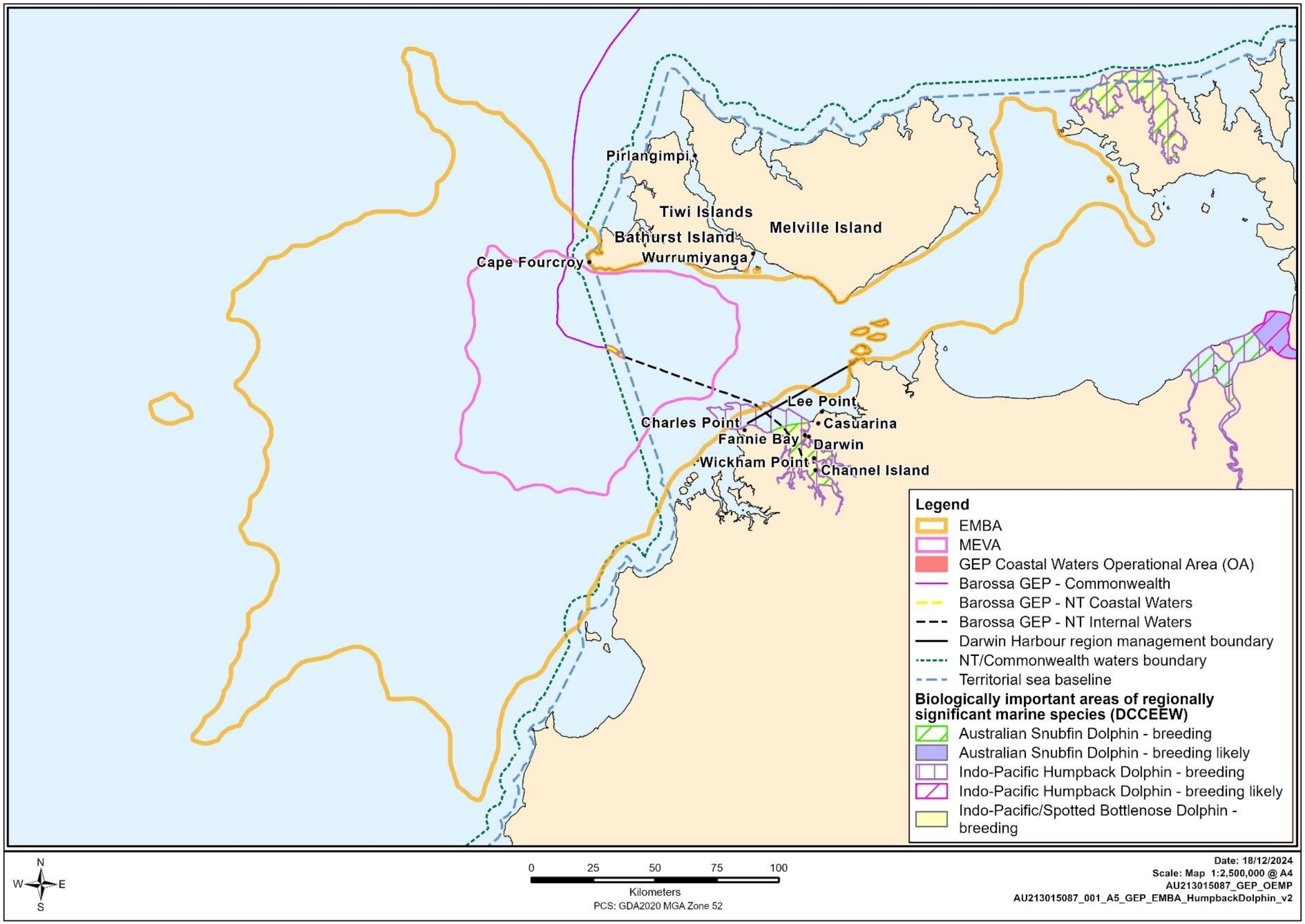

Figure 3-8: Indo-Pacific humpback dolphin biologically important areas overlapping or proximal to the EMBA

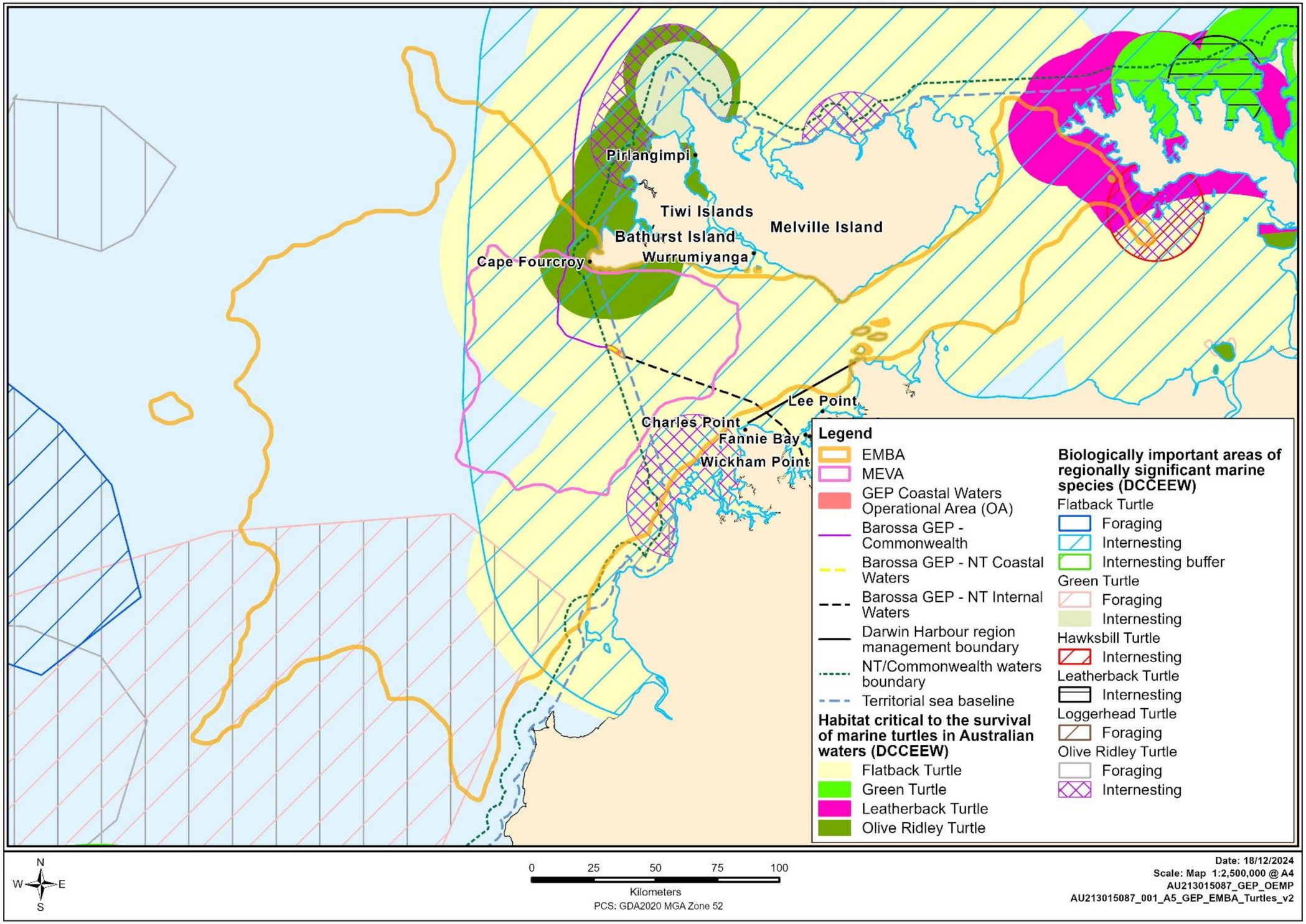

Figure 3-9: Marine turtle biologically important and habitat critical areas overlapping or proximal to the EMBA

3.2.13.6 Recovery plans, conservation advice, and wildlife conservation plans

Recovery plans set out the necessary research and management actions to stop the decline of listed Threatened species and support their recovery. Table 3-13 summarises the conservation actions relevant to the activity, with more information about the requirements of the relevant plans of management, including recovery plans, conservation advice and wildlife conservation plans for marine fauna and demonstrates where this GEP Coastal Waters OEMP considers those management requirements.

Further assessment of the activity's consistency with actions and objectives set within the plans is provided throughout Sections 6 and Section 7.

Table 3-13: Relevant threats identified in recovery plans, conservation advice and wildlife conservation plans for species that occur or may occur within the EMBA

Name	Recovery plan/conservation advice/management plan	Relevant objectives	Threats/strategies identified as relevant to the Activity	Relevant conservation actions	Addressed (where relevant) in OEMP
All					
All vertebrate fauna	Threat Abatement Plan for the Impacts of Marine Debris on Vertebrate Wildlife of Australia's Coasts and Oceans (DoEE, 2018)	There are 4 main objectives: • contribute to the long-term prevention of the incidence of harmful marine debris • remove existing harmful marine debris from the marine environment • mitigate the impacts of harmful marine debris on marine species and ecological communities • monitor the quantities, origins and impacts of marine debris and assess the effectiveness of management arrangements over time for the strategic reduction of debris.	Marine debris	No explicit management actions for non–fisheries-related industries (note that management actions in the plan relate largely to managing fishing waste (e.g. 'ghost' gear), and state, territory and Commonwealth management through regulation).	Section 7.1 Release of solid objects
Fish and sharks					
All sawfish and river sharks including: • dwarf sawfish • green sawfish • largetooth sawfish • speartooth shark • northern river shark	Sawfish and River Sharks Multispecies Recovery Plan (CoA, 2015b)	The primary objective of this recovery plan is to assist the recovery of sawfish and river sharks with a view to: • improving the population status leading to the removal of the sawfish and river shark species from the threatened species list of the EPBC Act • ensuring that anthropogenic activities do not hinder recovery in the near future, or impact the conservation status of the species in the future. The specific objectives of the recovery plan (relevant to industry) are: • Objective 5: Reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species • Objective 6: Reduce and, where possible, eliminate any adverse impacts of marine debris on sawfish and river shark species noting the linkages with the Threat Abatement Plan for the impact of marine debris on vertebrate marine life (DoEE, 2018).	Habitat degradation and modification	Identify risks to important sawfish and river shark habitat and measures needed to reduce those risks.	Section 6.4 Seabed and benthic habitat disturbance Section 6.6 Operational discharges Section 7.1 Release of solid objects Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Dwarf sawfish	Approved Conservation Advice for *Pristis clavata* (Dwarf Sawfish) (DEWHA, 2009)	No explicit relevant objectives.	Habitat degradation and modification	No explicit management actions for industry.	Section 6.4 Seabed and benthic habitat disturbance Section 6.6 Operational discharges Section 7.1 Release of solid objects Section 7.2 Introduction of invasive marine species Section 7.4 Minor release of hydrocarbons and chemicals Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Largetooth sawfish	Approved Conservation Advice for *Pristis pristis* (largetooth sawfish) (TSSC, 2014b)	No explicit relevant objectives.	Habitat degradation and modification	Implement measures to reduce adverse impacts of habitat degradation and/or modification.	Section 6.4 Seabed and benthic habitat disturbance Section 6.6 Operational discharges Section 7.1 Release of solid objects Section 7.2 Introduction of invasive marine species Section 7.4 Minor release of hydrocarbons and chemicals

Name	Recovery plan/conservation advice/management plan	Relevant objectives	Threats/strategies identified as relevant to the Activity	Relevant conservation actions	Addressed (where relevant) in OEMP
					Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Green sawfish	Approved Conservation Advice for Green Sawfish (DEWHA, 2008c)	No explicit relevant objectives.	Habitat degradation and modification	No explicit relevant management actions.	Sections 6.4 Seabed and benthic habitat disturbance Section 6.6 Operational discharges Section 7.1 Release of solid objects Section 7.2 Introduction of invasive marine species Section 7.4Minor release of hydrocarbons and chemicals Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Northern river shark	Approved Conservation Advice for *Glyphis garricki* (northern river shark) (TSSC, 2014a)	No explicit relevant objectives.	Habitat degradation and modification	Implement measures to reduce adverse impacts of habitat degradation and/or modification.	Section 6.4 Seabed and benthic habitat disturbance Section 6.6 Operational discharges Section 7.1Release of solid objects Section 7.2 Introduction of invasive marine species Section 7.4 Minor release of hydrocarbons and chemicals Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
			Marine debris	No explicit relevant management actions.	Section 7.1 Release of solid objects
Speartooth shark	Approved Conservation Advice for *Glyphis glyphis* (speartooth shark) (DoE, 2014a)	No explicit relevant objectives.	Habitat degradation and modification	Implement measures to reduce adverse impacts of habitat degradation and/or modification.	Section 7.1 Release of solid objects Section 7.5 Subsea release of dry natural gas, Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
			Marine debris	No explicit management actions for industry (note that the responsibility for the action identified is for Commonwealth Government to implement).	Section 7.1 Release of solid objects
Grey nurse shark (west coast population)	Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*) (DoE, 2014b)	The overarching objective of this recovery plan is to assist the recovery of the grey nurse shark in the wild with a view to: • improving the population status • ensuring that anthropogenic activities do not hinder the recovery of the grey nurse shark.	Pollution and disease	Review and assess the potential threat of introduced species, pathogens and pollutants.	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
			Ecosystem effects as a result of habitat modification	Review the level and spatial extent of protection measures at key aggregation sites to ensure appropriate levels of protection, and a consistent approach to the designation and implementation of protective measures, are applied. Use BIAs to help inform the development of appropriate conservation measures, including applying advice in the marine bioregional plans on the types of actions that are likely to have a	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations

Name	Recovery plan/conservation advice/management plan	Relevant objectives	Threats/strategies identified as relevant to the Activity	Relevant conservation actions	Addressed (where relevant) in OEMP
				significant impact on the species and updating such conservation measures as new information becomes available.	
White shark	Recovery Plan for the White Shark (*Carcharodon carcharias*) (DSEWPaC, 2013)	The overarching objective of this recovery plan is to assist the recovery of the white shark in the wild throughout its range with a view to: • improving the population status leading to future removal of the white shark from the threatened species list of the EPBC Act • ensuring that anthropogenic activities do not hinder recovery in the near future, or impact the conservation status of the species in the future. The specific objective of the recovery plan (relevant to industry) is: • Objective 7: Continue to identify and protect habitat critical to the survival of the white shark and minimise the impact of threatening processes within these areas.	Ecosystem effects as a result of habitat modification and climate change	No explicit relevant management actions.	Section 6.3 Atmospheric and greenhouse gas emissions Section 6.4 Seabed and benthic habitat disturbance Section 6.6 Operational discharges Section 7.1 Release of solid objects Section 7.2 Introduction of invasive marine species Section 7.4 Minor release of hydrocarbons and chemicals Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Whale shark	Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g)	To maintain existing levels of protection for the whale shark in Australia while working to increase the level of protection afforded to the whale shark within the Indian Ocean and Southeast Asian region to enable population growth so that the species can be removed from the threatened species list of the EPBC Act.	Boat strike from large vessels	Minimise offshore developments and transit time of large vessels in areas close to marine features likely to correlate with whale shark aggregations along the northward migration route that follows the northern WA coastline along the 200 m isobath (TSSC, 2015g).	Section 7.3 Marine fauna interaction
			Habitat disruption from mineral exploration, production and transportation	Implement measures to reduce adverse impacts of habitat degradation and/or modification.	Section 6.4 Seabed and benthic habitat disturbance Section 6.6 Operational discharges Section 7.2 Introduction of invasive marine species Section 7.4, Minor release of hydrocarbons and chemicals Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
			Marine debris	No explicit relevant management actions.	Section 7.1 Release of solid objects
Marine mammals					
Cetaceans and other marine megafauna	National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna (CoA, 2017a)	The overarching goal of the strategy is to provide guidance on understanding and reducing the risk of vessel collisions and the impacts they may have on marine megafauna. The specific objective of the strategy (relevant to industry) is: • Objective 3: Mitigation – reduce the likelihood and severity of megafauna vessel collision.	Vessel collision	Encourage innovation and collaboration between research organisations and industry.	Section 7.3 Marine fauna interaction
Blue whale (includes pygmy blue whale)	Conservation Management Plan for the Blue Whale 2015–2025 (CoA, 2015a)	The long-term recovery objective is to minimise anthropogenic threats to allow the conservation status of the blue whale to improve so that it can be removed from the threatened species list under the EPBC Act.	Noise interference assess and address anthropogenic noise	Assess and address anthropogenic noise: shipping, industrial and seismic noise.	Section 6.1 Noise emissions
			Climate variability and change	Continue to meet Australia's international commitments to reduce greenhouse gas emissions	Section 6.3 Atmospheric and greenhouse gas emissions
			Habitat modification	No explicit relevant management actions.	Section 7.4 Minor release of hydrocarbons and chemicals Section 7.5 Subsea release of dry natural gas

Name	Recovery plan/conservation advice/management plan	Relevant objectives	Threats/strategies identified as relevant to the Activity	Relevant conservation actions	Addressed (where relevant) in OEMP
					Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
			Vessel disturbance	Minimise vessel collisions: • develop a national vessel strike strategy that investigates the risk of vessel strike on blue whales and also identifies potential mitigation measures • ensure all vessel strike incidents are reported in the National Ship Strike database [3] • ensure the risk of vessel strikes on blue whales is considered when assessing actions that increase vessel traffic in areas where blue whales occur and, if required, appropriate mitigation measures are implemented.	Section 7.3 Marine fauna interaction
			Marine debris	No explicit relevant management actions.	Section 7.1 Release of solid objects
Fin whale	Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015c)	Determine population abundance, trends and population structure for fin whales, and establish a long-term monitoring program.	Habitat degradation including pollution (increasing port expansion and coastal development)	No explicit relevant management actions.	Section 6.6 Operational discharges Section 7.1 Release of solid objects Section 7.4 Minor release of hydrocarbons and chemicals Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
			Climate and oceanographic variability and change	Continue to meet Australia's international commitments to reduce greenhouse gas emissions .	Section 6.3 Atmospheric and greenhouse gas emissions
			Anthropogenic noise	Once the spatial and temporal distribution (including BIAs) of fin whales is further defined, assess the impacts of increasing anthropogenic noise (including seismic surveys, port expansion, and coastal development).	Section 6.1 Noise emissions
			Vessel strike	Develop a national vessel strike strategy that investigates the risk of vessel strikes on fin whales and identifies potential mitigation measures. Ensure all vessel strike incidents are reported in the National Ship Strike database[3].	Section 7.3 Marine fauna interaction
Sei whale	Conservation Advice for *Balaenoptera borealis* (sei whale) (TSSC, 2015b)	Determine population abundance, trends and population structure for sei whales, and establish a long-term monitoring program.	Anthropogenic noise	Once the spatial and temporal distribution (including BIAs) of sei whales is further defined, assess the impacts of increasing anthropogenic noise (including seismic surveys, port expansion, and coastal development).	Section 6.1 Noise emissions
			Vessel strike	Minimise vessel collisions: • develop a national vessel strike strategy that investigates the risk of vessel strikes on sei whales and also identifies potential mitigation measures • ensure all vessel strike incidents are reported in the National Ship Strike database[3].	Section 7.3 Marine fauna interaction

[3] https://data.marinemammals.gov.au/report/shipstrike/new

Name	Recovery plan/conservation advice/management plan	Relevant objectives	Threats/strategies identified as relevant to the Activity	Relevant conservation actions	Addressed (where relevant) in OEMP
			Climate and oceanographic variability and change	Continue to meet Australia's international commitments to reduce greenhouse gas emissions.	Section 6.3 Atmospheric and greenhouse gas emissions
			Habitat degradation including pollution	No explicit relevant management actions.	Sections 6.6 Operational discharges , Section 7.1 Release of solid objects Section 7.4 Minor release of hydrocarbons and chemicals Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Reptiles					
All marine turtles (flatback, green, hawksbill, leatherback, loggerhead, olive ridley)	National Light Pollution Guidelines for Wildlife (DCCEEW, 2023c)	Lighting objectives will need to consider the regulatory requirements and Australian standards relevant to the activity, location and wildlife present. Objectives should be described in terms of specific locations and times for which artificial light is necessary. Consideration should be given to whether colour differentiation is required and if some areas should remain dark, either to contrast with lit areas or to avoid light spill. Where relevant, wildlife requirements should form part of the lighting objectives. A lighting installation will be deemed a success if it meets the lighting objectives (including wildlife needs) and areas of interest can be seen by humans clearly, easily, safely and without discomfort.	Light pollution	Best practice lighting design incorporates these design principles: • start with natural darkness and only add light for specific purposes • use adaptive light controls to manage light timing, intensity and colour • light only the object or area intended – keep lights close to the ground, directed and shielded to avoid light spill • use the lowest intensity lighting appropriate for the task • use non-reflective, dark-coloured surfaces • use lights with reduced or filtered blue, violet and ultraviolet wavelengths.	Section 6.2 Light emissions, Section 7.7 Contingency spill response operations
	Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b)	Long-term recovery objective: • minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so that they can be removed from the EPBC Act threatened species list. Interim objective 3: • anthropogenic threats are demonstrably minimised.	Marine debris	Reduce the impacts from marine debris: • support the implementation of the EPBC Act Threat Abatement Plan for the impacts of marine debris on vertebrate marine life (DoEE, 2018).	Section 7.1 Release of solid objects
			Chemical and terrestrial discharge	Minimise chemical and terrestrial discharge.	Sections 6.6 Operational discharges Section 7.4 Minor releases of hydrocarbons and chemicals, Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO
			Vessel disturbance	Vessel interactions identified as a threat. No specific management actions in relation to vessels prescribed in the plan.	Section 7.3 Marine fauna interaction
			Light pollution	Minimise light pollution: • manage artificial light within or adjacent to habitat critical to the survival of marine turtles such that marine turtles are not displaced from these habitats • develop and implement best practice light management guidelines for existing and future developments adjacent to marine turtle nesting beaches. • identify the cumulative impact on turtles from multiple sources of onshore and offshore light pollution.	Section 6.2 Light emissions

Name	Recovery plan/conservation advice/management plan	Relevant objectives	Threats/strategies identified as relevant to the Activity	Relevant conservation actions	Addressed (where relevant) in OEMP
			Noise interference	Assess and address anthropogenic noise: • understand the impacts of anthropogenic noise on marine turtle behaviour and biology.	Section 6.1 Noise emissions
			Habitat modification	Manage anthropogenic activities to ensure marine turtles are not displaced from identified habitat critical to their survival. Manage anthropogenic activities in BIAs to ensure that biologically important behaviour can continue.	Sections 7.1 Release of solid objects Section 7.4 Minor releases of hydrocarbons and chemicals, Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Leatherback turtle	Approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle) (DEWHA, 2008b)	No explicit relevant objectives.	Boat strike	No explicit relevant management actions.	Section 7.3 Marine fauna interaction
			Habitat degradation (changes to breeding sites and degradation to foraging areas)	Identify and protect migratory corridors between nesting beaches and common foraging areas to facilitate colonisation.	Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO
			Marine debris	No explicit relevant management actions.	Section 7.1 Release of solid objects
			Climate Change	No explicit relevant management actions.	Section 6.3 Atmospheric and greenhouse gas emissions
Seabirds and shorebirds					
All seabirds and shorebirds	National Light Pollution Guidelines for Wildlife (DCCEEW, 2023c)	Lighting objectives will need to consider the regulatory requirements and Australian standards relevant to the activity, location and wildlife present. Objectives should be described in terms of specific locations and times for which artificial light is necessary. Consideration should be given to whether colour differentiation is required and if some areas should remain dark, either to contrast with lit areas or to avoid light spill. Where relevant, wildlife requirements should form part of the lighting objectives. A lighting installation will be deemed a success if it meets the lighting objectives (including wildlife needs) and areas of interest can be seen by humans clearly, easily, safely and without discomfort.	Light pollution	Best practice lighting design incorporates these design principles: • start with natural darkness and only add light for specific purposes • use adaptive light controls to manage light timing, intensity and colour. • light only the object or area intended – keep lights close to the ground, directed and shielded to avoid light spill. • use the lowest intensity lighting appropriate for the task. • use non-reflective, dark-coloured surfaces. • use lights with reduced or filtered blue, violet and ultraviolet wavelengths.	Section 6.2 Light emissions
Bridled tern Common noddy Great frigatebird Greater crested tern Lesser frigatebird Little tern Osprey Streaked shearwater Wedge-tailed shearwater White-tailed tropicbird	Wildlife Conservation Plan for Seabirds (CoA, 2020)	Seabirds and their habitats are protected and managed in Australia.	Pollution (marine debris, light, water)	Enhance contingency plans to prevent and/or respond to environmental emergencies that impact seabirds and their habitats.	Section 6.2 Light emissions Section 7.1 Release of solid objects Section 7.6 Unplanned release of MDO , Section 7.7 Contingency spill response operations
			Habitat loss and degradation from pollution	No explicit relevant management actions.	Sections 7.4 Minor release of hydrocarbons and chemicals Section 7.5 Subsea release of dry natural gas Section 7.6 Unplanned release of MDO , Section 7.7 Contingency spill response operations
			Invasive species	Manage invasive species at important seabird habitats	Section 7.2 Introduction of invasive marine species
			Climate variability and change	Investigate the impacts of climate variability and change on seabirds and their habitats	Section 6.3 Atmospheric and greenhouse gas emissions

Name	Recovery plan/conservation advice/management plan	Relevant objectives	Threats/strategies identified as relevant to the Activity	Relevant conservation actions	Addressed (where relevant) in OEMP
			Anthropogenic disturbance	Ensure all areas of important habitat for seabirds are considered in the development assessment process. Manage the effects of anthropogenic disturbance to seabird breeding and roosting areas.	Section 7.3 Marine fauna interaction
Asian dowitcher Bar-tailed godwit Black-tailed godwit Common greenshank Curlew sandpiper Eastern curlew Great knot Greater sand plover Grey plover Lesser sand plover Little curlew Little ringed plover Long-toed stint Marsh sandpiper Oriental plover Pacific golden plover Pectoral sandpiper Red knot Red-necked stint Ruddy turnstone Sanderling Sharp-tailed sandpiper Streaked shearwater Terek sandpiper Whimbrel	Wildlife Conservation Plan for Migratory Shorebirds (CoA, 2015c)	Anthropogenic threats to migratory shorebirds in Australia are minimised or, where possible, eliminated.	Habitat degradation/modification	No explicit relevant management actions.	Sections 7.1 Release of solid objects Section 7.6 Unplanned release of MDO, Section 7.7 Contingency spill response operations
			Anthropogenic disturbance	Investigate the significance of cumulative impacts on migratory shorebird habitat and populations in Australia. Ensure all areas important to migratory shorebirds in Australia continue to be considered in development assessment processes (specifically for coastal developments).	Section 7.3 Marine fauna interaction
			Climate change and variability	Investigate the impacts of climate change on migratory shorebird habitat and populations in Australia.	Section 6.3 Atmospheric and greenhouse gas emissions
			Pollution/contamination	No explicit relevant management actions.	Section 7.1 Release of solid objects Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Asian dowitcher[4]	Conservation Advice for *Limnodromus semipalmatus* (Asian dowitcher) (DCCEEW, 2024f)	No explicit relevant objectives.	Pollution/contamination	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO, Section 7.7 Contingency spill response operations
Australian Painted Snipe[4]	Approved Conservation Advice for *Rostratula australis* (Australian painted snipe) (TSSC, 2013)	No explicit relevant objectives.	Habitat loss, degradation and modification	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
	National Recovery Plan for the Australian Painted Snipe (*Rostratula australis*) (DCCEEW, 2022a)	No explicit relevant objectives.	Habitat loss, degradation and modification	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Black-tailed godwit[4]	Conservation Advice for *Limosa limosa* (black-tailed godwit) (DCCEEW, 2024e)	No explicit relevant objectives.	Pollution	No explicit relevant management actions.	Section 7.1 Release of solid objects Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Common greenshank[4]	Conservation Advice for *Tringa nebularia* (common greenshank) (DCCEEW, 2024h)	No explicit relevant objectives.	Pollution	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO

[4] *Species or species habitat is not known to be present within planned impact areas (e.g. OA and light assessment boundary), or threats identified are not relevant to the Activity. Therefore, conservation advice or recovery is not evaluated within Section 6 or Sections 7.1–7.5 and 7.8.*

Name	Recovery plan/conservation advice/management plan	Relevant objectives	Threats/strategies identified as relevant to the Activity	Relevant conservation actions	Addressed (where relevant) in OEMP
Curlew sandpiper	Approved Conservation Advice for *Calidris ferruginea* (Curlew Sandpiper) (TSSC, 2015e)	No explicit relevant objectives.	Habitat loss and degradation from oil pollution	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO
Eastern curlew	Approved Conservation Advice for *Numenius madagascariensis* (Eastern Curlew) (TSSC, 2015f)	Australian objectives: • achieve a stable or increasing population. • maintain and enhance important habitat. • reduce disturbance at key roosting and feeding sites.	Habitat loss and degradation from pollution	No explicit relevant management actions.	Section 6.6 Operational discharges Section 7.1 Release of solid objects, Section 7.6 Unplanned release of MDO
			Pollution/contamination	No explicit relevant management actions.	N/A
Great knot[4]	Conservation Advice for *Calidris tenuirostris* (great knot) (DCCEEW, 2024d)	No explicit relevant objectives.	Pollution	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Greater sand plover[4]	Conservation Advice *Charadrius leschenaultii* (Greater sand plover) (DCCEEW, 2023e)	No explicit relevant objectives.	Habitat loss and degradation	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
			Pollution/contamination	No explicit relevant management actions.	N/A
Grey falcon[4]	Conservation Advice *Falco hypoleucos* (Grey Falcon) (TSSC, 2020)	No explicit relevant objectives.	No explicit relevant threats	No explicit relevant management actions.	N/A
Grey plover[4]	Conservation Advice for *Pluvialis squatarola* (grey plover) (DCCEEW, 2024g)	No explicit relevant objectives.	Pollution	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Lesser Sand Plover, Mongolian Plover[4]	Conservation Advice *Charadrius mongolus* (Lesser Sand Plover, Mongolian Plover) (DCCEEW, 2024a)	No explicit relevant objectives.	Habitat loss and degradation	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO
			Pollution/contamination	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Partridge Pigeon (eastern)[4]	Conservation Advice *Geophaps smithii smithii (Partridge Pigeon [eastern])* (TSSC, 2015)	No explicit relevant objectives.	No explicit relevant threats	No explicit relevant management actions.	N/A
Masked Owl (northern)[4]	Conservation Advice *Tyto novaehollandiae kimberli* (masked owl [northern]) (TSSC, 2015a)	No explicit relevant objectives.	No explicit relevant threats	No explicit relevant management actions.	N/A
Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit[4]	Conservation Advice *Limosa lapponica baueri* (Bar-tailed godwit [western Alaska]) (DCCEEW, 2024k)	No explicit relevant objectives.	Habitat loss and degradation	Protect important habitat in Australia.	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
			Pollution/contamination	Protect important habitat in Australia.	Section 7.6 Unplanned release of MDO
Red Goshawk[4]	Conservation Advice for *Erythrotriorchis radiatus* (Red goshawk) (DCCEEW, 2023f)	No explicit relevant objectives.	No explicit relevant threats	No explicit relevant management actions.	N/A
Red knot	Conservation Advice for *Calidris canutus* (red knot) (DCCEEW, 2024c)	No explicit relevant objectives.	Pollution/contamination impacts	No explicit relevant management actions.	Section 7.1 Release of solid objects Section 7.6 Unplanned release of MDO
			Habitat loss and degradation	No explicit relevant management actions.	Section 7.1 Release of solid objects Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
			Anthropogenic disturbance	No explicit relevant management actions.	Section 7.3 Marine fauna interaction
Ruddy turnstone[4]	Conservation Advice for *Arenaria interpres* (ruddy turnstone) (DCCEEW, 2024l)	No explicit relevant objectives.	Pollution	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations

Name	Recovery plan/conservation advice/management plan	Relevant objectives	Threats/strategies identified as relevant to the Activity	Relevant conservation actions	Addressed (where relevant) in OEMP
Sharp-tailed sandpiper	Conservation Advice for *Calidris acuminata* (sharp-tailed sandpiper) (DCCEEW, 2024b)	No explicit relevant objectives.	Pollution	No explicit relevant management actions.	Section 7.1 Release of solid objects Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Terek sandpiper[4]	Conservation Advice for *Xenus cinereus* (terek sandpiper) (DCCEEW, 2024i)	No explicit relevant objectives.	Pollution	No explicit relevant management actions.	Section 7.6 Unplanned release of MDO Section 7.7 Contingency spill response operations
Tiwi Islands Hooded Robin, Hooded Robin (Tiwi Islands)[4]	Conservation Advice *Melanodryas cucullata melvillensis* (hooded robin [Tiwi Islands]) (TSSC, 2018a)	No explicit relevant objectives.	No explicit relevant threats	No explicit relevant management actions.	N/A
Tiwi Masked Owl, Tiwi Islands Masked Owl[4]	Conservation Advice Tyto *novaehollandiae melvillensis* (masked owl [Tiwi Islands]) (TSSC, 2015i)	No explicit relevant objectives.	No explicit relevant threats	No explicit relevant management actions.	N/A

3.2.14 Socioeconomic receptors

Socioeconomic activities and features that may occur in the OA and EMBA are set out in this section and summarised in Table 3-14.

Table 3-14: Socioeconomic-related activities/features that occur or may occur in the OA and EMBA

Value/sensitivity	OA presence	EMBA presence
Commercial fisheries – Commonwealth (Section 3.2.14.1)	Commonwealth managed fisheries that overlap the OA (see Figure 3-10 and Table 3-15): • Northern Prawn Fishery • Southern Bluefin Tuna Fishery • Western Skipjack Tuna Fishery • Western Tuna and Billfish Fishery	Commonwealth-managed fisheries that overlap the EMBA are described in Table 3-15 and shown in Figure 3-10
Commercial fisheries – NT (Section 3.2.14.1)	NT managed fisheries that overlap the OA (Figure 3-11): • Aquarium Fishery • Coastal Line Fishery • Demersal Fishery • Offshore Net and Line Fishery • Spanish Mackerel Fishery	NT managed fisheries that overlap the EMBA are described in Table 3-15 and shown in Figure 3-11**.**
Energy industry (Section 3.2.14.2)	Within the OA, there are no established petroleum operations, however there are 2 existing pipelines within the vicinity—Bayu-Undan (greater than 0.1 km from the OA) and Ichthys (46.5 km from the OA).	The nearest offshore operating facility is the Santos-operated Bayu–Undan platform, approximately 375 km west of the OA. Oil and gas exploration permits are operated by other titleholders throughout the EMBA.
Defence activities (Section 3.2.14.3)	The OA intersects a designated defence practice area. During their surveillance, Australian Border Force vessels may transit the OA.	The EMBA intersects a practice area of the North Australian Exercise Area (NAXA). During their surveillance, Australian Border Force vessels may transit the EMBA.
Telecommunications cables (Section 3.2.14.4)	The North-West Cable System is not within the OA.	The North-West Cable System is located within the EMBA though a hydrocarbon spill will not have any impact on submarine cables
Shipping (Section 3.2.14.5**)**	The closest major commercial port to the OA is Darwin Port, 95 km away. No designated shipping channels intersect the OA.	Figure 3-14 shows the vessels recorded in the Australian Shipping Reporting System in 2021 and shipping density within the region. It shows the main commercial shipping channel tracking to the west of the OAs. Vessel traffic is expected within the EMBA.
Recreational tourism (Section 3.2.14.6)	The OA is in offshore waters that are highly unlikely to be accessed for tourism activities (e.g. recreational fishing and boating and charter boat operations). These activities tend to be centred around nearshore waters, islands and coastal areas.	There are several offshore shoals, banks, coral reefs, shipwrecks within the EMBA. These areas may be visited by recreational fishers, fishing charter vessels, scuba diving, snorkelling and other charter vessels. The Tiwi Islands are a popular tourist destination offering cruises, fishing, sailing and water tours among other cultural activities. Scuba diving, snorkeling and other charter vessels are also a significant tourist attraction, with operators visiting the numerous shipwrecks, coral reefs and artificial reefs and embarking on day or multiday trips out to offshore islands and shoals.

Value/sensitivity	OA presence	EMBA presence
Underwater cultural heritage (see Section 3.2.14.7)	There is one declared protected UCH site within the OA, the wreck of Japanese submarine 1-124, protected under the *Underwater Cultural Heritage Act 2018* (Cth) (UCH Act). During the design phase of the GEP, the pipeline route was deviated to avoid the I-124 Japanese wreck and its 800m radial exclusion zone, with the pipeline route passing 100m to the east of the exclusion zone at its closest point.	There are multiple sites protected under UCH Act and *Heritage Act 2011* (NT). Multiple known and unknown locations of shipwrecks, sunken aircraft, and historic (more than 75 years old) aircraft and shipwrecks and other sites occur or may occur within the EMBA (Figure 3-15).

3.2.14.1 Commercial fisheries

The NMR supports Commonwealth and NT State managed commercial fisheries that target various shark, demersal and pelagic finfish, molluscs, oyster pearls and crustacean species of commercial importance. Marine aquaculture (mariculture) within the EMBA is mostly associated with pearl oyster (*Pinctada maxima*) production in NT waters, which is focused in 4 main areas (NT Government, 2023):

- Bynoe Harbour
- Beagle Gulf
- Cobourg Peninsula and Croker Island
- around the islands northwest of Nhulunbuy.

The NT Government, via the Darwin Aquaculture Centre, is also encouraging the development of aquaculture of other species, including barramundi, sea cucumber, blacklip oysters, and giant clams. Barramundi is currently grown in ponds on the Adelaide River, and trials on Groote Eylandt and Goulburn Island are looking at growing clams in sea-based cages (NT Government, 2023).

The fisheries overlapping the OA and EMBA are shown in Figure 3-10, and Figure 3-11. Table 3-15 lists and describes the commercial fisheries and Santos' understanding of fishing effort based on publicly available information and consultation with Relevant Persons.

Consultation with the Australian Fisheries Management Authority (AFMA), NT Department of Industry, Tourism and Trade (NT Fisheries) and appropriate fisheries associations and licence holders is discussed in Section 4. A summary report including the outcomes of consultation with Relevant Persons, including any objections or claims and Santos' assessment of them, satisfying the requirements of section 24(b)(i)-(iii) of the OPGGS(E)R, is provided in Section 4.8. The full records of Relevant Persons consultation, as required by section 24(b)(iv) of the OPGGS(E)R, is provided in the Sensitive Information Report.

Table 3-15: Commonwealth and state fisheries that overlap the EMBA

Commercial fishery	Licence Area		Description	Likelihood of interaction with fishers
	OA	EMBA		
Commonwealth-managed				
Northern Prawn Fishery	✓	✓	**Area**: extends from Joseph Bonaparte Gulf across the top end to the Gulf of Carpentaria. Most of the Northern Prawn Fishery effort lies in the Gulf of Carpentaria, Joseph Bonaparte Gulf and along the Arnhem Land coast (DoA, 2014). **Gear:** trawl. **Key target species**: The key target species are banana prawns, tiger prawns and endeavor prawns. There are 2 fishing seasons—the season end date depends on catch rates: Season 1 (mainly banana prawns caught): 1 April to 15 June Season 2 (mainly tiger prawns caught): 1 August to end of November. Fishing for scampi also occurs in deeper waters, with fishing effort spread across 2–3 months of the year (December to February). **Effort** (2022): 54 active vessels; total catch 5,526 t (Butler et al. 2023)	Interaction with this fishery in the OA is possible; however, medium, and high fishing effort are outside the OA. The areas of concentrated effort are to the north and west of the Tiwi Islands and south of the OA.
Southern Bluefin Tuna Fishery	✓	✓	**Area**: the Southern Bluefin Tuna Fishery spans the Australian Fishing Zone. However, it is only active in the south and southeastern Australian waters **Gear**: purse seine and pelagic long line. **Key target species**: southern bluefin tuna. **Effort** (2022): 30 active vessels (22 longline, 8 purse seine); total catch 5,972 t (Butler et al. 2023).	No active commercial fishing effort reported in the OA or EMBA; therefore, interaction with this fishery is unlikely.
Western Skipjack Tuna Fishery	✓	✓	**Area**: The Western Skipjack Tuna Fishery spans the Australian EEZ and adjacent high seas, from Cape York to the Victoria–South Australia border, including waters around Tasmania and the high seas of the Pacific Ocean. **Gear**: purse seine **Key target species**: skipjack tuna **Effort** (2020): None. There has been no fishing effort since the 2008–2009 season, and in that season, activity was concentrated off South Australia (Butler et al. 2023).	No active commercial fishing effort reported in the OA or EMBA; therefore, interaction with this fishery is unlikely.
Western Tuna and Billfish Fishery	✓	✓	**Area**: Operates in Australia's EEZ and high seas of the Indian Ocean. In recent years, fishing effort has concentrated off south-west WA, with occasional activity off South Australia. **Gear**: pelagic longline. **Key target species**: bigeye tuna, yellowfin tuna, striped marlin, swordfish. **Effort** (2022) : 5 active vessels (2 pelagic longline, 3 minor line); 145 t (Butler et al. 2023).	No active commercial fishing effort reported in the Commonwealth OA or EMBA, therefore interaction with this fishery is unlikely.
Northern Territory-managed				
Aquarium Fishery	✓	✓	**Area**: Includes freshwater, estuarine and marine habitats to the outer boundary of the Australian Fishing Zone. Most marine species are collected within 100 km of Nhulunbuy and Darwin. A specimen shell collection enterprise occurs around Ashmore Reef and Cartier Island (outside the EMBA). **Gear**: handheld, nets, and pots (dive-based). **Key target species**: fish, invertebrates, and plants for aquariums. **Effort**: unknown – no restriction on number of licences (NT Government, 2023b).	No active commercial fishing effort reported in the OA. Some effort is possible in the EMBA for very limited periods of the year.
Bait net Fishery	✗	✓	**Area**: Bait fishing is allowed from the high water mark to 3 NM seaward of the low water mark, excluding Darwin Harbour and Shoal Bay. **Gear**: bait net, cast net or scoop net **Key target species**: all fish species except barramundi, threadfin salmon, Spanish mackerel or mud crab. **Effort**: 2 licences are currently allocated (NT Government, 2023b).	No fishery overlaps the OA. Effort is expected within the EMBA.
Barramundi	✗	✓	**Area**: Barramundi fishing is allowed from the high-water mark to 3 nautical miles seaward of the coast (with exclusion zones and restrictions). **Gear**: nets are set and retrieved from dinghies and fish are processed onboard motherships. **Key target species**: barramundi and king threadfin **Effort**: 14 licences are currently allocated. Fishing effort spread across 8 months of the year (01 February to 30 September; NT Government, 2023b).	No fishery overlaps the OA. Effort is not expected within the EMBA.
Coastal Line	✗	✓	**Area**: Fishery is allowed from the high-water mark to 15 nautical miles seaward of the coast. **Gear**: lines, hooks, cast nets, scoop nets or gaffs. **Key target species**: black jewfish and golden snapper **Effort**: 52 licences currently allocated (NT Government, 2023b). Total catch in the western zone is limited to 145 t of jewfish and 4.5 t of golden snapper.	No fishery overlaps the OA. Effort is not expected within the EMBA.
Coastal Net Fishery	✗	✓	**Area**: Fishery is allowed from the high-water mark to 3 Nm seaward of the coast. **Gear**: nets. **Key target species**: mullet **Effort**: 5 licences are currently allocated (NT Government, 2023b).	No fishery overlaps the OA. Effort is expected within the EMBA.

Commercial fishery	Licence Area		Description	Likelihood of interaction with fishers
	OA	EMBA		
Demersal Fishery	✓	✓	**Area**: Demersal fishing is allowed from 15 Nm to the outer boundary of the Australian Fishing Zone, excluding the area of the Timor Reef Fishery. **Gear**: lines, fish traps and semi-demersal trawl nets. **Key target species**: snapper (various species). **Effort**: 16 licences currently issued, with 7 boats nominated for fishing (NT Government, 2023b).	Interaction with this fishery in the OA is possible but highly unlikely due to the concentration of fishing effort that occurs along the eastern boundary of the Timor Reef fishery in water depths of 80-100 m, to the north-east of the OA. Effort is expected within the EMBA.
Mollusc Fishery	✗	✓	**Area**: Mollusc harvesting is allowed from the high water mark out to the low water mark. **Gear**: collected by hand. **Key target species**: all molluscs and shellfish, except pearl oysters. **Effort**: 1 licence is currently allocated (NT Government, 2023b).	No fishery overlaps the OA. Very low effort is expected within the EMBA.
Mudcrab Fishery	✓	✓	**Area**: Mud crab harvesting is confined to coastal mudflats and estuaries, excluding Darwin Harbour, Kakadu National Park, Leaders Creek and most creeks adjoining Shoal Bay. **Gear**: pots. **Key target species**: mud crabs. **Effort**: 49 licences are currently allocated, each of which is allowed 60 pots (NT Government, 2023b).	No fishery overlaps the OA. Fishing effort is concentrated in the Gulf of Carpentaria (outside of the EMBA); however, very low effort may occur within the EMBA.
Offshore Net and Line Fishery	✓	✓	**Area**: Operates in NT waters from the low water mark to the boundary of the Australian Fishing Zone. Most fishing is done in the coastal zone within 12 Nm of the coast, and immediately offshore in the Gulf of Carpentaria. The fishery has an area of approximately 522,000 km2. **Gear**: longlines or pelagic nets (there are restrictions on where certain gear can be used). **Key target species**: blacktip sharks, grey mackerel. **Effort**: Unknown – no restriction on number of licences issued (NT Government, 2023b).	Interaction with this fishery in the OA is possible but unlikely due to the concentration of fishing effort in coastal areas (within 12 NM of the coast) and immediately offshore in the Gulf of Carpentaria. One licence holder may fish off the southwest end of the Tiwi Islands for small pelagic fish.
Pearl Oyster Fishery	✓	✓	**Area**: high water mark to the outer boundary of the Australian fishing zone, 200 Nm offshore. **Gear**: harvested by hand only **Key target species**: pearl oysters **Effort**: 5 licences are currently allocated. A total of 138,000 oysters can be collected each year (NT Government, 2023b).	While there is a licence area that intersects with the OA, there has been no active commercial fishing effort reported in the OA. High effort is expected within the EMBA.
Spanish Mackerel Fishery	✓	✓	**Area**: Commercial fishing for Spanish mackerel is allowed from the high-water mark to the outer boundary of the Australian Fishing Zone, which is 200 Nm offshore. Most fishing effort occurs near reefs, headlands and shoals and includes waters near Bathurst Island, New Year Island, northern and western Groote Eylandt, the Gove Peninsula, the Wessel Islands, the Sir Edward Pellew Group and suitable fishing grounds on the western and eastern mainland coasts. Fishing generally takes place around reefs, headlands, and shoals. **Gear**: trolling, handline. **Key target species**: Spanish mackerel. **Effort**: 15 licences allocated (NT Government, 2023b).	Interaction with this fishery in the OA is possible with fishers transiting within the area. Effort is expected within the EMBA at nearby shoals and banks, particularly in waters off Bathurst Island.
Trepang Fishery	✗	✓	**Area**: Trepang fishing is allowed from the high-water mark to 3 NM seaward of the coast. Predominately along the Arnhem Land coast, mainly around the Cobourg Peninsula and Groote Eylandt. **Gear**: harvested by hand either on foot or by diving, usually on neap tides during the dry season. **Key target species**: Barramundi and king threadfin **Effort**: 6 licences currently allocated (NT Government, 2023b).	No fishery overlaps the OA. Effort is expected within the EMBA.

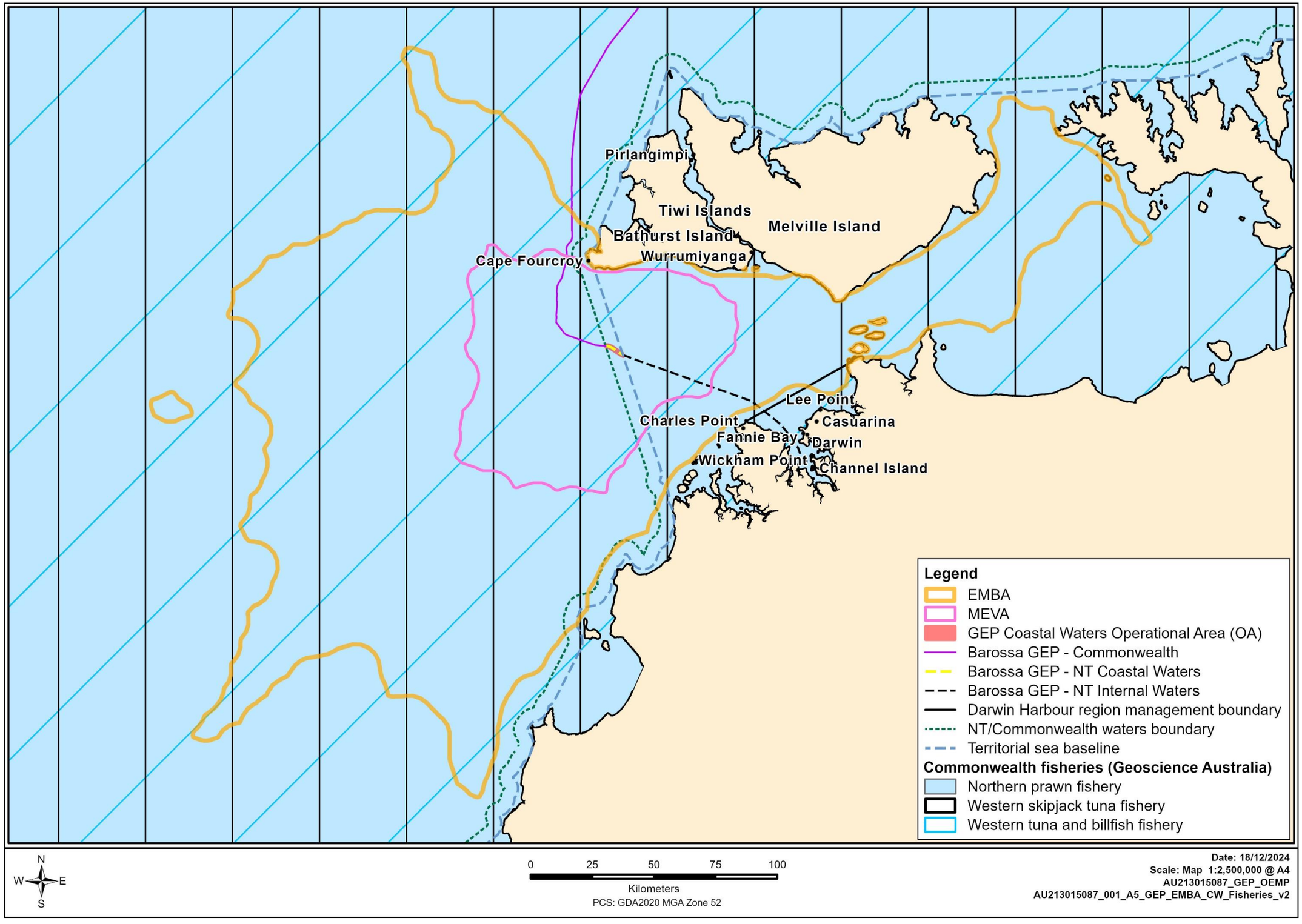

Figure 3-10: Commonwealth managed fisheries overlapping or proximal to the OA and EMBA and MEVA

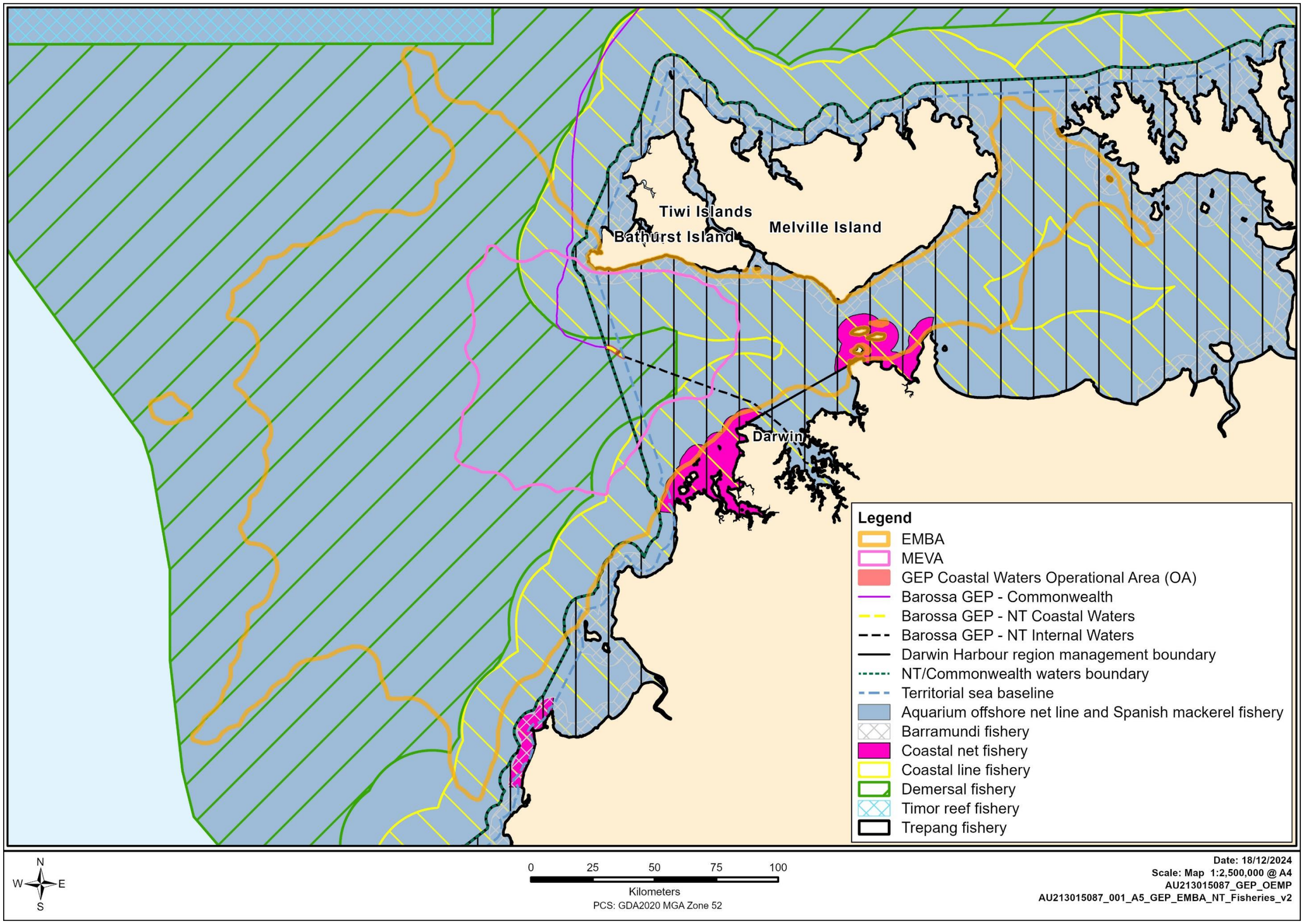

Figure 3-11: Northern Territory managed fisheries overlapping or proximal to the OA and EMBA and MEVA

3.2.14.2 Energy industry

No established energy operations are located within or in the immediate surrounds of the OA. However, there are 2 existing pipelines within the vicinity—the Santos-operated Bayu-Undan pipeline (0.1 km or greater distance from the OA) and the INPEX-operated Ichthys pipeline (46.5 km distance from the OA). The closest operational offshore production facilities and in-field subsea infrastructure are the Eni operated Blacktip Gas, approximately 254 km south-west from the OA and the Santos-operated Bayu– Undan platform, approximately 375 km north-west from the OA. Petroleum retention lease area and exploration permit leases within the EMBA are held by various energy operators (and subsidiaries) including INPEX Browse, MEO International, Neptune Energy Bonaparte, Eni, EOG Resources and MBS Oil. The Petroleum retention leases and exploration permit leases within and near to the EMBA are currently held by various energy operators, shown in Figure 3-12.

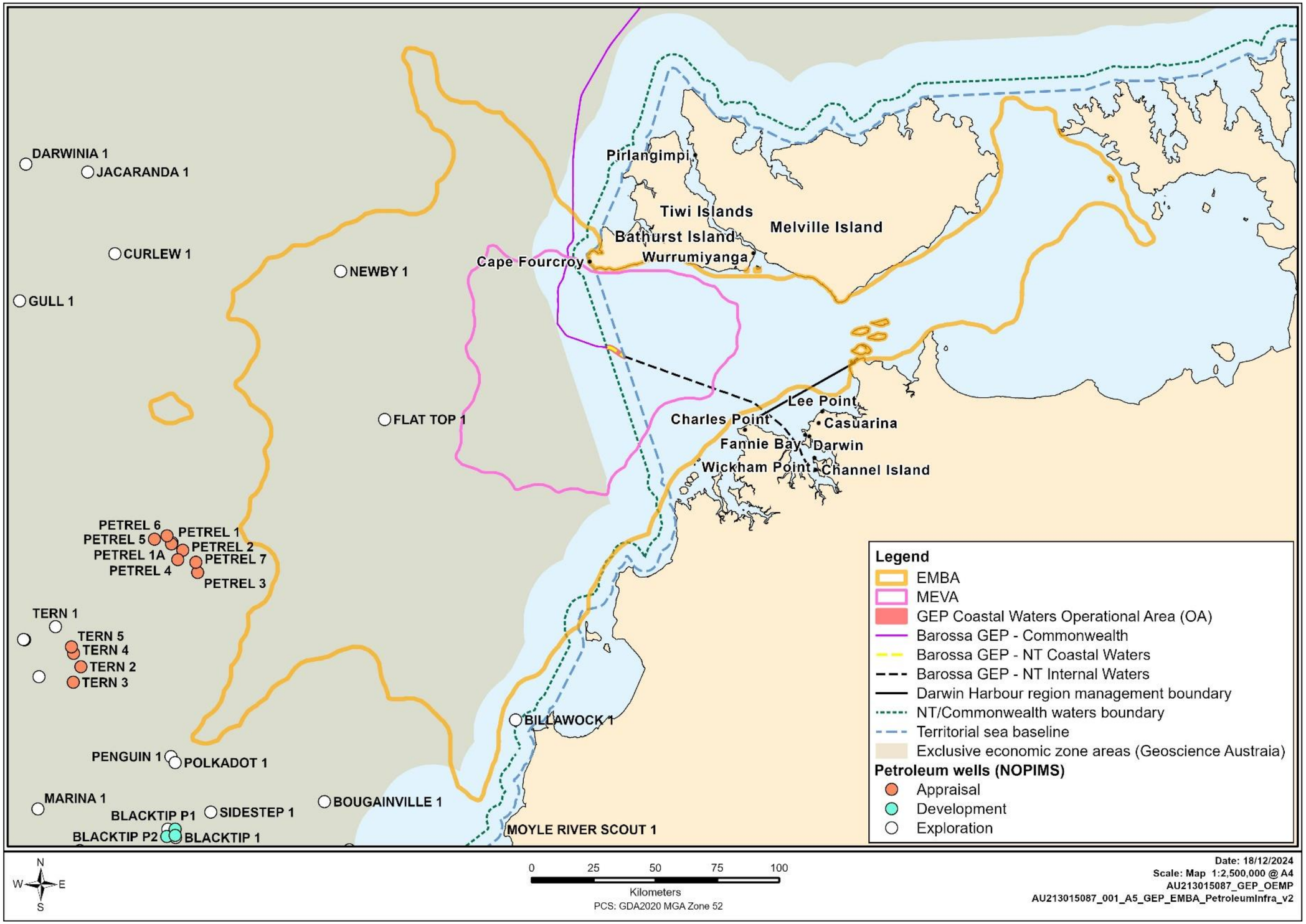

Figure 3-12: Existing petroleum infrastructure overlapping or proximal to the EMBA and MEVA

3.2.14.3 Defence activities

The OA intersects a practice area, and the EMBA intersects the practice and training areas of the North Australian exercise area and Darwin air weapons range (Figure 3-13). These areas are maritime military zones administered by the Department of Defence and used for offshore naval exercises and onshore weapons-firing training. The Australian Border Force also undertake civil and maritime surveillance (and enforcement) in Australian offshore maritime waters, which include the EEZ. During their surveillance, Australian Border Force vessels may transit the EMBA.

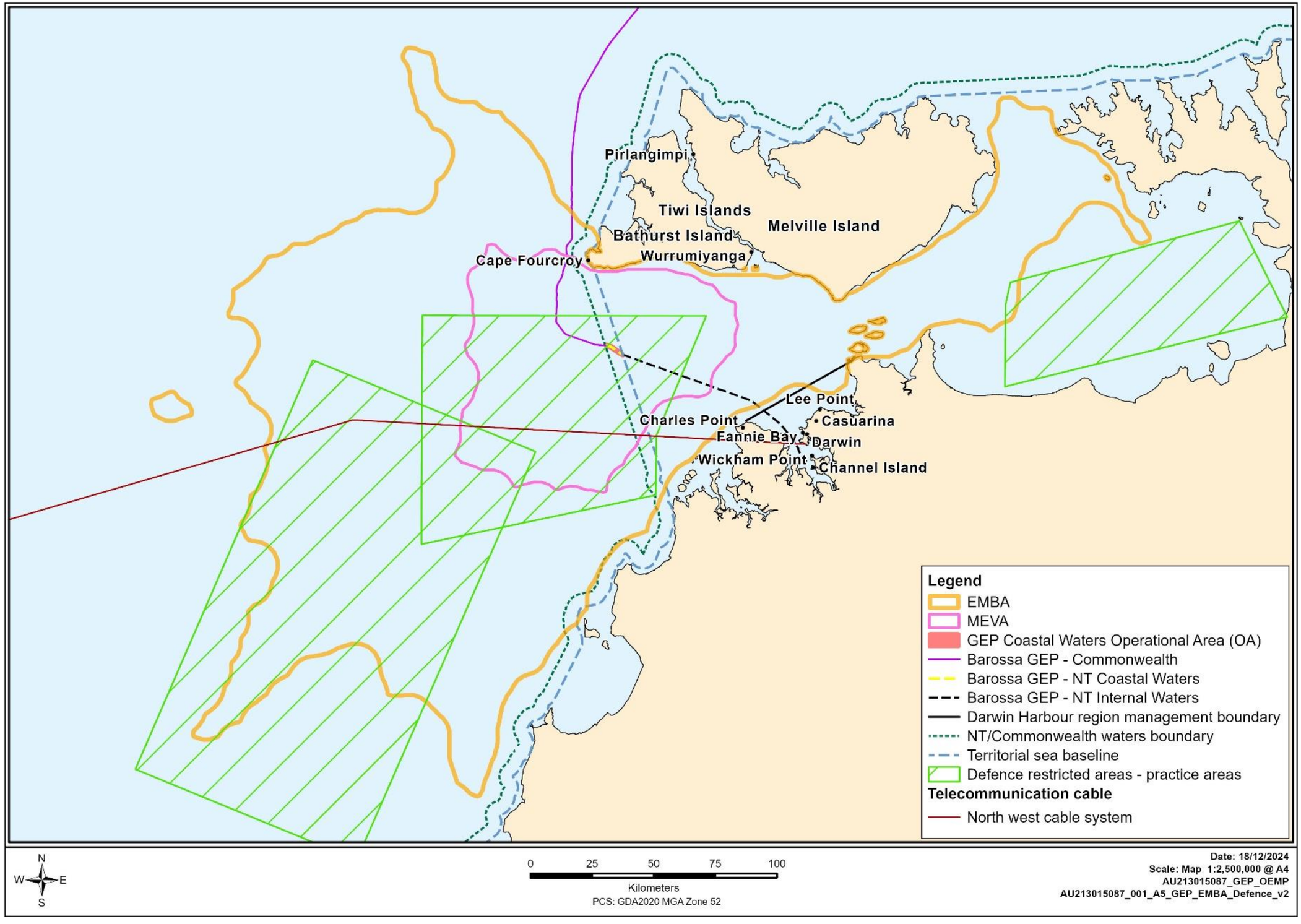

Figure 3-13: Defence training and exercise areas overlapping or proximal to the EMBA and MEVA

3.2.14.4 Telecommunications cables

The North-West Cable System (NWCS) is located approximately 2.5 km south of the OA. Extending 2,100 km from Darwin to Port Hedland, the NWCS connects Australia's remote northern and western regions, including offshore energy industry facilities, with onshore locations. Although the NWCS intersects the EMBA, a hydrocarbon spill will not have any impact on submarine cables.

3.2.14.5 Shipping

AMSA has established a network of shipping fairways off the north-west coast of Australia to manage traffic patterns. The shipping fairways are designed to keep shipping traffic away from offshore infrastructure to reduce the risk of a vessel collision (AMSA, 2013).

The use of the fairways is strongly recommended, and the International Regulations for Preventing Collisions at Sea 1972 apply to all vessels navigating within or outside the shipping fairways. Under the *Navigation Act 2012* (Cth), certain vessels operating in Australian waters are required to report their location daily to AMSA's Joint Rescue Coordination Centre (JRCC). This Australian Ship Reporting System is an integral part of the Australian Maritime Search and Rescue system.

The OA does not overlap any ports. Darwin Port is a major shipping port in Australia located approximately 90 km south-south east of the OA. In 2022–2023, there were 1,569 vessel calls to port (Landbridge Darwin Port, 2024). Darwin Port is a major port for vessels servicing operations offshore from north-west Australia. The primary shipping channels within the EMBA are between Darwin and Southeast Asian ports. Figure 3-14 illustrates the vessel movement density within the EMBA. Average vessel displacements and speeds for shipping vessels transiting the EMBA and OA include:

- bulk carriers averaging 55,300 t with speeds of 14 knots
- livestock carriers averaging 2,800 t with speeds of 12 knots
- general cargo vessels averaging 4,900 t with speeds of approximately 12 knots.

Although Darwin Port is the primary active port in the region, there is a port, Port Melville, located at the Tiwi Islands (outside of the EMBA), which is approximately 83 km north-east of the OA and 125 km north of Darwin.

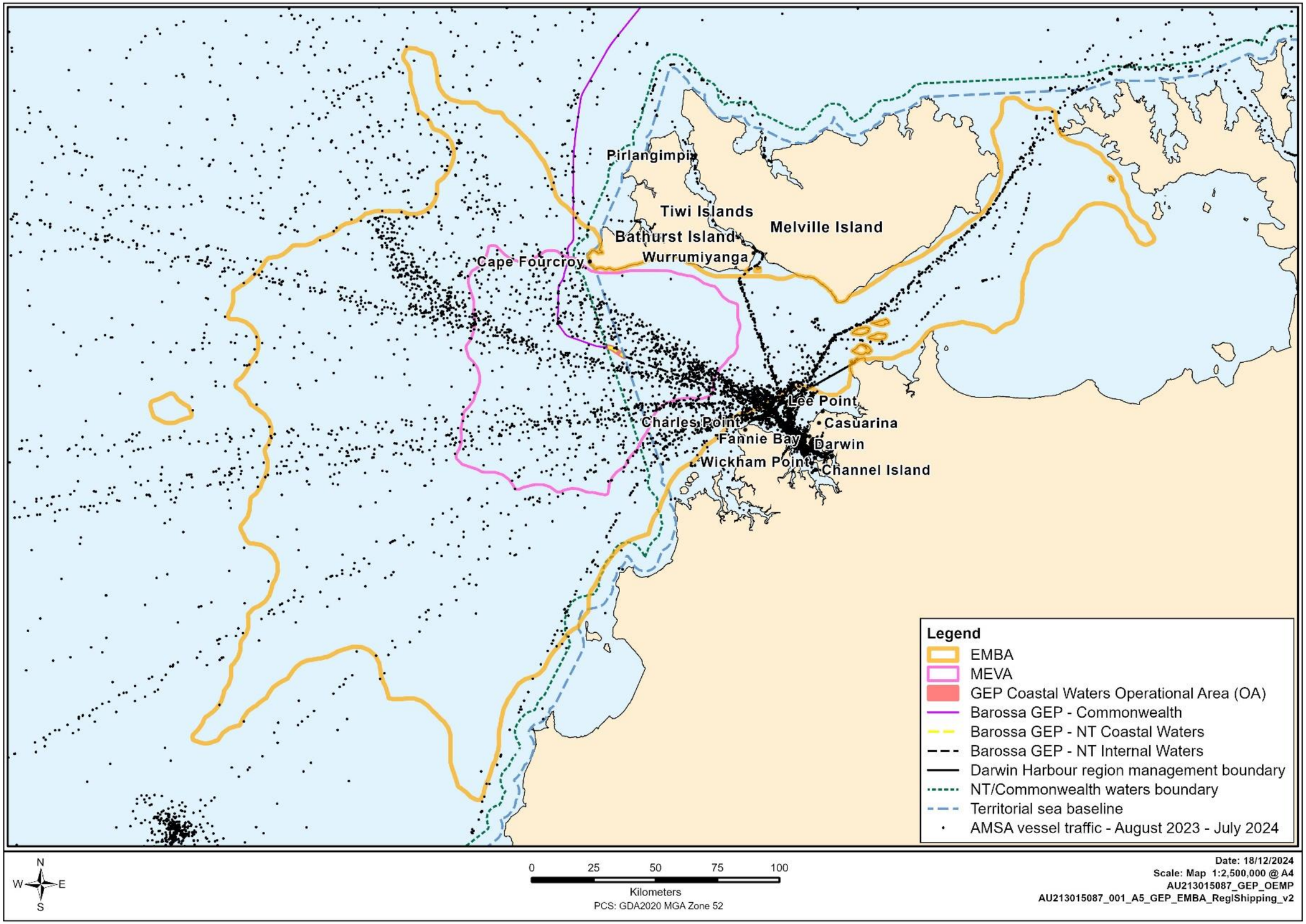

Figure 3-14: Regional shipping overlapping or proximal to the EMBA and MEVA

3.2.14.6 Recreation and tourism

In the NT, there were 895,000 holiday visitors (for the purposes of tourism) during the year ending March 2024 with ~$1.5 billion visitor expenditure (NT Tourism, 2023b). While tourism activities (e.g. recreational fishing and boating, charter boat operations) may occur within the OA, they are likely to be transitioning the area to access islands, shoals, and shipwrecks outside the OA.

In the NT, 95% of recreational fishing occurs in in area <5 km from the coastline (West et al., 2022). The peak fishing effort is between October to December and April to June (West et al., 2022). The mainland coastline, several shoals, and banks within the EMBA may be visited by small numbers of recreational fishers/charter vessels targeting fish inhabiting these shallower offshore features. The mainland coastline also offers recreation, and cultural and environmental tourism activities. Scuba diving, snorkelling and other charter vessels are also a significant tourist attraction, with operators visiting the numerous shipwrecks, coral reefs and artificial reefs and embarking on day or multiday trips out to offshore islands and shoals (INPEX Browse, 2010). The peak tourism period occurs between May to October. The Tiwi Islands are a popular tourist destination offering cruises, fishing, sailing and water tours among other cultural activities. Kakadu National Park is also an important visitor attraction which has coastal values that intersect the EMBA. Tourism and recreational activities are likely to be more concentrated within coastal waters of the EMBA, but activities such as deep-water fishing, diving, and snorkelling around offshore shoals and reefs may potentially take place in offshore areas of the EMBA.

3.2.14.7 Underwater cultural heritage

Historic shipwrecks and sunken aircraft, including associated artefacts that have been in Australian waters more than 75 years, are subject to automatic protection under the *Underwater Cultural Heritage Act 2018* (Cth) (UCH Act). Shipwrecks, sunken aircraft, and other types of Underwater Cultural Heritage (UCH) that have been underwater for less than 75 years can be protected through an individual declaration by DCCEEW based on an assessment of heritage significance (DCCEEW, 2024). Underwater cultural heritage artefacts continue to be protected after removal from the water.

There is one declared protected UCH site within the OA, the wreck of Japanese submarine *I-124* (see Figure 3-15). The wreck is located <1 km away from the GEP, in water depths of <42 m. During the design phase of the DPD Project, the pipeline route was deviated to avoid the *I-124* Japanese wreck and its 800 m radial exclusion zone, with the pipeline route passing 100 m to the east of the exclusion zone at its closest point.

Multiple known shipwrecks, sunken aircraft, and historic (more than 75 years old) aircraft, shipwrecks and other sites occur within the EMBA (Figure 3-15). Table 3-16 describes the known and located UCH sites protected under the UCH Act and *Heritage Act 2011* (NT) within the EMBA and lists the distances to the OA. These include a steam ship (*Florence D*) that was sunk to the north-west of Bathurst Island, and a steamer ship (*Don Isidro USAT*) that was sunk adjacent to the west coast of Bathurst Island. These vessels and submarine *I-124* were sunk in 1942 during World War II and are listed under the Historic Shipwrecks Act 1976.

A maritime archaeological heritage assessment was undertaken by Cosmos Archaeology (2022) who reviewed historical sources, databases, and marine geophysical information. The assessment concluded there are no located shipwrecks, aircraft wrecks, dump sites, maritime infrastructure or UXO within the study area, which was defined as a 500 m buffer around the Barossa GEP route.

Santos engaged Cosmos Archaeology to undertake a maritime archaeological heritage assessment (MAHA) (Cosmos Archaeology, 2022) along the DPD pipeline route. The study area of the MAHA is defined as a minimum 1,000 m buffer on either side of the DPD pipeline route (i.e. both Commonwealth and NT waters, including NT Coastal Waters). An archaeological scope of works prepared by the Department of Territory Families, Housing and Communities, NT Heritage branch, in November 2021, informed the Cosmos Archaeology assessment. Cosmos Archaeology analysed data collected during the geophysical survey conducted by Fugro in 2021. The study found three seabed anomalies representing potential cultural objects (i.e. not natural in origin) within the MAHA study area, between pipeline kilometre point (KP) 25 to KP28 (Cosmos Archaeology, 2022). Two of these objects, which could not be determined as natural or cultural, were identified between 143 and 214 m away from the pipeline route and another single high-relief feature was located 68m from the pipeline route. This latter anomaly was considered as having only a remote chance of being associated with the I-124 wreck given its distance of over 2.5 km away from the centre point of the wreck (Cosmos Archaeology, 2022). Given the distance of these anomalies from the pipeline route and the nature of the installation activity, these anomalies were not considered likely to be impacted by the pipeline installation activity, and no further work to further identify them was recommended by Cosmos Archaeology (2022).

Cosmos Archaeology also noted that 29 known but unlocated shipwrecks and 25 known but unlocated aircraft wrecks are believed to have sunk within the MAHA study area vicinity based on recorded historical accounts (Cosmos Archaeology, 2022). Therefore, these unlocated shipwrecks and aircraft wrecks could potentially be located within the EMBA but outside the OA. Cosmos Archaeology identified 17 known shipwrecks, 5 unexploded

ordnance (UXO) and 6 instances of maritime infrastructure (including anti-submarine defences and telegraph cables) within the MAHA study area (outside of the OA) (Cosmos Archaeology, 2022).

Underwater cultural heritage sites that have a declared protected zone prohibit types of conduct within a designated zone. There are three sites that have a declared protected zone within the EMBA, being *I-124* (submarine), *SS Florence* and *SS Macumba*. These declared protected zones prohibit conduct within an 800 m radius, unless authorised by a permit issued under the UCH Act. One additional known shipwreck listed under the UCH Act is located outside the EMBA at the Cartier Island Marine Park: the *Ann Millicent* (wrecked in 1888).

Table 3-16: Located UCH protected under UCH Act and *Heritage Act 2011* (NT) and distance to the OA

Name	Protected under the UCH Act	Underwater heritage protected zones	Protected under the *Heritage Act 2011* (NT)	Description	Site distance to OA (~km)
B-25D Mitchell N5-140	✓	×	×	Aircraft crashed off the coast of Nightcliff, NT in April 1943, cause unknown.	77
Booya	×	✓ 150 m under Heritage Act 2011 (NT)	✓	Sailing vessel wrecked during Cyclone Tracy in 1974.	70
Brisbane	✓	×	×	Vessel struck Fish Reef near the entrance to Bynoe Harbour, NT in October 1881 where it became permanently stranded.	42
British Motorist	✓	×	✓	Vessel sunk during attacks by Japanese aircraft in February 1942, while in use by the British Merchant Navy for fuel transportation purposes.	81
Catalina PBY-4 PatWing10 #4 or #8 ("Catalina 6")	✓	×	✓	One of 3 Catalina aircrafts sunk at mooring in February 1942 by Japanese air raid. Part of USN Patrol Wing 10.	87
Dakota A65-115 (VH-RGC)	✓	×	×	Aircraft crashed off the coast of Mindil Beach, NT in September 1945.	75
Ellengowan	✓	×	✓	Vessel sank at its moorings at the Channel Island quarantine station anchorage in 1888.	87
HMAS *Kelat*	✓	×	✓	Ship was sunk during attacks by Japanese aircraft in February 1942.	86
HMAS *Neptuna*	✓	×	✓	Ship was sunk during attacks by Japanese aircraft during February 1942, while in use by the Allies to transport people, troops and supplies.	82
HMAT *Zealandia*	✓	×	✓	Ship was sunk during attacks by Japanese aircraft in February 1942, while in use by the Allies to transport people, troops and supplies.	82
I-124 (Submarine)	✓	✓ 800 m under the UCH Act	×	The submarine was sunk by multiple attacks by Allied Forces including Australian and US in January 1942. I-124 was an Imperial Japanese Navy minelaying submarine and the sinking resulted in the loss of all 74 crew.	overlaps
RAAF Catalina A24-1 (“Catalina 1”)	✓	×	✓	Aircraft crashed during takeoff in August 1945.	92
RAAF Catalina A24-206 (“Catalina 3”)	✓	×	×	Aircraft sunk from accidental depth charge explosion June 1945.	89
RAAF Catalina A24-69 (“Catalina 2”)	✓	×	×	Aircraft caught fire by accident in December 1945 while moored in Darwin Harbour, NT.	87

Name	Protected under the UCH Act	Underwater heritage protected zones	Protected under the *Heritage Act 2011* (NT)	Description	Site distance to OA (~km)
Spitfire A58-372 (ex-JG106)	✓	×	✓	Aircraft crashed into Clarence Strait, NT in July 1945.	120
SS *Florence D*	✓	✓ 800 m under the UCH Act	×	Ship was sunk during attacks by Japanese aircrafts in February 1942, while chartered by the US Navy to serve as a blockade runner to transport supplies.	96.5
SS *Macumba*	✓	✓ 800 m under the UCH Act	×	Merchant ship was sunk during an attack by 2 Japanese aircraft in August 1943, while carrying supplies and war materials from Brisbane to Darwin.	496
Subsea telegraph cable – duplicate	×	×	✓	Duplicate subsea telegraph cable linking Darwin cable station to Banjoewangi cable station, Java, Indonesia. The duplicate cable was of the same composition as the original 1871 cable.	23
Subsea telegraph cable –replacement	×	×	✓	Replacement subsea telegraph cable linking Darwin cable station to Banjoewangi cable station, Java, Indonesia. Cable is of similar composition to the earlier 2 but contained an additional layer of brass tape around the core to protect the cable from marine borer (namely *Teredo navalis*) attack.	46
Subsea telegraph cables landing	×	×	✓	First installation of an approximately 1,561 km long subsea telegraph cable linking Darwin cable station to Banjoewangi cable station, Java, Indonesia. The cable consists of seven stranded copper wires, insulated with gutta-percha latex, sheathed in galvanised iron wire armour, and an outside covering of tarred hemp.	81
USAT *Don Isidro*	✓	×	×	Vessel was sunk during Japanese aircraft during February 1942, while in use by the British Merchant Navy for fuel transportation purposes.	42
USAT *Mauna Loa*	✓	✓ 100 m under *Heritage Act 2011* (NT)	✓	Ship was sunk during attacks by Japanese aircraft in February 1942, while chartered by the US Navy to transport supplies.	41
USAT *Meigs*	✓	✓ 100 m under *Heritage Act 2011* (NT)	✓	Ship was sunk during attacks by Japanese aircraft in February 1942, while chartered by the US Navy to transport supplies.	79
USN Catalina PatWing 10 #41 ("Catalina 4")	✓	×	✓	One of 3 Catalinas sunk at mooring in February 1942 by Japanese air raid. Part of USN Patrol Wing 10.	88.5
USN Catalina PatWing10 #4 or #8 ("Catalina 5")	✓	×	✓	One of 3 Catalinas sunk at mooring in February 1942 by Japanese air raid. Part of USN Patrol Wing 10.	89
USS *Peary*	✓	✓ 100 m under *Heritage Act 2011* (NT)	✓	Ship was sunk during attacks by Japanese aircraft in February 1942.	80

During the Last Glacial Maximum, sea level was at its minimum at 125 m below the present-day sea level (Wessex, 2023). A significant portion of the EMBA is within the 125 m depth contour, which represents the furthest extent of historical human habitation and potential for First Nations UCH. Water depths within the OA are between

approximately 40 m to 50 m; therefore, there is potential for unknown First Nations UCH to exist in the OA. Given the extent of time since sea levels were at these low levels (~20,000 years ago), terrestrial landforms, and any associated heritage artefacts within the EMBA are likely to have been significantly influenced over thousands of years by erosion, sedimentation and deposition as sea levels increased to their present levels (Posamentier, 2023).

Santos engaged OzArk Environment and Heritage (OzArk) to conduct a desktop First Nations archaeological assessment for the DPD Project Area, including the NT Coastal Waters section, based on a detailed geomorphological assessment. This study focussed on the likelihood for deposits associated with the Last Glacial Maximum (LGM) to be impacted by the DPD Project. Only one location was identified where potential sediments associated with the LGM were indicated; this was in the vicinity of KP 36.4 to 37.9 (outside of the OA for this Activity) (OzArk, 2024). At this location, potential sediments are assessed likely to be at a depth of approximately 18 m below the sea floor. At this depth, no activities related to IMMR will have any direct or indirect impact on these potential sediments. In any event, the location of the potential sediments associated with the LGM is outside the OA (OzArk, 2024). No known First Nations UCH sites were identified by OzArk (2024) within the OA.

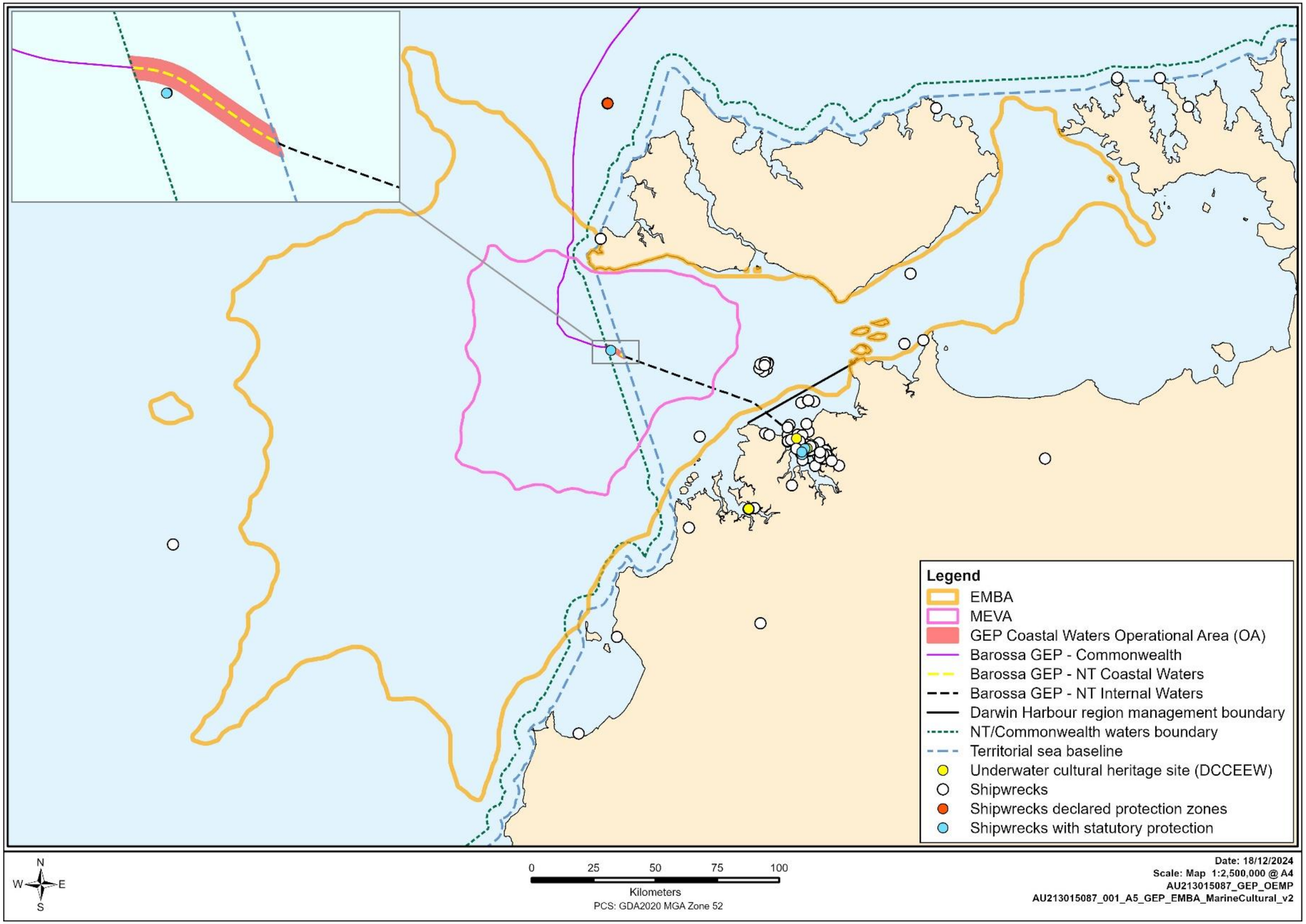

Figure 3-15: Underwater maritime cultural heritage overlapping or proximal to the EMBA and MEVA

3.2.15 Cultural features

Sections 3.2.15.2 to 3.2.15.12 provide detail on cultural features within the EMBA, other than the UCH sites described in Section 3.2.14.7.

3.2.15.1 Introduction

First Nations people have occupied the Australian continent for a period in the order of 65,000 years, making them the oldest continuous culture in the world. First Nations Australians' *connection to land is essential to the continued cultural survival of Australia's First Peoples as well as their economic and social development* (AIATSIS, 'Land Rights', Reuters).

Santos acknowledges the tradition of the First Nations people of Australia includes a cultural and spiritual connection to their land and waters, including sea country. These connections are rooted in their traditional communal beliefs and practices. First Nations people view their land and waters as integral to their identity, culture, and spirituality and they have a deep respect for the natural world. First Nations persons and groups that identify as saltwater people/groups have a complex relationship with sea country, based, for the most part, on inherited rights, including totemic affiliation, and ceremonial duties. Santos understands that First Nations groups of Northern Australia are generally aware of the nature and geographic extent of their areas of responsibilities over sea country.

The cultural heritage of First Nations people is defined by Indigenous tradition through traditional laws and customs amongst themselves.

It includes a vast array of cultural artifacts, practices and beliefs. The protected heritage of First Nations peoples is also of cultural value to Australia and the global community. The cultural value of First Nations protected heritage to Australia is evidenced and given force by a range of factors, including the laws, regulations and institutions established across Australia that are designed specifically to protect First Nations rights and interests in relation to sacred sites and other aspects of First Nations cultural heritage, including the *Native Title Act 1993* (Cth) (NT Act), *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth) (ATSIHP Act), UCH Act, *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) (ALR Act) and *Northern Territory Aboriginal Sacred Sites Act 1989* (NT) (NTASS Act).

In identifying the cultural features of the OA and EMBA, Santos has considered:

- information shared during consultation for this GEP Coastal Waters OEMP,
- information shared during consultation/engagement for other Barossa EPs, including the Commonwealth Waters DPD EP;
- lay and expert evidence adduced in Munkara, as well as the court's reasoning and findings,
- expert anthropological advice provided by Santos' consultants (some of which was considered by the Court in *Munkara*), and
- other publicly available information.

Information about potential cultural features obtained during consultation/engagement for the D&C EP, SURF EP, and GEP EPs has been considered and included in this GEP Coastal Waters OEMP where potentially relevant, having regard to the recent guidance in *Munkara*.

Further to point 2 above, Santos was provided with information by First Nations people during consultation meetings for the D&C EP and by NOPSEMA in the course of preparing the D&C EP. NOPSEMA provided Santos with 4 separate letters from 4 Tiwi clan members to NOPSEMA in April 2022 requesting the statement of reasons for NOPSEMA's decision to accept Revision 3 of the D&C EP (2022 Statement of Reasons Requests22F[5]), and asked Santos to consider the relevance of the information provided in the letters to the D&C EP. Items raised in the letters from the Tiwi clan members include traditional hunting of marine species, totem species, dreamings, songlines and sacred sites, as well as broad concerns about potential impacts from other Barossa Gas Project activities (e.g. noise and light emissions) on the environment. Santos considered this feedback relevant to this GEP Coastal Waters OEMP given:

- songlines, sea country and sacred sites may occur in the general wider area of the Barossa Gas Project,
- the movement of marine and totemic species may occur within the EMBA for this GEP Coastal Waters OEMP, and

[5] *2022 Statement of Reasons Requests asked for copies of statement of reasons to be sent to EDO email addresses.*

- potential environmental impacts associated with this Activity are similar to those associated with the D&C activity (such as noise and light).

Santos also notes that the Tiwi clan members who sent the April 2022 letters attended multiple Tiwi clan consultation sessions for this GEP Coastal Waters OEMP. As described in Section 4, Santos provided Tiwi people (including the authors of the four letters) extensive opportunities for consultation specifically on the activities proposed to be conducted under this GEP Coastal Waters OEMP.

Further to point 4 above, Santos commissioned an independent expert assessment by Dr Brendan Corrigan for the purpose of identifying UCH places along the route of the Barossa Gas Export Pipeline (GEP) west and northwest of the Tiwi Islands ("Corrigan 2023 Report"). As part of his work, Dr Corrigan reviewed extensive ethnographic studies of the Tiwi people in order to gain an historical understanding of their society, culture and hierarchy, and conducted extensive interviews amongst the communities.

Dr Corrigan has also prepared an anthropological survey report ("Corrigan 2024 Report") on cultural and spiritual values in relation to the DPD Project (including the DPD NT Coastal Waters, a link to the report is in Table 3-2. The Corrigan 2024 Report is based on a review of all relevant available ethnographic, linguistic and historical materials and consultations with key First Nations persons identified as having cultural and spiritual knowledge and authority associated with the study area. As far as possible, all persons understood to hold cultural and spiritual rights and interests in the study area, including those who assert relevant cultural knowledge, were identified and invited to participate.

Dr Corrigan concluded that a precise boundary which captures the extent of interests of both the Tiwi Islanders and Larrakia Peoples' in the context of the GEP is unclear at this time. However, cultural, and spiritual values of these groups are understood as extending out into the seas for an indeterminate distance. For example, the spiritual beings *Jirukupai* (crocodile man) and *Ampitji*) are thought by Tiwi Islanders to travel in the surrounding sea, but it is unclear precisely how far. This is also consistent with a range of views put to the Federal Court more recently, in the context of the GEP EP (see for example, Corrigan 2023). Similarly, Tiwi Islanders routinely travel large distances at sea for the purpose of fishing and hunting turtle and dugong. However, there is no settled evidentiary data on the actual extent of these cultural and economic activities in the context of a sea country claim or the like.

There are no native title claims or determinations registered, or sites recorded under the NTASS Act or sites protected under the ATSIHP Act, UCH Act or ALR Act, Aboriginal land rights claimed or granted under the ALR Act or Indigenous Protected Areas (IPAs) within the OA.

There are sacred sites along the mainland and island coastlines and potentially the surrounding waters that overlap the EMBA. These sacred sites may include features which lie both above and below the water (Aboriginal Areas Protection Authority [AAPA], 2022). All sacred sites in the NT are protected in accordance with the NTASS Act. None have been found to exist within the OA.

3.2.15.2 Meaning of Cultural features

In its evaluation of potential impacts, Santos has considered the Federal Court's guidance and findings in Munkara v Santos NA Barossa Pty Ltd (No 3) [2024] FCA 9 (Munkara) in identifying the cultural features of the environment. In Munkara, the Court clarified the meaning of 'cultural features' in the definition of 'environment' in section 4 (now section 5) of the OPGGS(E)R:

- The phrase cultural features has a 'communal aspect' to it. This necessitates proof that individual beliefs are broadly representative of the beliefs of other members of the group, although there does not need to be consensus[6]. An idiosyncratic view or belief of an individual may be a manifestation of the culture of that person's society, but if it is not broadly representative of the beliefs of a group, then it will not constitute a cultural feature [7].

In the context of limb (a) of the definition of 'environment' in the OPGGS(E)R, 'cultural features' attaches to the word 'ecosystem' with all of its constituent parts, including people and communities. The focus must remain on the ecosystem, of which people form a part. This focus is not upon an individual person devoid of the context of the ecosystem[8].

- In the context of limb (c) of the definition of 'environment', each of the circumstances that:
  - an area is the subject of a spiritual connection to Aboriginal people, provided that the connection is by the laws and customs of *a people*[9],

[6] *Munkara at [922] and see also at [194]-[199].*
[7] *Munkara at [204].*
[8] *Munkara at [204].*
[9] *Munkara at [201].*

- an 'area' is the country of an Aboriginal person in accordance with Aboriginal traditional laws and customs[10], and
- there exists in those areas, locations or places cultural heritage in the form of artefacts or other objects evidencing human occupation and activities over the course of human history[11], may readily be described as a 'cultural feature' of that location, place or area.

- In order for there to be a 'cultural feature' of the environment, there must be a 'sufficiently cogent or coherent belief' that is 'sufficiently accepted' so that it can be described as having normative content for the people or community viewed as a constituent part of an ecosystem, such that a singular perspective will not suffice[12]. The beliefs and values must be held by the relevant people as a people[13]. Further, the question of whether a view is sufficiently cogent or coherent may be answered by reference to the customs and practices of the relevant people, including relevant customs and practices concerning the authority to speak on a topic or relevant customs and practices (if any) concerning the resolution of division[14].
- The inquiry as to what is 'broadly representative' must be undertaken in the proper cultural context, including by assessing which persons are generally accepted as having authority to speak on the particular topic and excluding those persons who are culturally irrelevant[15]
- Evidence of dissenting views cannot be ignored because they tend against a finding that beliefs have broad acceptance[16]
- Proof that beliefs are broadly representative will be more difficult in the face of discord within the relevant group, and even more so when the discord is among persons of equivalent authority and persons having the same lineage[17].

3.2.15.3 Native title

Native title was first recognised in Australia in *Mabo v Queensland (No 2)* (1992) 175 CLR 1 (Mabo). Consequent to that decision, the NT Act was enacted to provide a statutory mechanism for the recognition of claims for, and protection of, native title.

Native title claims are applications made to the Federal Court under the NT Act for a determination, or decision about native title in a particular area. A claimant application is made by a native title claim group which asserts it holds native title rights and interests in an area of land and/or water, according to its traditional laws and customs. By making a claimant application, the native title claim group seeks a decision that native title exists, so its physical and spiritual rights and interests are recognised by the common law of Australia. This is called a native title determination. A determination is a decision by a recognised body, such as the Federal Court or High Court of Australia, that native title either does or does not exist in relation to a particular area.

A native title claim group must demonstrate that the acknowledgement and observance of traditional laws and customs have continued substantially uninterrupted since sovereignty (capable of being recognised by the common law of Australia) (section 223(1) NT Act). Native title rights and interests are determined as a question of fact. For example, in Western Australia v Ward (2000) 99 FCR 316, [243], the Full Federal Court stated that:

Acknowledgment and observance may be established by evidence that traditional practices and ceremonies are maintained by the community, insofar as that is possible, off the land, and that ritual knowledge including knowledge of the Dreamings which underlie the traditional laws and customs, continue to be maintained and passed down from generation to generation. Evidence of present members of the community, which demonstrates knowledge of the boundaries to their traditional lands, in itself provides evidence of continuing connection through adherence to their traditional laws and customs.

A requirement for obtaining a positive determination of native title in court is proving that there is an organised group that occupied the claimed land and waters at the time of British annexation. The requirement of an ‘organised society’ is set out in *Mabo*.

From this, it is considered that it is a group of native titleholders that hold communal native title and that native title claims are understood to apply to the area over which First Nations groups are claiming their rights and interests.

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[10] *Munkara at [855].*
[11] *Munkara at [200].*
[12] *Munkara at [206].*
[13] *Munkara at [208].*
[14] *Munkara at [206].*
[15] *Munkara at [923].*
[16] *Munkara at [923].*
[17] *Munkara at [924].*

A native title determination is where native title has been determined to exist, which may include only part of a native title claim and represents the lands and waters over which the native title group has been recognised to have rights and interests. Where a Court has determined that native title exists, those native title rights and interests will be held (often but not always) in trust by a Registered Native Title Body Corporate designated by the Native Title holders (section 57 NT Act).

Native title is, in any particular case, a collection of rights and interests the content of which varies according to the traditional laws and customs from which they are, in each particular case, derived. For example, these rights may include the right to have access, to camp, hunt, fish, use water, hold meetings, perform ceremony and/or protect cultural sites (see for example, *Akiba v The Commonwealth* (2013) 250 CLR 209).

For the Activity, there are no native title claims or determinations that overlap with the OA or EMBA. The areas of responsibility for regional native title representative bodies that overlap the EMBA are shown in Figure 3-16.

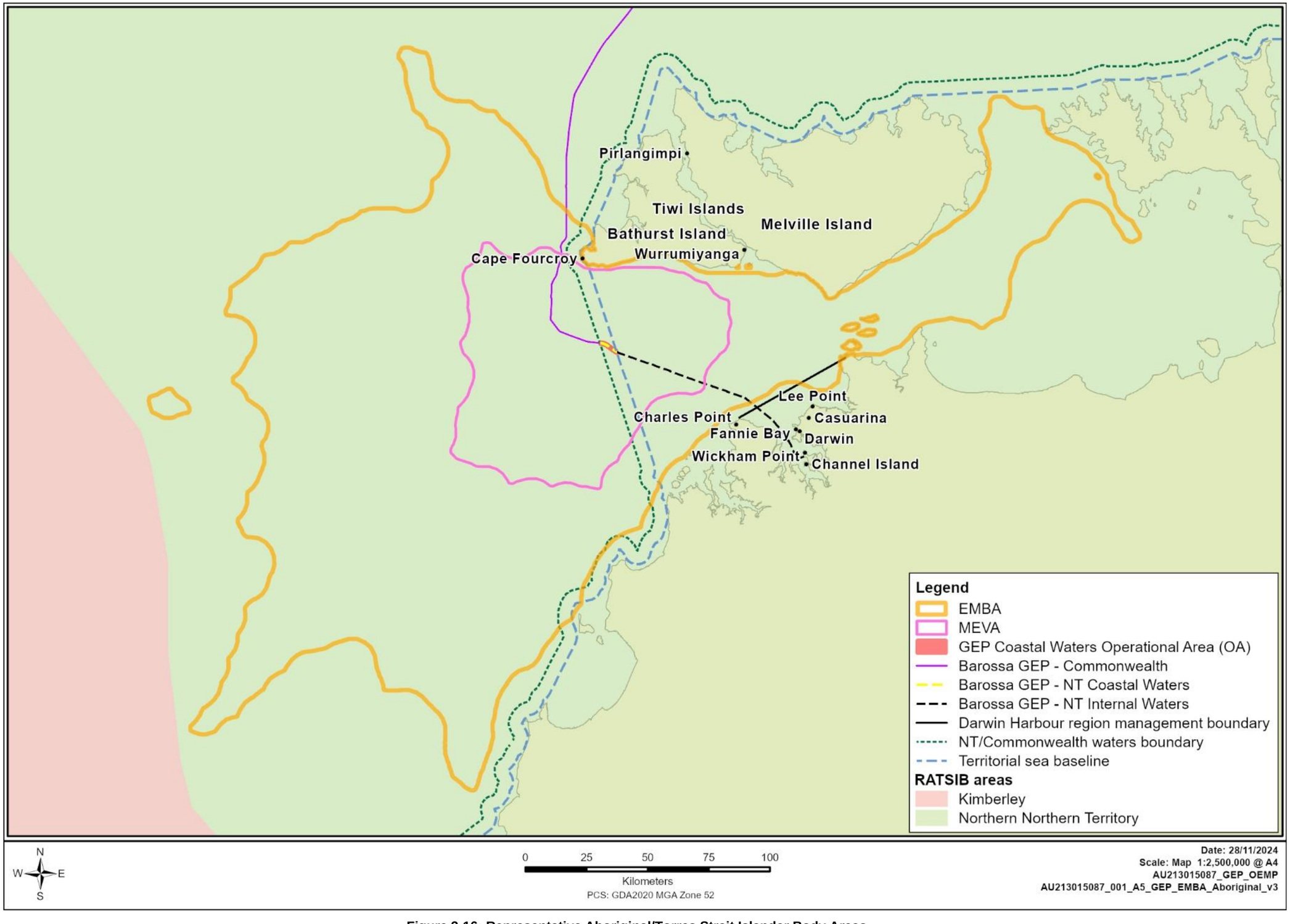

Figure 3-16: Representative Aboriginal/Torres Strait Islander Body Areas

3.2.15.4 Indigenous land use agreements

An Indigenous land use agreement (ILUA) is a voluntary agreement between native title parties and other people or bodies about the use and management of areas of land and/or waters. An ILUA can be made over areas where:

- native title has been determined to exist in at least part of the area
- a native title claim has been made
- no native title claim has been made.

While registered, ILUAs bind all native title holders to the terms of the agreement. ILUAs also operate as a contract between the parties. A register of ILUAs is maintained by the Native Title Registrar. The register of ILUAs does not disclose the existence of any ILUA which overlaps with the OA or the EMBA.

3.2.15.5 Indigenous protected areas

Indigenous Protected Areas (IPAs) are areas of land and sea managed by First Nations groups as protected areas for biodiversity conservation through voluntary agreements with the Australian Government. IPAs are an essential component of Australia's National Reserve System, which is the network of formally recognised terrestrial parks, reserves and protected areas across Australia's landmass. There are currently 82 dedicated IPAs over 87 million hectares of land. There is also around 5 million hectares of Australia's sea areas in dedicated IPAs. Managing IPAs helps First Nations communities protect the cultural features of their country for future generations.

There are no IPAs that overlap the OA or EMBA.

3.2.15.6 Sacred sites

Santos has applied for, and received on 23 December 2022 an Authority Certificate (C2022-098) from the Aboriginal Areas Protection Authority (AAPA), which covers potential seabed disturbance along the pipeline route in NT waters and a nominal ~1,000m buffer each side of the pipeline route, including the GEP route in the OA. Based on AAPA's research findings, there were no registered or recorded sacred sites, protected under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT) (NTASS Act), identified within or adjacent to the area represented by a ~1,000m buffer each side of the pipeline route within the OA, nor any specific certificate conditions related to activities within the buffer area

There are many NT coastal sites along the mainland and island coastlines and potentially the surrounding waters that overlap the EMBA that are registered under the NTASS Act (whether registered, recorded, or not). These sacred sites may include features which lie both above and below the water (AAPA, 2022).

There are coastal areas (down to the low water mark) that intersect the EMBA which are formally recognised as Aboriginal land under the ALR Act.

Members of the Agalda clan, representing western parts of the Cobourg Peninsula, including coastal areas and adjacent sea country, raised with Santos during consultation on the Commonwealth Waters DPD EP and the Coastal Waters Construction Environmental Management Plan this GEP Coastal Waters OEMP that there are sacred sites around the west and south of Coburg and Croker Island. During consultation meetings for the SURF EP, Santos was also provided with sacred site locations within the EMBA by some members of the Tiwi Island clans. These sacred sites are located on the western coast of Bathurst Island that may also potentially intersect the outer boundary of the EMBA for this Activity.

The Kenbi (Cox Peninsula) Land Claim No. 37 (CoA, 2000) publishes detail on the location and significance of culturally significant First Nations sites within Darwin Harbour and Bynoe Harbour to the east (which are separated by the Cox Peninsula), including registered sacred sites. These sites and areas include those used for hunting, fishing, gathering, camping, ceremonies and associated with dreamings. There are numerous sites identified in this report within the EMBA, including those associated with dreamings of totemic marine fauna species, including Ngalwatnyini (manta ray dreaming), Memarrandjamul-nyini (dugong dreaming), Iyn.garrayn-nyini (sea turtle dreaming) (CoA, 2000). The report also identifies 3 sites on the north-eastern side of Darwin Harbour.

All sacred sites in the NT are protected in accordance with the NTASS Act. Sacred sites may be registered in sea country (whether registered, recorded or not). Sacred sites may also be protected under the ATSIHP Act, *Heritage Act 2011* (NT), the UCH Act, the ALR Act or the EPBC Act [18].

[18] *For completeness Santos notes that on 23 October 2023 it was informed by the DCCEEW that applications had been received under the ATSIHP Act in relation to certain areas of the sea. Santos understands that these areas are outside the OA but overlap the EMBA. Santos understands that no decisions have been made by the Minister in relation to the applications at the time of writing.*

3.2.15.7 Land rights

The ALR Act governs Aboriginal land (not native title claims) in the NT. Land that has been granted or recommended for grant under the ALR Act is determined to be held communally by the "traditional Aboriginal owners" of that land. The ALR Act has enabled the establishment of Aboriginal Land Trusts (ALTs) to hold title to Aboriginal land granted in the NT under that Act.

Aboriginal land rights governed under the ALR Act do not extend past the low water mark of tidal waters overlaying the NT coastline. In coastal areas, grants of Aboriginal land under the ALR Act are made to the low water mark. *Northern Territory v Arnhem Land Aboriginal Land Trust* (2008) 236 CLR 24 confirmed that Traditional Owners of First Nations-owned NT coastline have exclusive access rights to the tidal waters overlying their land.

There is no Aboriginal land either claimed or granted under the ALR Act, or sea closures put into effect in accordance with that Act, that overlap with the OA. The EMBA does overlap land and tidal waters (between the low water mark and the high-water mark) granted under the ALR Act. This Aboriginal land is held by the Kenbi ALT, the Cobourg Peninsula Sanctuary ALT, the Tiwi ALT and the Delissaville/ Wagait/ Larrakia ALT (CoA, 2023)

Section 5(2) of the ALR Act provides that ALTs cannot exercise their functions in relation to land they hold except in accordance with directions given to them by the Land Council for the area in which the relevant land is situated. Where any such directions are given, ALTs must comply with them. Accordingly, ALTs cannot act independently of Land Councils. Under the ALR Act, the functions of Land Councils with respect to ALTs involve administering ALTs in their area, including storing their common seals and deeds of grant, maintaining a register of ALT membership, negotiating agreements on behalf of ALTs and receiving moneys on behalf of ALTs. The NLC is the relevant Land Council for the Cobourg Peninsula Sanctuary, Kenbi and Delissaville/Wagait/Larrakia ALTs, while the TLC is the relevant Land Council for the Tiwi ALT.

3.2.15.8 Marine parks

The EMBA for this GEP Coastal Waters OEMP overlaps with features of the North Marine Parks Network Management Plan (MPNMP) and the North-West MPNMP, which identify natural, cultural, and spiritual values associated with Australian Marine Parks (AMPs), specifically the Oceanic Shoals AMP and the Joseph Bonaparte Gulf AMP.

Santos acknowledges that Commonwealth and State Marine Park Management Plans have sought to recognise cultural interests of First Nations groups. Australian Marine Parks has described this framework as taking 'values into account' when making decisions and taking action in relation to marine parks. Australian Marine Parks summarises these values into natural, cultural, heritage and socioeconomic categories. Additionally, the Commonwealth and State Marine Park Management Plans state that there could be First Nations groups or native title representative groups who may have responsibility for sea country within marine park areas.

3.2.15.9 Cultural fishing and hunting activities

First Nations fishing activity in NT waters predominately occurs within inshore tidal waters. Approximately 80% of NT's coastline is recognised as being under Aboriginal land and sea ownership under the Aboriginal Land Rights Act 1976 (NT) (NT Government, 2022). Almost all traditional fishing effort (~93%) is concentrated within coastal waters (up to 3 Nm beyond the territorial baseline) of the NT coastline and Tiwi Islands (NT Government, 2017).

Darwin Harbour is utilised by Larrakia people for collecting marine resources, including fishing, hunting, crabbing and the collection of shellfish (Corrigan, 2024).

For the Tiwi Island people, traditional fishing effort is greatest near the larger communities of Wurrumiyanga on Bathurst Island, and Pirlangimpi and Milikapiti on Melville Island (DPIF, 2014). Traditional subsistence food sources include fish (mullet, mackerel, barramundi, trevally), mud mussels, mud crabs, long bums shellfish, oysters, yams, mullet, eggs (turtle and bird), chilli worms, mangrove worms, turtles, stingrays, and dugongs. Green turtles are the main species harvested in the water, while eggs of all turtle species are taken periodically (Tiwi Land Council, 2022). Information provided during Tiwi Clan meetings during consultation for the D&C EP indicated that some Tiwi people have a particular interest in turtles as a traditional food source.

Feedback from the 2022 Statement of Reasons letters identified the following First Nations people's use of country for fishing/gathering food (fish, shellfish, turtle/turtle eggs, (mud) mussels, (mud) crabs, yams, mullets, mangrove worm, mackerel, barramundi, trevally, (black lip) oysters, chilli worm, stingray, dugong and seagull eggs.

Traditional subsistence food sources are captured in a culturally appropriate manner learnt from ancestral generations and taught to emerging descendants. This occurs in normal family and community circumstances as well as within the practices of the First Nations groups (Corrigan, 2024).

With the support of the NT Government, Darwin Aquaculture Centre is working with Tiwi People to develop aquacultural enterprises that provide employment and business opportunities (Land Development Corporation,

n.d.). Aquacultural options include Barramundi, Trepang, Mud Crab, Prawns, Oysters and Clams (Tiwi Land Council, 2021).

3.2.15.10 Culturally significant marine species

In consultations with Tiwi Clans for the D&C EP, some Tiwi people emphasised that marine turtles are regarded by Tiwi people as totemic and culturally significant species. Therefore, environmental protection measures for marine turtles are important to Tiwi people.

Information about First Nations cultural beliefs and connection with their sea country, within and adjacent to the D&C EMBA, was provided during First Nations consultation meetings for the D&C EP and also from other information provided by NOPSEMA to Santos. As noted above, NOPSEMA provided Santos with four separate letters from Tiwi clans members to NOPSEMA in April 2022 requesting the statement of reasons for NOPSEMA's decision to accept Revision 3 of the D&C EP (2022 Statement of Reasons requests). The 2022 Statement of Reasons requests indicated that Tiwi people also consider fish, dugong and whales to hold cultural significance as totemic species (in addition to marine turtles), and that various marine species are traditional food sources for Tiwi people (refer Section 3.2.15.9). However, the significance of these species was not raised with Santos in its communal consultation sessions with Tiwi people for any of the Barossa OEMPs, noting that the Tiwi clan members who sent the 2022 Statement of Reasons Requests attended multiple Tiwi clan consultation sessions for this GEP Coastal Waters OEMP.

The Northern Land Council (NLC) in a submission as part of the consultation for the D&C EP indicated a number of marine species that are significant to Aboriginal dreamings including birds, crocodiles, crows, whales, manta rays, crabs, dugong, sea turtle, gropers, sea-eagles, octopus and other turtles.

The Corrigan 2024 Report also confirmed that Larrakia people identified turtle, dugong, and sting ray dreamings close to Talc Head (within the EMBA) and noting these have significant importance regarding resources and the spiritual dimensions of Larrakia life. Dreamings were identified as being associated with the sea, winds and stars and regarding the moon and the seasons, mermaid dreaming and dreamings near the Charles Point lighthouse. The term dreaming is used throughout the Corrigan 2024 Report to denote knowledge, songs and narratives associated with Aboriginal religious understandings which set out the origins of the social and physical world and expected behaviours within it.

The Corrigan 2024 Report also identified species important for protection including turtles, crocodiles, dugong, dolphins, whales, and the seagrass beds near Kings Table (within the EMBA).

Terrestrial species of cultural significance are outside the EMBA and therefore are not considered further in this GEP Coastal Waters OEMP.

3.2.15.11 Sea country connection

As outlined in Section 3.2.15.2, Santos acknowledges that the cultural features of the environment include the circumstance that First Nations people have spiritual connections to a particular place within that environment, or that the place forms part of the country of a First Nations group, in accordance with the traditional laws and customs of that group. As such, the circumstance that an area of the environment is part of the sea country of a First Nations group, to which members of that group have a spiritual connection, is a cultural feature of that area of the environment.

The North MPNMP (DNP, 2018a) states:

Sea country refers to the areas of the sea that Aboriginal people are particularly affiliated with through their traditional lore and customs. Sea country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their sea country for tens of thousands of years.

The nature of sea country was the subject of extensive lay and expert evidence in the Munkara proceeding, to which Santos has had regard in its consideration of cultural features of the environment. Based on this evidence, Santos understands that:

- the concept of country is intimately connected with questions of cultural authority. The First Nations group who is responsible for that area of country has authority to speak in relation to that country, and has custodian responsibilities in respect of that country. One group's area of sea country will end where the next group's begins, although groups may share responsibility for particular Dreamings which traverse different areas of country; and

- sea country connections may manifest in the telling of stories about foundational creation myths explaining features of the landscape or particular species[19].

In order to identify areas of sea country which may be affected by activities under this GEP Coastal Waters OEMP, Santos consulted broadly with First Nations groups and representative organisations both in respect of this GEP Coastal Waters OEMP and its other Barossa EPs. Based on this consultation and Santos' review of publicly available information, Santos has identified that the EMBA likely intersects with sea country interests, although the geographical extent of sea country interests is inherently indeterminate at this time.

Features of sea country

During consultation on this GEP Coastal Waters OEMP and previous Barossa EPs, some First Nations Relevant Persons provided additional context as to the manifestation of their sea country connection, being particular stories and creation myths which they believe to be present within the EMBA. Santos acknowledges that expressions of sea country connection may be particular to families and individuals within groups and that there is accordingly divergence in the details of such stories within groups. Notwithstanding this, the information provided is summarised below and has been considered by Santos in the preparation of its EP, including with the benefit of expert anthropological advice.

Dr Corrigan documented a range of views on Tiwi clans' connection with sea country and considered claims for several items to be protected in accordance with Tiwi law and custom (Corrigan, 2023). This included:

- the travels of the Crocodile Man
- the location and existence of a 'Mother Ampitji'
- the travels of Ampitji
- the necessity to look after country in a manner that seeks to ensure no industrial accidents occur which might affect sea country and marine resources (including spiritual connections to the same)
- the Imunka force present in the seas
- the location of a place under the sea where spirits go to upon people's death and then being moved on from the world of the living through Pukamani ceremony.

Tiwi Islanders interviewed by Dr Corrigan about the location of the above items expressed a variety of views. This is supported by the observations and findings of the Court in Munkara[20].

Dr Corrigan's 2024 reporting also documents input from Larrakia people and relevant First Nations persons from Belyuen and Wagait, who also advise the presence of a range of ancestral beings and dreaming stories of relevance to the Darwin Harbour, surrounding seas and the DPD project footprint. None of these cultural features are known to be associated with any specific or particular places in the DPD project footprint, but rather have a more general association with the wider area, as well as having associations with particular and specific places outside of the DPD project footprint.

Spiritual beings

As part of consultation in the course of preparing the D&C EP some First Nations Relevant Persons expressed cultural connections with sea country in terms of spiritual beings. Information about First Nations cultural beliefs and connection with their sea country, within and adjacent to the D&C EP EMBA, was provided during First Nations consultation meetings for the D&C EP and from other information provided by NOPSEMA to Santos (2022 Statement of Reasons requests).

During Tiwi Clan consultation meetings for the D&C EP, Tiwi people spoke about the importance of their spiritual dreaming which protects the Tiwi Islands from man-made and natural disasters. Santos recognises that some First Nations Relevant Persons fear sickness or other adverse effects from the actions of spiritual beings in response to impacts on the environment of sea country itself. A key Tiwi creation story concerns a spiritual being (or spiritual beings) called Ampitji (sometimes known as a Rainbow Serpent). The Court in Munkara considered lay and anthropological evidence about this creation story at [78]-[81], noting that while there was significant divergence in spiritual beliefs concerning Ampitji, it was not disputed that the spiritual belief in one or more Ampitji is a feature of Tiwi spiritual life and that Ampitji may have a role to play in ensuring compliance with Tiwi law.

During Croker Island consultation meetings in Darwin, Croker Islanders conveyed their affiliation to their land and sea. They advised that their culture is at the coast and includes everything in the water including the marine life.

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[19] *Munkara at [866].*

[20] *See Munkara at [871], [1003], [1011]–[1014], [1027] and [1212].*

Croker Island people informed Santos during D&C EP consultation about their connections to sea country. Sea country was defined as to the north of Cape Croker out to the deep water (referred to as Inigarrka). Inigarrka is considered the most sacred place in the ocean and the Croker Island people are prohibited from the sacred area. Santos recognises the potential for sea country and songlines to extend into the EMBA for the activity the subject of this GEP Coastal Waters OEMP.

In relation to the GEP EP, Dr Corrigan concluded that, in accordance with Indigenous tradition, there were no specific UCH places along the GEP route that may be affected by the activities under the GEP EP: that there are no known sacred sites or some other specific places that are part of well-known sets of ancestral creation stories amongst the Tiwi people.

The Court in *Munkara* reached a similar conclusion on tangible cultural heritage, finding that the evidence was insufficient to show anything other than a negligible chance that there exists one or more objects of archaeological value along the GEP route[21]. Regarding intangible cultural heritage, the Court found that the evidence before the Court was insufficient to prove that the accounts given by the Applicant's witnesses in relation to Ampitji and the Crocodile Man were broadly representative of a belief held by the relevant people as people, such that the belief would constitute a cultural feature[22]. The Court also found that there was insufficient evidence in relation to Imunka[23] to establish that the belief constituted a cultural feature[24].

Whilst these conclusions of the Court and Dr Corrigan were made in relation to activities covered by the GEP EP, the conclusions are also relevant to this GEP Coastal Waters OEMP due to the spatial proximity with the GEP EP activities. That is, no intangible cultural heritage values and sensitivities constituting a cultural feature have been identified along the GEP and DPD route (on DPD, see Corrigan, 2024).

In its correspondence to Santos of 25 August 2023 in relation to the D&C EP, NOPSEMA drew Santos' attention to 2 reports provided to NOPSEMA by the EDO on behalf of 7 Tiwi Islander clients on 21 July 2023. These reports related to the GEP EP (EDO GEP Reports), which NOPSEMA said may contain information relevant to the EMBA by the Activity covered by this GEP Coastal Waters OEMP. One of the EDO GEP Reports was prepared by Mr Lewis. The Court in Munkara doubted the rigor of Mr Lewis' anthropological work and, as referred to above, ultimately found that his opinions constituted him acting as an advocate rather than assisting the Court to arrive at the correct answer[25]. The other EDO GEP Report was prepared by Dr O'Leary. The Court ultimately placed no weight on this report and dismissed it, along with the subsequent reports prepared by Dr O'Leary, for all purposes[26].

The EDO GEP Reports claim to provide an assessment of the locations of potential impacts to Indigenous UCH sites along the GEP route. While the locations of these claimed sites of significance are partially within the Activity EMBA, the locations and significance of these claimed sites as put forward in the EDO GEP Reports is disputed by the Corrigan 2023 Report.

The Corrigan 2023 Report included consideration of detailed expert reports on archaeology and sedimentology along the GEP route conducted by Wessex Archaeology and Dr Posamentier; and the EDO GEP reports. The Corrigan 2023 Report concluded there are no specific UCH places along the GEP to which people, in accordance with Indigenous tradition, may have spiritual and cultural connections that may be affected by the GEP EP activities. As the southern section of the GEP extends into the OA of this GEP Coastal Waters OEMP, this conclusion also applies to this Activity.

The Corrigan 2023 Report provided the following independent expert comments on the EDO Reports:

- The EDO Reports come to dramatic conclusions about cultural heritage elements in the vicinity of the GEP which overestimate the consistency of the views of the EDO clients with those held by the wider jural public of the Tiwi Islanders
- Some Tiwi Islanders express views consistent with the EDO Reports, but the authors of those reports failed to consider and take account of other alternative expression
- The narratives contained in the EDO Reports are not anything like the narratives described to Dr Corrigan in the interviews he undertook
- The location or even the existence of a mother Ampitji is not agreed by all relevant parties

[21] *Munkara at [1306].*
[22] *Munkara at [1003] and [1014].*
[23] *Referred to in Munkara as Yiminga.*
[24] *Munkara at [946].*
[25] *Munkara at [1136]-[1139].*
[26] *Munkara at [879] and [1198].*

- Dr O'Leary (the author of one of the EDO Reports) does not mention any qualification he holds for which he might rely upon to undertake detailed and nuanced ethnographic enquiries in the context of a controversial industrial project
- Dr O'Leary incorrectly assumes an accuracy of the advice he received about the location of paleo sub-sea burial places
- The EDO Reports do not correctly identify any specific UCH places along the Barossa GEP Route.

Dr Corrigan also identified a constant theme in his interviews with the Tiwi Islanders that Ampitji travel within the waterholes of the Tiwi Islands and surrounding the Tiwi Islands and the crocodile man, Jirukupai, is also said by some to traverse the seas towards the OA. Dr Corrigan accepts, this is offset where some senior Tiwi people make the point that the OA is, in their view, a long way away from the Tiwi islands and that Jirukupai and Ampitji do not go out that far into the water. Of direct relevance these sorts of Tiwi cultural and spiritual values were tested in the Federal Court and were found not to be consistently spread amongst relevant Tiwi Islanders and in any event did not represent a particular 'place' of cultural and spiritual significance.

An important outcome of Dr Corrigan's research is that no sacred sites or dreamings are shown to be directly impacted by the DPD project footprint (which includes this Activity OA), although this is not to say that some persons do not have fears that this could be the case in the event of an unplanned event (Corrigan, 2024).

Santos recognises the importance of cultural and spiritual beliefs to First Nations people. Santos recognises that some First Nations remain concerned about the potential for adverse consequences to First Nations people and natural environment, that may arise as a result of disturbance from the Barossa Gas Project to spiritual dreaming and culturally important spiritual beings.

3.2.15.12 Summary of cultural features

Cultural features relevant to the Activity, as presented in Section 3.2.15, are summarised in Table 3-17. Table 3-17 also summarises the context for the identified cultural features, sourced information, and an assessment of relevance to the EMBA or OA (if known).

The cultural features presented in Table 3-17 are further assessed in the impact and risk assessment sections (Sections 6 and 7), as applicable. Context for these aspects is described below:

- Cultural heritage protected areas – cultural knowledge and the passing down of cultural education to children can occur from performing of ceremonies and rituals and through dreaming narratives and songlines. Traditional laws and customs amongst a group or groups can define indigenous traditions amongst the group or groups. For example, laws and customs can provide a format for social life and ceremonial matters. The transfer of knowledge of traditional law and customs may be integral to a group's[27] intangible cultural heritage (UNESCO, 2003) There may be implications to the transfer of First Nations knowledge if, for example, relevant aspects of the environment disappear. Ongoing observance of First Nations traditional laws and customs can also be recognised through Native Title determinations, and knowledge of and connection with country (land and sea) can be recognised through a range of mechanisms including indigenous land use agreements, indigenous protected areas and Aboriginal land rights claims.
- Sacred sites – areas that are traditionally accessed by First Nation people, such as sea country and sacred sites, are important for transferring traditional knowledge and for caring for country. If physical landscapes are altered this could impact the values of sacred sites. Sacred sites and protection of these is a known cultural heritage concern.
- Cultural fishing, hunting and gathering – Through consultation it was identified that a number of marine species provide sustenance to some First Nations people and are obtained through cultural fishing, customary hunting (turtles and dugongs) and gathering (turtle eggs and seagull eggs).
- Culturally significant marine species – A range of marine species (such as marine turtles, fish, dugongs, whales, sea-eagle, crocodile and manta rays) were raised during consultation as being important for Aboriginal dreaming, or as having totemic status and significance culturally. The First Nations people maintain a continuing spiritual connection with sea country, through caring for sea country and access to cultural food sources.

[27] *As noted in Munkara v Santos NA Barossa Pty Ltd (No 3) [2024] FCA 9, this cultural heritage must be held communally by the group, although need not be the subject of consensus.*

- Marine Parks – Commonwealth and State Marine Park Management Plans have sought to recognise cultural interests of First Nations groups within Marine Parks, and the sea country value of Marine Parks to First Nations people.
- Sea country connection through Songlines – Cultural stories and songlines can extend from the shoreline to deep water areas, and they tell an important cultural story (Corrigan, 2023). If spiritual injury occurs from an activity, some First Nation people believe that songlines can be damaged. It is believed that damaging songlines may have the potential to interfere with ability for First Nation people to reproduce cultural knowledge and continue to provide cultural education of their children.
- Sea country connection through Dreaming sites and stories, and spiritual beings – Some First Nations people believe dreamings relate to powerful creative ancestors who left much of the natural and human world behind them as they travelled (Corrigan, 2023). It is believed ancestors can travel to areas such as in the water or land below the seas, where these ancestors continue to use these areas. Some First Nations people are of the opinion that if spiritual injury is caused it can damage dreaming tracks. They believe it is their responsibility to look after these dreaming sites to protect the known travels of the spiritual beings. Information provided to Santos by First Nations communities during consultation, also highlighted the importance of cultural spiritual beings, such as Ampitji, as protectors of First Nations communities, and that if spiritual beings are upset or offended it can result in natural disasters or sickness among First Nations communities.

Table 3-17: Summary of cultural features and heritage values

Identified cultural feature	Description	EP Source	OA presence	EMBA presence
Archaeological heritage				
First Nations UCH	A First Nations archaeological assessment for the DPD Project Area was based on a detailed geomorphological assessment. This study focused on the likelihood for deposits associated with the Last Glacial Maximum (LGM) to be impacted by the DPD Project. Only one location where potential sediments associated with the LGM were indicated was in the vicinity of KP 36.4 to 37.9 (outside of the OA). At this location, potential sediments are assessed likely to be at a depth of approximately 18 m below the sea floor. At this depth, no activities related to the construction of the DPD project will have any direct or indirect impact on these potential sediments. In any event, the location of the potential sediments associated with the LGM is outside the OA. There are no declared protected First Nations UCH sites within the OA.	Desktop First Nations Archaeological Assessment Report: Darwin Pipeline Duplication Project, (OzArk, 2024)	No	Possible (spatial extent undefined)
Tangible values				
Native title	First Nations people have interests in an area of land and/or water according to their traditional laws and customs, as recognised through cultural heritage legal and regulatory frameworks. There are no native title claims or determinations that overlap with the OA or EMBA (Section 3.2.15.3). The areas of responsibility for regional native title representative bodies that the EMBA are shown in Figure 3-16.	Spatial datasets were downloaded from the National Native Title Tribunal website and confirmed during consultation with First Nations people and representative groups.	No	No
Indigenous land use agreements	There are no ILUAs within the OA and EMBA (Section 3.2.15.4)		No	No
Indigenous protected areas	There are no IPAs that overlap the OA or EMBA (Section 3.2.15.5)		No	No

Identified cultural feature	Description	EP Source	OA presence	EMBA presence
Sacred Sites	There are no known registered sacred or First Nations UCH sites within the OA. There are many NT coastal sacred sites along the mainland and island coastlines and potentially the surrounding waters that overlap the EMBA. (Section 3.2.15.6): •	Consultation feedback and Corrigan 2024 Report including a view of extensive ethnographic studies	No	Yes
Land rights	There is no Aboriginal land either claimed or granted under the ALR Act, or sea closures put into effect in accordance with that Act, that overlap with the OA. The EMBA does overlap areas of land and tidal waters (between the low water mark and the high-water mark) granted under the ALR Act. This Aboriginal land is held by the Cobourg Peninsula Sanctuary ALT, the Tiwi ALT, the Kenbi ALT, and the Delissaville/Wagait/Larrakia ALT (Section 3.2.15.7).	CoA, 2023	No	Yes
Marine Parks	The North MPNMP and the North-West MPNMP identify natural, cultural and spiritual values associated with AMP's, specifically the Oceanic Shoals AMP (Section 3.2.15.8).	DNP, 2018a; 2018b	No	Yes
Cultural fishing, hunting, and gathering	Cultural fishing, hunting, and gathering of marine species such as fish, shellfish, worms, stingrays, turtles, dugongs, turtle and bird eggs occur within the EMBA (Section 3.2.15.9). Cultural fishing, hunting and gathering of marine species is possible although not expected within the OA given water depths (>40 m) and distance from nearest shoreline (~30 km).	Corrigan 2024 Report and consultation with First Nations people and representative groups	Possible (spatial extent undefined)	Yes
Culturally significant marine species	First Nations persons and groups that have a deep connection with the sea through totems and dreamings such as marine fauna (marine turtles, whales, dugong) and consider them to be of cultural significance (Section 3.2.15.10).	• 2022 Statement of Reasons requests and NLC consultation feedback in relation to the D&C EP • Consultation feedback and Dr Corrigan reports (2023, 2024) including a view of extensive ethnographic studies.	Yes	Yes
Intangible values				
Sea country connection through Songlines	Songlines can go from land to sea and were identified as important by the Croker Island and Tiwi Islands people, as well as Larrakia people and other First Nations people's with interests in the DPD Project Area (which includes this Activity OA). They ordinarily traverse areas in a manner of travelling from named places to named places (Sections 3.2.15.11).	Consultation feedback and Corrigan reports including a view of extensive ethnographic studies	Possible (spatial extent undefined)	Possible (spatial extent undefined)

Identified cultural feature	Description	EP Source	OA presence	EMBA presence
Sea country connection through Dreaming sites and stories and spiritual beings	**Dreaming** Dreamings were identified as being in the sea, winds, and stars and regarding the moon and the seasons, mermaid dreaming and dreamings near the lighthouse (Section 3.2.15.10). Several marine species are significant to Aboriginal Dreaming such birds, crocodiles, shellfish, whales, manta rays, crabs, dugong, sea turtle, gropers, sea-eagles and octopus (Sections 3.2.15.11, 0).	• Consultation feedback and Dr Corrigan reports (2023, 2024) including a view of extensive ethnographic studies • NLC consultation feedback in relation to the D&C EP.	Possible (spatial extent undefined)	Possible (spatial extent undefined)
	Spiritual beings Spiritual beings are important to Tiwi Island people, as well as Larrakia people and other First Nations people's with interests in the DPD Project Area (which includes this Activity OA) for their role as protectors of First Nations people and the natural environment. Spiritual beings are believed to be present in the vicinity of the islands (Sections 0)).	Consultation feedback and Dr Corrigan reports (2023, 2024) including a review of extensive ethnographic studies	Possible (spatial extent undefined)	Possible (spatial extent undefined)

4. Consultation

4.1 Consultation background

Santos has undertaken a comprehensive consultation program for the Barossa Gas Project commencing with the initial primary approval (Barossa Area Development Offshore Project Proposal (OPP). Consultation with stakeholders on the OPP occurred during 2017 and included an eight-week public comment period prior to submission of the OPP to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for assessment.

Santos undertook consultation (including formal public comment periods for each) to support the primary approvals for the Darwin Pipeline Duplication (DPD) Project, for the Barossa GEP sections in NT Coastal and Inland Waters to the Darwin LNG plant. The primary approvals include for the construction, installation, operations and decommissioning phases of the project and consist of:

- a referral and subsequent Preliminary Documentation Report under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) - EPBC 2022/09372, granted in March 2024, and
- a referral and subsequent Supplementary Environmental Report under the *Northern Territory Environment Protection Act 2019* (NT EP Act), approved in December 2023 by the NT Minister for Environment, Climate Change and Water Security (EP2022/022-001), on the recommendation of the NT Environmental Protection Authority (EPA).

Santos notes that the information contained in the *Production Operations Information Booklet* includes for both the Barossa Production Operations EP activities and this Coastal Waters Operations Environmental Management Plan (OEMP) activities.

Extensive consultation has been undertaken for each of the activity specific EPs and EMPs, as well as other regulatory approvals prepared for different stages of the Barossa Gas Project.

These have included:

- Barossa Gas Export Pipeline (GEP) Installation EP (including through ConocoPhillips, as previous operator of the Barossa Development) – accepted by NOPSEMA in March 2020.
- Barossa Development Drilling and Completions EP – accepted by NOPSEMA in December 2023.
- Barossa Subsea Infrastructure Installation EP – accepted by NOPSEMA in February 2024.
- DPD Environment Plan – accepted by NOPSEMA in October 2024.
- Barossa DPD Project Coastal Waters Construction Environmental Management Plan - accepted by the NT Department of Mines and Energy (formerly the NT Department of Industry, Tourism and Trade – Energy Division) in November 2024 for construction activities to be undertaken in NT Coastal Waters.
- Barossa Production Operations EP – currently under assessment by NOPSEMA. See below at Section 4.2 in relation to consultation on this EP.

Santos has also undertaken consultation on activities managed under the Bayu-Undan to Darwin Gas Export Pipeline Environment Plan. The Bayu-Undan pipeline transports natural gas from the Bayu-Undan offshore platform in the Timor Sea to the Darwin Liquefied Natural Gas (DLNG) facility, and adjacent to the Barossa GEP in NT Coastal Waters. The Bayu-Undan Field is approaching end of field life, at which time production will cease at the Bayu-Undan field. Activities to be managed in the EP are for ongoing operations and preservation activities.

This broader consultation program provides a backdrop to the consultation undertaken for the Coastal Waters OEMP and Barossa Production Operations EP as well as other approvals / regulatory submissions related to operation of the GEP outside of Commonwealth waters (as to which, see Table 1-2 above).

For the Coastal Waters OEMP (and the Barossa Production Operations EP, as explained below in Section 4.2), consultation activities were undertaken in three broad phases:

- **Preliminary consultation** including to share consultation information and to allow authorities, persons and organisations opportunities to self-identify as Relevant Persons and directly contacting potential Relevant Persons.
- **Formal consultation** including seeking feedback from Relevant Persons to inform development of the Coastal Waters OEMP (and the Barossa Production Operations EP)

- **Further consultation** with some authorities, persons and organisations following the formal consultation phase given existing relationships, consultation preferences and standing meeting and consultation arrangements.

Consultation for these activities has been undertaken in compliance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (OPGGS(E)R) consultation requirements, applicable case law and applicable guidance (e.g. NOPSEMA guidance issued in May 2023 and subsequent guidance in May 2024 [GL2086 – Consultation in the course of preparing an environment plan]).

A summary report of the consultation carried out under section 25 OPGGS(E)R is included in Section 4.8.

Section 8.4.9 includes Santos' post EP acceptance consultation implementation strategy for activities covered by this OEMP. in accordance with Regulation 22(15) of the OPGGS(E)R.

4.2 Relationship with consultation on Barossa Production Operations EP

This Coastal Waters OEMP was prepared concurrently with the Barossa Production Operations EP, submitted to NOPSEMA in August 2024. As set out in section 1.2.2, the Barossa Production Operations EP covers (among other things) operation of the Barossa GEP in Commonwealth waters, while this Coastal Waters OEMP covers the operation of the Barossa GEP in NT Coastal Waters. Santos undertook consultation under s 25 of the OPGGS(E)R regarding activities under this Coastal Waters OEMP concurrently with consultation on activities under the Barossa Production Operations EP. This was done because both plans will authorise the operation of the Barossa GEP, and accordingly:

- there is a high degree of similarity in the activities proposed to be undertaken under the Barossa Production Operations EP (insofar as it relates to the Barossa GEP) and this Coastal Waters OEMP, and therefore in the potential impacts and risks associated with the activities;
- activities under this Coastal Waters OEMP will occur in close proximity and timeframe to activities under the Barossa Production Operations EP;
- the EMBA identified for the Barossa Production Operations EP overlaps the EMBA identified for this Coastal Waters OEMP; and
- for the reasons above:
    - Santos' identification of Relevant Persons for the Barossa Production Operations EP was anticipated to overlap significantly with the identification of Relevant Persons for this Coastal Waters OEMP; and
    - the information required to be given to each Relevant Person in order to allow them to make an informed assessment of the possible consequences of the activities under the Barossa Production Operations EP overlapped significantly with that required in respect of the activities under this Coastal Waters OEMP.

This coordinated approach to consultation enabled Santos to provide the most comprehensive information and widest consultation opportunities to potential Relevant Persons across the larger Barossa Production Operations EMBA, whilst also presenting information in context and seeking to mitigate the impact of Relevant Persons consultation fatigue.

As such, the information contained in the *Production Operations Information Booklet* (Booklet), shared during consultation for the Coastal Waters OEMP, addressed the same activity scope as relevant to the operations phase of the Barossa Gas Project and referenced the larger Barossa Production Operations EMBA.

In the Booklet, Gas Export Pipeline Production Operations Area 2 (OA2) covers the GEP Production Operations activities in both Commonwealth and NT Coastal Waters.

Information provided during consultation on the Barossa Production Operations EP has been considered to determine its relevance to the Coastal Waters OEMP. Where relevant, that information has been addressed in this Coastal Waters OEMP.

Some of the persons identified and consulted by Santos in its concurrent consultation on the Barossa Production Operations EP and Coastal Waters OEMP are anticipated to have functions, interests or activities that may be affected under the EP, but that may not be affected under the OEMP. For example, there is no risk under this Coastal Waters OEMP of a hydrocarbon spill which affects international waters or waters within Western Australia, reducing the likelihood that interests concerning these areas may be affected by activities under this Coastal Waters OEMP.

Notwithstanding this, and noting the similarities between the activities outlined above, Santos adopted a broad approach and has detailed in this section consultation with all persons identified as potentially relevant having regard to the broader Barossa Production Operations EP EMBA (of which the EMBA for the Coastal Waters OEMP is a subset).

Unless otherwise stated, the EMBA referenced in Section 4 of this Coastal Waters OEMP is the larger Barossa Production Operations EP EMBA, of which the EMBA for this Coastal Waters OEMP is a subset..

4.3 Consultation context

Santos has a long history of regional exploration, appraisal and operations offshore and onshore NT to support safe and reliable operation, including ownership and then operation of the Bayu-Undan Gas Project, which commenced operation in 2006. Santos has also undertaken other exploration and appraisal activities in the region.

Gas from the Bayu-Undan field in Timor-Leste offshore waters has been supplied via a 502 km pipeline to DLNG facility, which was the first LNG production facility in the NT and the second in Australia.

Over the Bayu-Undan Project's almost 20-year operating history, operational impacts that are analogous to the operation of facilities at the Barossa field and the Barossa GEP, as well as the ongoing operation of DLNG facility, have been managed by initial Operator ConocoPhillips and subsequently by Santos.

During Santos' time as Bayu-Undan and Darwin LNG Operator, Santos has consulted a range of regional stakeholders to support environmental approvals for its operations. These consultation activities have provided the foundation on which to build a comprehensive consultation program for the Barossa Gas Project, having regard to the nature and scale of proposed activities and the potential for Relevant Persons functions, interests and activities to be affected by proposed activities managed under respective EPs as well as this OEMP.

Importantly, during this time, Santos has strengthened and developed relationships with a range of regional stakeholders not only through previous consultation, but also through engagements associated with local employment, training, education and enterprise opportunities central to delivering meaningful and long-lasting contributions in NT and Timor-Leste communities.

These engagements have helped Santos anticipate likely issues of interest or concern among Relevant Persons to inform the consultation process, including, for example development of materials to support consultation for this Coastal Waters OEMP (and the Barossa Production Operations EP, as explained above in Section 4.2),. Similarly, these engagements have provided a strong foundation for Relevant Persons to understand the activities proposed in this OEMP and the environmental impacts and risks that may be associated with those activities, so as to support meaningful consultation for this OEMP.

4.4 OPGGS(E)R consultation requirements

Table 4-1 outlines the applicable OPGGS(E)R requirements for consultation with Relevant Persons for the Coastal Waters OEMP.

Table 4-1: Consultation requirements under the OPGGS(E)R

OPGGS(E)R 2023 Requirements
Section 24. Other information in the environment plan
The environment plan must contain the following: b. a report on all consultations under section 25 of any relevant person by the titleholder, that contains: i. a summary of each response made by a relevant person; and ii. an assessment of the merits of any objection or claim about the adverse impact of each activity to which the environment plan relates; and iii. a statement of the titleholder's response, or proposed response, if any, to each objection or claim; and iv. a copy of the full text of any response by a relevant person.
Section 25. Consultation with relevant authorities, persons and organisations, etc
(1) In the course of preparing an environment plan (including a revised environment plan referred to in Division 5) a titleholder must consult each of the following (a ***relevant person***): a. each Commonwealth, State or Northern Territory agency or authority to which the activities to be carried out under the environment plan may be relevant; b. if the plan relates to activities in the offshore area of a State—the Department of the responsible State Minister; c. if the plan relates to activities in the Principal Northern Territory offshore area—the Department of the responsible Northern Territory Minister;

d. a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the environment plan; e. any other person or organisation that the titleholder considers relevant. (2) For the purpose of the consultation, the titleholder must give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of the relevant person. (3) The titleholder must allow a relevant person a reasonable period for the consultation. (4) The titleholder must tell each relevant person the titleholder consults that: a. the relevant person may request that particular information the relevant person provides in the consultation not be published; and b. information subject to such a request is not to be published under this Part.
Section 26. Submission of environment plan
Form of environment plan (8) All sensitive information (if any) in an environment plan, and the full text of any response by a relevant person to consultation under section 25 in the course of preparation of the plan, must be contained in the sensitive information part of the plan and not anywhere else in the plan. Note: Subparagraph 24(b)(iv) requires the plan to contain a copy of the full text of any response by a relevant person to consultation under section 25 in the course of preparation of the plan.
Section 28. Publishing environment plan and associated information
(1) If NOPSEMA's provisional decision under section 27 is that the environment plan includes material apparently addressing all the provisions of Division 2 (Contents of an environment plan), NOPSEMA must publish on NOPSEMA's website as soon as practicable: a. the plan with the sensitive information part removed; and b. the name of the titleholder who submitted the plan; and c. a description of the activity or stage of the activity to which the plan relates; and d. the location of the activity; and e. a link or other reference to the place where the accepted offshore project proposal (if any) is published; and f. details of the titleholder's nominated liaison person for the activity.

4.5 Government and industry guidance

Notwithstanding that the Activity covered by the Coastal Waters OEMP is within NT jurisdiction and will be authorised by the NT Minister for Mining and Energy); but assessed under the OPGGS(E)R 2023, Santos has considered the following NOPSEMA guidance in developing its consultation activities and approach:

- GL2086 – Consultation in the course of preparing an environment plan (EP Consultation Guideline) (NOPSEMA, 2023; 2024a)
- GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area (NOPSEMA, 2024b)
- GL1721 – Environment plan decision making (NOPSEMA, 2024c)
- GN1344 – Environment plan content requirement (NOPSEMA, 2024d)
- GN1488 – Oil Pollution Risk Management (NOPSEMA, 2024e)
- Petroleum activities and Australian Marine Parks: A guidance note to support environmental protection and effective consultation (Australian Government, 2024) jointly released by NOPSEMA and Parks Australia.

Santos has also considered other government and industry guidance, including:

- International Standards Organisation
  - ISO14001:2015 Environmental Management Systems
- Australian Fisheries Management Authority
  - Petroleum industry consultation with the commercial fishing industry
- Australian Heritage Commission
  - Ask First - A guide to respecting Indigenous heritage places and values
- Department of Agriculture, Fisheries and Forestry
  - Fisheries and the Environment – OPGGS Act

  - Offshore Installations–Biosecurity Guide (DAFF, 2023a)
- Department of Climate Change, Energy, the Environment and Water
  - Interim Engaging with First Nations People and Communities on Assessments and Approvals under the *Environment Protection and Biodiversity Conservation Act 1999* (DCCEEW, 2023c)
  - Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters: *Guidelines on the application of the Underwater Cultural Heritage Act 2018* (DCCEEW, June 2024)
- Commonwealth Ministerial Council on Mineral and Petroleum Resources
  - Principles for Engagement with Communities and Stakeholders
- International Association for Public Participation
  - Quality Assurance Standard for Community and Stakeholder Engagement
- WA Department of Primary Industries and Regional Development
  - Guidance statement for oil and gas industry consultation with the Department of Fisheries
- WA Department of Transport
  - Offshore Petroleum Industry Guidance Note - Marine Oil Pollution: Response and Consultation Arrangements
  - WA Incident Management Plan Marine Oil Pollution
- Western Australian Fishing Industry Council
  - Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector - https://www.wafic.org.au/wp-content/uploads/2023/07/Oil-and-Gas-Consultation-Framework.pdf
  - Consultation approach for unplanned events - https://www.wafic.org.au/what-we-do/access-sustainability/oil-gas/consultation-approach-for-unplanned-events/

4.6 Applicable case law and guidance

In addition to considering the regulatory requirements and guidance set out above, in conducting Relevant Person consultation for the activities covered by this OEMP, Santos has considered the judgments of:

- Justice Bromberg in Tipakalippa v National Offshore Petroleum Safety and Environmental Management Authority (No. 2) [2022] FCA 1121;
- the Full Federal Court in Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 (Appeal Judgment);
- Justice Colvin in Cooper v National Offshore Petroleum Safety and Environmental Management Authority (No 2) [2023] FCA 1158; and
- Justice Charlesworth in Munkara v Santos NA Barossa Pty Ltd (No 3) [2024] FCA 9

The EP Consultation Guideline (NOPSEMA, 2023; 2024a) provides a summary of the Full Federal Court's interpretation of “functions”, “activities” and “interests” referenced in section 25(1)(d) of the OPGGS(E)R, adopted by NOPSEMA to assist in informing who may be a Relevant Person and how Relevant Persons may be identified, as defined in Table 4-2.

Table 4-2: Relevant Person terms and definitions

Term	Interpretation
Functions	Refers to “a power or duty to do something”
Activities	To be read broadly and is broader than the definition of “activity” in section 5 of the OPGGS(E)R and is likely directed to what the Relevant Person is already doing
Interests	To be construed as conforming with the accepted concept of “interest” in other areas of public administrative law. Includes “any interest possessed by an individual whether or not the interest amounts to a legal right or is a proprietary or financial interest or relates to reputation”

Santos has also had regard to the purpose of consultation as outlined in the Appeal Judgment and EP Consultation Guideline (NOPSEMA, 2024a), the emphasis that superficial or tokenistic consultation is not sufficient and that:

- consultation must be appropriate and adapted to the nature of each Relevant Person;

- for each Relevant Person, the appropriate manner and method of consultation (including the nature of information, time periods for consultation and mode of communication) may differ; and
- there is good reason to adopt pragmatic and practical approaches to consultation conducted in accordance with section 25 of the OPGGS(E)R.

4.7 Santos' consultation methodology

4.7.1 Overview

Santos consults to ensure that any activity it is proposing under an EP prepared in accordance with the OPGGS(E)R (including this Coastal Waters OEMP) is carried out in a manner:

- consistent with the principles of ecologically sustainable development set out in section 3A of the EPBC Act; and
- by which the environmental impacts and risks of the Activity will be reduced to low as reasonably practicable (ALARP) and to an acceptable level.

The consultation process is designed to assist Santos to further ascertain, understand and assess values and sensitivities of the environment (including ecosystems, including people and communities, natural and physical resources, the qualities and characteristics of locations, places and areas and the heritage value of places) that may be affected by a proposed activity, and the potential environmental impacts and risks, through information obtained during consultations.

Santos may then refine or change its proposed control measures to address potential environmental impacts and risks of the activity based on that information or any claims or objections raised through consultation.

As outlined above at Section 4.2, Santos consulted concurrently on this Coastal Waters OEMP and the Barossa Production Operations EP and identified Relevant Persons for consultation across the broader Production Operations EP EMBA (of which the Coastal Waters OEMP EMBA is a subset).

Santos' consultation methodology and process adopted in developing this OEMP and the Barossa Production Operations EP comprised the following key steps:

- Identifying Relevant Persons, as outlined in Section 4.7.2;
- Implementing a public awareness campaign and providing opportunities for Relevant Persons to identify themselves if they wished to be consulted, as outlined in Section 4.7.4;
- Consultation planning, preliminary consultation and consultation activities, as outlined in Section 4.7.5; and
- Assessing the merits of claims or objections made by Relevant Persons about alleged adverse impacts of each activity to which the EP relates and providing responses to queries, requests and feedback, as summarised in Section 4.8.

As described in Section 3, Santos considered the spatial extent of the environment that may be affected (EMBA) and the particular aspects of the relevant environment as part of its process for identifying Relevant Persons. As outlined in Section 4.2, this process was undertaken by reference to the EMBA for the Barossa Production Operations EP, of which the EMBA set out in Section 3 of this Coastal Waters OEMP is a subset. As the Barossa Production Operations EP EMBA represents the greatest geographical extent that could be affected by hydrocarbons in the event of a spill scenario (see Section 3.1.1), that EMBA is Santos' starting point in identifying potential Relevant Persons.

Santos notes that there is no reasonable possibility that planned impacts from the Activity (undertaken within the Operational Area (OA) will have any consequences on functions, interests or activities concerning areas at the extremities of the EMBA. The only potential consequence for functions, interests or activities concerning these areas is as a result of the risk of an unplanned release of hydrocarbons, described in Section 7.6 of the Coastal Waters OEMP.

The modelling performed to generate the EMBA and MEVA for the Coastal Waters OEMP is based on the worst-case unplanned release scenarios to understand the potential area of influence that could be expected from the worst-case MDO spill event. The likelihood of an unplanned release is unlikely for MDO and, given the mitigation and management controls in place, the residual risk is Low.

There is an even lower likelihood of an unplanned hydrocarbon release affecting a person or organisation's functions, interests or activities where these relate to the extremities of the EMBA. This is because there is significant conservatism associated with the EMBA extents given these:

- are determined from the combination of 300 individual modelled spill scenarios across all seasons

- are based on low exposure values (as described in Section 3.1.1 which represent the maximum potential extent of hydrocarbon contact with environmental receptors, and primarily used to inform Santos preparedness for potential spill response; and
- do not take into account any spill response activities by Santos (as described in the GEP NT Waters Oil Pollution Emergency Plan (OPEP)) which would be implemented in event of a spill and reduce the EMBA extent.

The modelling itself represents the potential extent of detection of a spill in the environment rather than the geographical extent of environmental impact on receptors in the environment. Further, there is no single event that could ever result in the whole EMBA being affected at the same time.

When considering the remote possibility of any major unplanned spill event, and the inherent conservatism of the EMBA, the likelihood of there being persons or organisations along the Northern Territory coastline having an interest that may be affected by the proposed activities becomes increasingly unlikely with increasing distance from the OA where planned activities will occur.

Finally, as outlined in Section 4.2, some of the persons identified and consulted by Santos in its concurrent consultation on the Coastal Waters OEMP and Barossa Production Operations EP have functions, interests or activities that may be affected under the EP, but not under this Coastal Waters OEMP.

In considering this, while Santos has still identified and consulted with Relevant Persons whose functions, interests or activities may only be affected by unplanned events (the likelihood of which is remote), Relevant Persons identification steps and direct consultation effort has tended to focus more closely on those most proximate to the OA. By way of example, Santos held multiple consultation sessions with First Nations Relevant Persons most likely to be affected by activity impacts and risks (e.g. Tiwi and Larrakia people), while Santos held single consultation sessions with those First Nations Relevant Persons most likely to be affected by unplanned events only.

Santos' methodology demonstrates a very broad capture of potential Relevant Persons, including providing ample opportunities, as outlined in Section 4.7.2, for Relevant Persons to self-identify and provide input to the development of the Coastal Waters OEMP if they consider they may be impacted by the activities.

4.7.2 Identifying Relevant Persons

As outlined in Section 4.2 and for the reasons set out in that section, Santos identified and consulted Relevant Persons for this Coastal Waters OEMP concurrently with consultation on the Barossa Production Operations EP.

Table 4-3 summarises the preliminary steps adopted by Santos to identify Relevant Persons, noting that the identification of Relevant Persons is an iterative process. The EMBA referenced in Table 4-3 is the larger Barossa Production Operations EP EMBA, unless otherwise stated.

Table 4-3: Preliminary identification methodology

Process steps	OEMP reference
1. Identify the impacts of the planned activities and the risks and impacts of unplanned events.	The activity description is described in Section 2. The impacts from planned activities are described in Section 6. The impacts from unplanned events are described in Section 7.
2. Consider the spatial extent of the EMBA by the Activity impacts and risks.	The spatial extent of the activity EMBA is described in Section 3.1.1.
3. Consider and identify aspects of the environment within the environment that may be affected, having regard to: (a) ecosystems and their constituent parts, including people and communities (b) natural and physical resources (c) the qualities and characteristics of locations, places and areas (d) the heritage value of places (e) the social, economic and cultural features of the matters mentioned in paragraphs (a), (b), (c) and (d).	The existing environment is described in Section 3. Particular aspects of the environment considered in Relevant Person identification are outlined in Table 4-4.
4. Identify Relevant Person categories, having regard to: (a) aspects of the environment identified at Item 3 (b) the departments or agencies of Commonwealth, State and Territory governments that could therefore be relevant	Relevant person categories considered in Relevant Person identification are outlined in Table 4-5

Process steps	OEMP reference
(c) the kinds of functions, interests or activities of people or organisations that could therefore be affected (d) submissions received in response to Santos' advertisements asking Relevant Persons to identify themselves if they wished to be consulted (e) any other person or organisation that the titleholder considers relevant. Update during consultation based on new information, if appropriate.	
5. Identify Relevant Persons within Relevant Person categories, having regard to items 1–4 above.	Actions to identify Relevant Persons are outlined in Table 4-6.

Table 4-4 outlines the environmental aspects within the EP EMBA (described in detail in Section 3). Santos considered these aspects for the purpose of identifying Relevant Person categories.

Table 4-4: Environmental aspects considered for Relevant Person category identification

Aspects of the environment	OEMP reference
Physical environment	Section 3.2.2
Provincial bioregions	Section 3.2.1.1
Benthic habitats	Section 3.2.9
Shoreline habitats	Section 3.2.10
Marine parks	Section 3.2.12.1
Wetlands of international and national importance	Section 3.2.12.2
Key ecological features	Section 3.2.12.3
Commonwealth heritage places	Section 3.2.12.4
Threatened and migratory fauna	Section 3.2.13
Biologically important areas and critical habitat	Section 3.2.13.5
Conservation advice, recovery plans and management plans	Section 3.2.13.6
Commercial fisheries	Section 3.2.14.1
Energy industry	Section 3.2.14.2
Defence activities	Section 3.2.14.3
Telecommunications cables	Section 3.2.14.4
Shipping	Section 3.2.14.5
Recreation and tourism	Section 3.2.14.6
Underwater cultural heritage	Section 3.2.14.73.2.14.7
Cultural features	Section 3.2.15

Table 4-5 lists the Relevant Person categories following consideration of the environmental aspects.

Table 4-5: Relevant Person categories Environmental aspects considered for Relevant Person category identification

Section 25(1)(a)(b)(c) of the OPGGS(E)R
• Commonwealth Government agency or authority; • NT Government agency or authority; and • WA Government agency or authority.
Section 25(1)(d)(e) of the OPGGS(E)R:
• academic and research organisations; • commercial fishing (Commonwealth-managed); • commercial fishing (NT-managed); • commercial fishing (WA-managed); • energy industry titleholders/operators;

- environmental conservation organisations;
- First Nations people and groups including recognised community reference/liaison groups;
- infrastructure operators;
- shipping;
- industry associations;
- local government;
- recreational fishing; and
- tourism operators.

Table 4-6 outlines actions used by Santos to identify Relevant Persons within those categories.

Table 4-6: Actions for identifying Relevant Persons by category

Relevant Person Category	Actions to identify Relevant Persons
All Relevant Person categories	• Review of relevant regional historical consultation by Santos in the region, including all previous Barossa EPs. • Review of identified Relevant Persons in publicly available EPs submitted by other Titleholders that may be relevant to proposed activities to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. • Review of persons consulted for Darwin Pipeline Duplication environmental management plans under Northern Territory jurisdiction. • Reviewing media coverage and associated organisation websites to identify persons and organisations with reasonably ascertainable functions, interests and activities that may be affected by the activities under this OEMP. • Public awareness campaign as outlined in Section 4.7.4. • Review advice from authorities, consultants and other Relevant Persons as to potential Relevant Persons. • Review of information provided by or claims made by persons claiming to be Relevant Persons or made on behalf of organisations who claimed to be Relevant Persons. • Review of published NOPSEMA guidance relevant to consultation.
Section 25(1)(a) of the OPGGS(E)R	
Commonwealth agency or authority to which the activities to be carried out under the environment plan may be relevant	• Review of government agency websites and directories to understand agency roles, functions and responsibilities. • Review government agency guidance on consultation expectations.
Section 25(1)(b) and (c) of the OPGGS(E)R	
State and Territory Departments/Agencies	• Review of government agency websites and directories to understand agency roles, functions and responsibilities. • Review government agency guidance on consultation expectations.
Section 25(1)(d) and (e) of the OPGGS(E)R	
Academic and research organisations	• Conducting key-word searches of publicly available online search engines, review media coverage and review organisation websites to identify organisations with reasonably ascertainable functions, interests or activities that may be affected, having regard to the region, activities or risks/impacts under the Coastal Waters OEMP and Barossa Production Operations EP.
Commercial fishing	• Review of Commonwealth, NT and WA Government commercial fishing catch and effort data. • Review of fisheries entitled to fish in the EMBA.
Energy industry	• Review of EMBA overlap with petroleum, greenhouse gas and any other National Offshore Petroleum Titles Administrator (NOPTA) issued titles.
Environmental conservation organisations	• Conducting key-word searches of publicly available online search engines, review media coverage and review organisation websites to identify organisations with reasonably ascertainable functions, interests or activities that may be affected, having regard to the region, activities or risks/impacts under this OEMP.

Relevant Person Category	Actions to identify Relevant Persons
First Nations people and groups including recognised community reference/liaison groups	• Review of the Judgment and the Appeal Judgment. • Review of EMBA overlap with Native Title determined areas and claims, Indigenous land use agreements (ILUAs), land rights and Indigenous Protected Areas (IPAs). • Review of Representative Aboriginal/Torres Strait Island Bodies (RATSIBs) and Native Title Representative Bodies (NTRBs) on Native Title website. • Review of Prescribed Bodies Corporate on Native Title website, where relevant. • Conducting searches of public cultural heritage databases relevant to the EMBA. • Review of marine park management plans relevant to the EMBA. • Engagement with government departments/agencies with relevant knowledge or relevant responsibilities. • Engagement with representative bodies under the *Native Title Act 1993* (NT Act) and the *Aboriginal Land Rights (Northern Territory) Act 1976* (ALR Act). • Engagement with other representative organisations in areas of potential relevance to Barossa Project activities such as liaison committees and First Nations Consultative Committees (FNCCs). • Engagement with other First Nations organisations that may support specific interests of First Nations people, such as economic development. • Engagement with third party consultants to assist with identification of potential First Nations Relevant Persons.
Infrastructure operators	• Review of EMBA overlap with offshore and onshore infrastructure, such as submarine telecommunications cables or ports.
Industry associations	• Review of industry representation of the following Relevant Person groups: • commercial fishing • local industry • shipping • recreational fishing • tourism operators.
Local government	• Review of EMBA overlap with boundaries of local government areas.
Recreational fishing	• Review of EMBA overlap with areas of interest to recreational fishing. • Review of potential presence of recreational fishing club members in the EMBA. • Review of website information of relevant agencies/organisations that represent recreational fishing interests.
Tourism operators	• Review of EMBA overlap with areas of interest to charter and tourism operators. • Review of potential presence in the EMBA. • Conducting key-word searches using online search engines and review of website information of relevant operators/organisations that represent commercial tourism interests with reasonably ascertainable functions, interests and activities that may be affected by the activities under the Coastal Waters OEMP and Barossa Production Operations EP.

4.7.2.1 Identification of First Nations people and groups

Santos has developed a comprehensive process for identifying First Nations Relevant Persons which was employed in identifying Relevant Persons for consultation on this Coastal Waters OEMP and the Barossa Production Operations EP (as outlined above at Section 4.2)

As with Santos' process for identifying Relevant Persons generally, this is an iterative process with multiple avenues of enquiry including, but not limited to, the following actions:

- Consideration of known cultural features of the environment;
- Active steps to identify First Nations people and groups as per actions outlined in Table 4-6, and further described below, directed to identifying First Nations Relevant Persons with functions, interests or activities that may be affected;

- Asking identified Relevant Persons if there are other persons or organisations who may be a Relevant Person; and
- Advertising broadly to ensure that Relevant Persons that are not otherwise identified by Santos' examination of the EP EMBA are given the opportunity to self-identify.

Santos' process involved engaging a third-party consultant to assist Santos in identifying First Nations groups, clans and/or organisations along the NT/WA coastline in the vicinity of the EP EMBA.

In order to positively identify First Nations Relevant Persons Santos considered the following questions, based on information gathered when taking the steps described in Table 4-6:

- Do any First Nations groups, clans and/or organisations along the NT/WA coastline in the vicinity of the EP EMBA have any native title claims pending[28] or determined, or any ILUA, that extend offshore and cross into the EP EMBA?
- Do any First Nations groups, clans and/or organisations along the NT/WA coastline in the vicinity of the EP EMBA have any reasonably ascertainable responsibilities for sacred sites that extend offshore and cross into the EP EMBA (recognised and protected under the ALR Act, the *Northern Territory Aboriginal Sacred Sites Act 1989* (NTASS Act), the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSIHP Act), the Underwater Cultural Heritage Act (UCH Act), or the EPBC Act)?
- Do any First Nations groups, clans and/or organisations along the NT/WA coastline in the vicinity of the EP EMBA have any land rights (apart from native title claims) pending or determined that extend offshore and cross into the EP EMBA?
- Are there any IPAs that extend offshore and cross into the EP EMBA?

If the answer to any of the above questions was affirmative, this resulted in identification of the particular First Nations group, clan or organisation as a Relevant Person.

Santos recognises that not all relevant functions, interests or activities of First Nations persons or groups will be identified through the four steps above, and that even if the answer to all four of the above questions is negative, First Nations groups in the vicinity of the EP EMBA could still potentially have communal cultural interests (such as connection to sea country) that extend into the EP EMBA.

As is the case for determining whether any person's or organisation's functions, interests or activities may be affected, the context for how the spatial extent of the EP EMBA is determined is also relevant when evaluating whether any First Nations' sea country or other interests could potentially be affected by the activity. The EP EMBA is informed by modelling the maximum potential extent of all major unplanned spill events under all seasonal conditions as further explained in Section 3.1.1.

Having regard to the residual potential for other cultural interests within the EP EMBA, Santos supplemented its consideration of the four questions above by:

- the completion of the other First Nations Relevant Persons identification steps (see Table 4-6);
- making sustained efforts to engage and build relationships with identified NTRBs and PBCs/RNTBCs through a range of appropriate communication methods;
- inviting information from identified First Nations Relevant Persons as to other potential First Nations Relevant Persons; and
- conducting a public awareness and advertising campaign targeted at increasing awareness of the Barossa Gas Project and the activities proposed in the Coastal Waters OEMP.; and encouraging any persons or organisations who consider they have functions, interests or activities that may be affected by the activities in this OEMP. to contact Santos (see Section 4.7.4).

These steps were carried out to further inform Santos' identification of First Nations people or groups with reasonably ascertainable functions, interests or activities that may be affected by the activities to be carried out under the Coastal Waters OEMP. Santos proceeded to consult with a number of First Nations groups identified through the above processes as potential Relevant Persons, with a view to ascertaining during consultation sessions what, if any, functions, interests or activities they had that may be affected by the activities proposed in this OEMP.

With regard to the location of the activities under the Coastal Waters OEMP, there are no impacts from planned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline.

[28] *meaning registered claims that are yet to be determined.*

The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no potential impacts from unplanned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline.

Notwithstanding this, as outlined in Section 4.2 above, Santos adopted a broad approach and considered all the identified NT and WA First Nations people or groups as potential Relevant Persons for the purposes of consultation on the Coastal Waters OEMP (and therefore they have been included in Table 4-9 and Table 4-20) notwithstanding that in some cases, no potentially affected functions, interests or activities were ultimately ascertained.

Santos was not directed to any other First Nations groups or organisations (other than those Santos had identified) in response to Santos' invitation in its consultation materials for Relevant Persons to notify Santos of other potentially Relevant Persons for Santos to consider consulting about the Coastal Waters OEMP.

Santos utilised the public awareness campaign outlined Section 4.7.4 to assist in identification of other First Nations groups with interests (such as connection with sea country) that may be affected by the Activity, that weren't identified through other identification steps described above and in Table 4-6.

While Santos recognises that the obligation to identify Relevant Persons lies with the titleholder, and titleholders cannot rely solely on a process of public notification and self-identification, Santos considers its public awareness campaign to be an appropriate and sufficient measure to provide opportunities for First Nations (and other) Relevant Persons to self-identify, particularly having regard to the remoteness of the activity, the remote possibility of a major unplanned spill event, the inherent conservatism in spill modelling used to inform the EP EMBA and the difficulty in ascertaining whose functions, interests or activities may be affected in remote offshore waters.

4.7.3 International persons

With regard to the location of the proposed activities under this Coastal Waters OEMP, there are no impacts from planned activities that may affect the functions, interests or activities of international Relevant Persons.

As outlined above at Section 4.2, Santos consulted concurrently on activities under this Coastal Waters OEMP and activities under the Barossa Production Operations EP (in Commonwealth Waters). With regard to the location of the proposed activities in Commonwealth Waters, while there are no impacts from planned activities that may affect the functions, interests or activities of international Relevant Persons, the worst-case credible spill scenario modelled for the Barossa Production Operations EP indicates a possibility that the Indonesian and Timor-Leste coastline could be in contact with residual entrained hydrocarbons. Notwithstanding this, for the reasons set out in Section 4.2 above, consultation with international Relevant Persons identified as potentially affected by activities under the Barossa Production Operations EP has been included in the Coastal Waters OEMP.

As stated in the Barossa Productions Operations EP, there is significant conservatism associated with the depiction of the EP EMBA based on low exposure values that Santos has applied, and especially given the modelling process (Section 3.1.1) which combines a large number of individual unmitigated spill simulations and the low likelihood of occurrence given the planned engineering prevention measures.

In addition, the modelling at low exposure values is primarily used to inform Santos' preparedness for potential spill response and does not take into account the suite of mitigations described in the applicable OPEP that would be implemented and reduce the EP EMBA extent in the unlikely event of a spill.

Santos also acknowledges the judicial guidance outlined at Section 4.6 above, including that Relevant Persons must be "reasonably capable of ascertainment". Santos further acknowledges the judicial guidance that there is good reason to adopt practical and pragmatic approaches to consultation and that the requirements of Section 25 must be capable of being complied with within a reasonable time.[29]

Santos therefore sought to reasonably ascertain international Relevant Persons in a manner proportionate to the remote likelihood of any effect on the functions, interests or activities of international persons or organisations from a worst-case unmitigated spill. This involved the following steps:

- Conducting key-word searches of publicly available online search engines and review organisation websites to identify environmental conservation organisations with reasonably ascertainable functions, interests or activities that may be affected, having regard to the region, activities or risks/impacts under this OEMP.
- Writing to international persons or organisations that had self-nominated for consultation in respect of previous Barossa Gas Project EPs to:

[29] *Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at [88] (per Kenny and Mortimer JJ) and at [136] (per Lee J).*

- afford them a direct opportunity to self-nominate for consultation for the Coastal Waters OEMP and Barossa Production Operations EP and to indicate what functions, interests or activities that have been or may be affected by the activities proposed in the OEMP and EP.
- invite them to nominate any other persons or organisations they considered Santos should consider consulting.

- Advertising on social media platforms Facebook, Instagram and Messenger, geotargeting Indonesia and Timor-Leste (during March 2024), inviting Relevant Persons to contact Santos to self-nominate. This was in addition to the general widespread media and advertising campaign (see Table 4-7 and Table 4-8). Both the international and the domestic advertisements contained links to Santos' website with Production Operations consultation information that included information about activities the subject of the Coastal Waters OEMP and Barossa Production Operations EP and a form for self-nomination as a potential Relevant Person. There were no further persons or organisations that self-nominated following the international advertising campaign.

Santos also consulted the Department of Foreign Affairs and Trade (DFAT) which has a function in coordinating and facilitating communication between Australia and the Indonesian or Timor-Leste governments.

During consultation with DFAT, the Department's Timor-Leste desk recommended consultation with the Government of Timor-Leste on Santos' Environment Plan given the proximity of Santos' operations to the territory of Timor-Leste and that the appropriate authority for such consultation is the Autoridade Nacional Do Petróleo (ANP - National Petroleum Authority). Santos proceeded to consult with the ANP accordingly.

DFAT's Indonesia Branch had no comments on the OEMP and EP and offered advice that should Santos wish to consult with the Indonesian Government, the Indonesian Embassy in Canberra should be contacted in the first instance. As Santos has assessed there to be no Activity impacts or risks to internationally held functions, interests or activities, the only matter in respect of which consultation with Indonesian and Timor-Leste persons or organisations might be required is in relation to a hydrocarbon spill that reaches Indonesian or Timor-Leste waters.

With the exception of the ANP, no other Indonesian or Timor-Leste government person or organisation has been identified as having reasonably ascertainable functions, interests or activities that may be affected by the Activity. Santos understands that in the unlikely event of a hydrocarbon spill, communication about such matters is to occur at a Government to Government level, in addition to Santos' notifications to the ANP.

Under the National Plan for maritime environmental emergencies (AMSA, 2020) Australia has entered into mutual aid arrangements and associated cooperation agreements with other countries impacted by maritime environmental emergencies. In this regard, Australian has entered into a bilateral agreement with Indonesia, and a Maritime Boundaries Treaty with Timor-Leste. Any relevant affected government authorities of Indonesia or Timor-Leste would be identified and notified through the domestic arrangements of that Nation State, at a State-to-State level.

Having regard to the above, Santos considered that no further steps were reasonably required to identify international Relevant Persons.

4.7.4 Public awareness campaign and self-identification opportunities

In addition to undertaking the process for identification of potential Relevant Persons, as described above, Santos has undertaken a range of activities to promote opportunities for other organisations or individuals to self-identify as potential Relevant Persons if they considered that their functions, interests or activities may be affected.

These promotional activities included a public information campaign using a range of appropriate media, including, radio, print media, targeted social media and drop-in sessions where information about the proposed activities is provided. Drop-in sessions were provided for Darwin community members from 26-28 March 2024 and were supported by advertising in the 23 March 2024 edition of the NT News.

Details of the public information campaign for the Coastal Waters OEMP and Barossa Production Operations EP are described in Table 4-7 and a detailed advertising schedule is described in Table 4-8. In addition, Santos also made additional efforts to promote awareness of the consultation process among First Nations communities considered most likely to have functions, interests or activities that may be affected by the Activity. Such additional efforts are described in Table 4-10. Santos also has an online self-nomination form on its Consultation Hub website, where consultation materials are published and available for download.

The media and advertising campaign had a regional focus, noting the remoteness of First Nations and other communities in Northern Australia. Social media and/or radio advertising were seen as useful tools to raise awareness in First Nations communities about the proposed Activity and associated consultation opportunities and to invite potentially affected persons to contact Santos.

Further, Santos' third-party consultants and supporting cultural advisors, comprising a team of First Nations leaders with extensive knowledge and experience in relation to First Nations cultures of Northern Australia, were active in

raising awareness and opportunities for participation in consultation through activities to support the establishment of First Nations Consultative Committees. See Section 4.7.5.1.4.

Such activities provide a more than reasonable opportunity for organisations and individuals to self-identify as a Relevant Person for the purpose of OPGGS(E)R section 25 consultation, where they consider themselves to have interests, functions or activities that may be affected by the planned activities and for Relevant Persons to provide their input.

In addition to the above opportunities, Santos also wrote to a number of persons and organisations of whom Santos was aware and considered to be potential Relevant Persons where it was unclear what, if any, functions, interests or activities the person or organisation had that may be affected by the activities under the OEMP and EP, Santos shared links to the Barossa Production Operations Information Booklet and invited these persons or organisations to respond confirming if and what functions, interests or activities they had that may be affected by the activities covered by the OEMP and EP in order for Santos to ascertain them as Relevant Persons and consult them accordingly.

Potential Relevant Persons who did not respond to the opportunity provided them to self-identify in the initial email of 9 February 2024, were still included by Santos in the second email on 11 March 2024 advising the formal commencement of the four-week consultation period. Once again, any who did not respond were followed up by Santos via phone and/or email in May and still afforded an opportunity to respond during an additional two-week consultation phase in May 2024.[30]

Santos' process includes opportunities for the self-identification or nomination of others as Relevant Persons, having regard to consultation information and materials shared directly to known and potential Relevant Persons, and/or indirectly during Santos' public awareness campaign.

Table 4-7: Public awareness campaign overview

Preliminary Consultation		
Website: Website content and consultation materials developed and made available at: https://www.santos.com/offshoreconsultation/	Provide the public with: • Information about Santos' consultation obligations and approach. • Descriptions of proposed activities, including potential activity impacts and risks, and proposed management measures. • Contact details to enable Relevant Persons to provide feedback. • Information about how to self-identify as a Relevant Person, including an on-line nomination form. • Details about how feedback will be managed, including provision of Santos' offshore WA and NT privacy notice.	From 9 February 2024
Advertising: Advertisements in the following publications: • The Australian • The West Australian • NT News • Broome Advertiser	Promote awareness of proposed activities and invite Relevant Persons to self-identify.	From 28 January to 8 June 2024

30 *In some cases, persons or organisations identified at later stages in the consultation process were contacted by email outside the above timeframes, to inform them about the consultation for the EP and OEMP and share information about the EP and OEMP activity and associated environmental impacts and risks. Such persons or organisations were invited to indicate to Santos if they considered themselves to be a person (or organisation) whose functions, interests or activities may be affected by the activities proposed to be carried out under the EP and OEMP; and, if so, the nature of those potentially affected functions, interests or activities; and to indicate if they wish to be consulted further for the EP and OEMP.*

Preliminary Consultation		
• Kimberley Echo • Social media • Advertisements on the following radio stations: • Darwin Hot 100		
Consultation materials: Email to identified/potential Relevant Persons with a link to the consultation materials for the Barossa Production Operations EP and Coastal Waters OEMP.	Provide Relevant Persons with details on proposed Activities, including potential activity impacts and risks, and proposed management measures, and establish consultation expectations.	From 9 February to 2 May 2024
One-to-one meetings: Meetings held with authorities, persons and organisations		February to July 2024
Consultation		
Consultation email: Email to identified Relevant Persons and potential Relevant Persons advising of the commencement of the formal consultation period	Reminder to Santos' identified Relevant Persons and potential Relevant Persons of the commencement and closing dates for the formal consultation period.	From 11 March 2024
Advertising: Advertisements in the following publications: • The West Australian • The Australian • NT News • Advertisements on the following radio stations: • Hit 101.3 Broome • Darwin Mix 104.9 • Darwin Hot 100 • Pilbara and Kimberley Aboriginal Media Radio	Promote awareness of proposed Activities and seek feedback from Relevant Persons.	From 11 March 2024
Consultation email: Reminder email to identified Relevant Persons and potential Relevant Persons advising pending closure of consultation period.	Reminder to Santos identified Relevant Persons and potential Relevant Persons of the closing dates for consultation.	From 3 April 2024
Consultation email: Email to identified Relevant Persons and potential Relevant Persons advising of extension of consultation period.	Advice to Santos identified Relevant Persons and potential Relevant Persons of the new closing date for consultation.	From 7 May 2024
Online meetings	Discussions with Relevant Persons who requested an online meeting.	March to July 2024
Community drop-in sessions	Opportunities for Darwin community members to learn more about the Barossa Gas Project.	26-28 March 2024
Meetings (in-person)	Provide Relevant Persons with information about the Barossa Production Operations EP and Coastal Waters OEMP and discussions with Relevant Persons regarding this information.	March to July 2024

Table 4-8: Targeted advertising campaign details

Publication date	Advertising type	Towns / Communities	Reach
Preliminary consultation			
March 2024	Social Media post	Facebook, Instagram and Messenger	Geotargeted – Darwin, Tiwi Island, Indonesia and Timor-Leste

Publication date	Advertising type	Towns / Communities	Reach
Preliminary consultation			
January - February 2024	Radio ad - Darwin Hot 100	Darwin towns and communities, focusing on remote communities	Ad aired 28 times
17 February 2024	Press ad NT News	Half page, page 11	Targeted NT with reach of 25,000
17 February 2024	Press ad, The West Australian	Half page, page 11	Targeted WA with reach of 481,000
24 February 2024	Press ad NT News	Half page, page 7	Targeted NT with reach of 25,000
28 February 2024	Press ad NT News	Half page, page 4	Targeted NT with reach of 25,000
1 March 2024	Press ad NT News	Half page, page 12	Targeted NT with reach of 25,000
1 March 2024	Press ad The Australian	Half page, page 6	Targeted WA with reach of 398,000
2 March 2024	Press ad, The West Australian	Half page, page 11	Targeted WA with reach of 481,000
7 March 2024	Press ad Broome Advertiser	Half page, page 7	Targeted WA with reach of 14,000
7 March 2024	Press ad Kimberley Echo	Half page, page 5	Targeted WA with reach of 450
9 March 2024	Press ad NT News	Half page, page 14	Targeted NT with reach of 25,000
Consultation			
March-April 2024	Radio ad - Hit 101.3 Broome	Broome towns and communities, focusing on remote communities	Ad aired 28 times
March- April 2024	Radio ad - Darwin Mix 1049	Darwin towns and communities, focusing on remote communities	Ad aired 56 times
March – April 2024	Radio ad - Darwin Hot 100	Darwin towns and communities, focusing on remote communities	Ad aired 48 times
March – April 2024	Radio ad - Pilbara and Kimberley Aboriginal Media Radio	Pilbara and Kimberley towns and communities, focusing on remote communities	Ad aired 28 times
16 March 2024	Press ad NT News	Half page, page 18	Targeted NT with reach of 25,000
16 March 2024	Press ad, The West Australian	Half page, page 11	Targeted WA with reach of 481,000
23 March 2024	Press ad NT News	Half page, page 4	Targeted NT with reach of 25,000
27 March 2024	Press ad NT News	Half page, page 9	Targeted NT with reach of 25,000
Public Notice			
23 March 2024	Press ad NT News	Quarter page, page 5	Targeted NT with reach of 25,000

Relevant Persons consulted for the Coastal Waters OEMP and Barossa Production Operations EP are listed below in Table 4-9. As outlined in Section 4.2, the list below includes all Relevant Persons identified and consulted by Santos across the Coastal Waters OEMP and the Barossa Production Operations EP, notwithstanding that some persons may have functions, interests or activities that may only be affected under the Barossa Production Operations EP.

Table 4-9: Summary of Relevant Persons

Relevant Person Category	Summary of Relevance
Section 25(1)(a) of the OPGGS(E)R: Departments or agencies of the Commonwealth to which the activities to be carried out under the environment plan may be relevant	
Australian Communications and Media Authority (ACMA)	ACMA is responsible for the regulation of communications and media services in Australia. ACMA is a relevant agency because the Activity has the potential to impact future proposed subsea communications cable installations.
Australian Fisheries Management Authority (AFMA)	AFMA is responsible for managing Commonwealth fisheries and is a relevant agency because the Activity has the potential to impact on fisheries resources in AFMA managed fisheries. AFMA expects petroleum operators to consult directly with fishing operators about all activities and projects which may affect day to day fishing activities. AFMA also provides industry association contacts for petroleum operators to use when consultation with fishing operators is required.
Australian Hydrographic Office (AHO)	AHO is responsible for maintaining and disseminating nautical charts, including the distribution of Notices to Mariners.
Australian Institute of Marine Science (AIMS)	AIMS is Australia's tropical marine research agency and is established under the *Australian Institute of Marine Science Act 1972* (AIMS Act).
Australian Maritime Safety Authority (AMSA) – maritime safety/marine pollution	AMSA is the statutory and control agency for maritime safety and vessel emergencies in Commonwealth Waters. AMSA is a relevant agency because the proposed offshore activities may impact on the safe navigation of commercial shipping in Australian waters. AMSA is also a relevant agency as one of its functions is to prevent and combat ship-sourced pollution in the marine environment.
Clean Energy Regulator (CER)	CER administers schemes legislated by the Australian Government for measuring, managing, reducing or offsetting Australia's carbon emissions, including the National Greenhouse and Energy Reporting (NGER) Scheme and the Safeguard Mechanism underpinned by the NGER framework.
Climate Change Authority (CCA)	CCA is a statutory agency responsible for providing independent advice to government on climate change policy. It was established by and operates under the *Climate Change Authority Act 2011*.
Commonwealth Science and Industry Research Organisation (CSIRO)	CSIRO's functions include international scientific liaison, training of research workers, publication of research results, technology transfer of other research, provision of scientific services and dissemination of information about science and technology. CSIRO has a division dedicated to oceans and atmosphere research.
Department of Agriculture, Forestry and Fisheries (DAFF) – Biosecurity	DAFF Biosecurity administers the *Biosecurity Act 2015* (Cth). DAFF Biosecurity is a relevant agency for consultation because the Activity involves the movement of aircraft or vessels between Australia and offshore petroleum activities either inside or outside Australian territory.
Department of Agriculture, Forestry and Fisheries (DAFF) – Fisheries	DAFF Fisheries also has primary policy responsibility for promoting the biological, economic and social sustainability of Australian fisheries. DAFF Fisheries is a relevant agency for consultation because the Activity has the potential to impact on fishing operations and/or fishing habitats in Commonwealth waters.
Department of Climate Change, Energy, the Environment and Water (DCCEEW) – Underwater Cultural Heritage	DCCEEW protects Australia's natural environment and heritage sites, helps Australia respond to climate change and carefully manages water and energy resources. The Underwater Cultural Heritage branch at DCCEEW is responsible for administering the UCH Act.

Relevant Person Category	Summary of Relevance
Department of Defence (DoD)	DoD is a relevant agency for consultation because: • the proposed Activity may impact DoD training and operational requirements, in that the EP EMBA overlaps DoD training areas. • the proposed Activity encroaches on known training areas and/or restricted airspace. • there is a risk of unexploded ordnance in the area where the Activity is taking place.
Department of Foreign Affairs and Trade (DFAT)	DFAT is a relevant agency for consultation where: • a proposed activity may cross into or impact on waters outside of Australia's maritime jurisdiction; and/or • a proposed activity poses any oil spill or other environmental risks that could result in impacts to other international jurisdictions where persons or organisations that may be impacted by a proposed activity include foreign individuals or governments. DFAT has a role in assisting Oil and Gas operators to liaise with foreign governments in the event waters outside Australian jurisdiction are impacted by an activity.
Department of Home Affairs and Australian Border Force (ABF)	The Department of Home Affairs is responsible for overseeing migration, national security and resilience, and border-related functions. ABF is an operationally independent body within the Home Affairs portfolio. ABF is Australia's border law enforcement agency and customs service. ABF's vessels undertake patrols as part of its surveillance and response activities throughout an offshore maritime area of almost 45.1 million km^2. This area includes the EP EMBA.
Department of Industry, Science and Resources (DISR)	DISR is a relevant agency for consultation because its responsibilities include offshore oil and gas development and safety and greenhouse gas (GHG) storage.
Director of National Parks (DNP)	DNP is the statutory authority responsible for administration, management and control of Commonwealth marine reserves. The DNP is a Relevant Person for consultation where: • the Activity or part of the Activity is within the boundaries of a proclaimed Commonwealth marine reserve; • activities proposed to occur outside a reserve may impact on the values within a Commonwealth marine reserve; and / or • an environmental incident occurs in Commonwealth waters surrounding a Commonwealth marine reserve and may impact on the values within the reserve.
Fisheries Research Development Council (FRDC)	FRDC has a formal role in the planning and investment in fisheries research and development to support the ongoing sustainability of aquatic sectors and aquatic ecosystems. It is a co-funded partnership between the Australian Government and fisheries and aquaculture and a statutory corporation under the *Primary Industries Research and Development Act 1989* (Cth) responsible to the Minister for Agriculture, Fisheries and Forestry.
National Indigenous Australians Agency (NIAA)	NIAA is an Australian Government agency responsible for whole-of-government coordination of policy development, program design and service delivery for Indigenous Australians.
Section 25(1)(b) of the OPGGS(E)R: Departments or agencies of the Northern Territory to which the activities to be carried out under the environment plan may be relevant.	
Aboriginal Areas Protection Authority (AAPA)	The AAPA supports development while safeguarding Aboriginal sacred sites. Under the NTASS Act, the AAPA is responsible for overseeing the protection of Aboriginal sacred sites on land and sea across the whole of the NT. The NTASS Act also gives the Authority the power to prosecute people and organisations that damage sacred sites.

Relevant Person Category	Summary of Relevance
Darwin Harbour Advisory Committee (DHAC)	The DHAC provides advice to the NT Government through the Minister for Environment, Parks and Water Security on the effective management of Darwin Harbour and its catchment.
Department of Lands, Planning and the Environment (DLPE) (formerly the Department of Environment, Parks and Water Security (NT) during the initial consultation period for this Coastal Waters OEMP (DEPWS NT).	DEPWS NT combines the functions of the previous Department of Environment and Natural Resources and the Parks and Wildlife Commission from the former Department of Tourism, Sport and Culture (DTSC). The government established the department to combine many of the key functions that foster and protect the environment and natural resources in the NT. This includes water, land resource management, environmental issues and the parks and wildlife functions.
Department of Agriculture and Fisheries (DAF) (formerly the Department of Industry, Tourism and Trade (NT) – Fisheries Division during the initial consultation period for this Coastal Waters OEMP (DITT_NT - Fisheries).	DITT NT Fisheries Division has functions in relation to NT managed fisheries. The OAs overlap NT managed fisheries. The Aquatic Biosecurity Unit of Northern Territory Fisheries monitors and manages the risk of new marine pests arriving in the NT. The unit monitors for early detection of aquatic pests; coordinates inspections and treatment of high-risk vessels entering Darwin; responds to reported sightings of invasive freshwater and marine pests; and educates the public about the impacts, prevention and management of aquatic pests. The Department also operates the Darwin Aquaculture Centre, the NT Government's key aquaculture research and development facility.
Department of Logistics and Infrastructure (DLI) (formerly the Department of Infrastructure, Planning and Logistics (NT) – Transport and Civil during the initial consultation period for this Coastal Waters OEMP (DIPL-NT).	DIPL NT Transport is responsible for all aspects of marine transport in NT waters, including the Port of Darwin which will continue to be the supply base for Barossa offshore activities.
Department of Lands, Planning and the Environment (DLI) (formerly the Department of Territory Families, Housing and Communities (NT) – Heritage branch during the initial consultation period for this Coastal Waters OEMP.(DTFHC NT Heritage)	The DTFHC NT Heritage branch has a role in protecting the maritime heritage of the Northern Territory. Multiple known shipwrecks, sunken aircraft, and historic (more than 75 years old) aircraft and shipwrecks and other sites occur within the EP EMBA. There are multiple sites protected under Commonwealth Underwater Cultural Heritage Act 2018 and NT Heritage Act 2011.
Environmental Protection Authority NT (EPA NT)	The EPA NT is an independent authority established under the *NT Environment Protection Authority Act 2012*. The EPA NT approves conditions for the DPD in NT Waters and can amend these at any time. Water quality and other environmental aspects of Darwin Harbour and NT waters could be impacted in the event of an unplanned hydrocarbon spill.
NT Fire and Emergency Services (formerly Department of Police, Fire and Emergency Services during the consultation period for this Coastal Waters OEMP.	The Department would be involved in response measures in the event of a spill in NT Waters.
Parks and Wildlife Commission of the Northern Territory	Parks and Wildlife Commission of the Northern Territory is the NT Government agency responsible for tasks including the establishment, management and protection of parks, reserves, sanctuaries and other land, and the protection, conservation and sustainable use of wildlife.
Department of Tourism and Hospitality (DTH) (formerly Tourism NT during the initial consultation period for this Coastal Waters OEMP. (Tourism NT)	Tourism NT is the government statutory authority responsible for promoting tourism in the NT, including potential activity by NT based operators in the EP EMBA.
Section 25(1)(b) of the OPGGS(E)R: Departments or agencies of Western Australia to which the activities to be carried out under the environment plan may be relevant.	
Department of Biodiversity, Conservation and Attractions Western Australia (DBCA WA)	DBCA WA has functions in relation to the protection of Western Australian flora and fauna, including in relation to the Scott Reef Reserve (which is in WA waters) and works in tandem with Department of Primary Industries and Regional

Relevant Person Category	Summary of Relevance
	Development (DPIRD) to promote biodiversity and conservation with an interest in sustainable management of species and ecosystems.
Department of Primary Industries and Regional Development (DPIRD) – Fisheries	DPIRD-WA is responsible for managing West Australian fisheries. Several WA-managed commercial fisheries' zones extend beyond WA Waters and into Commonwealth Waters of the EP EMBA.
Department of Transport Western Australia (DoT WA)	DoT WA has functions in relation to commercial vessel movements in the navigable waters of the State and seas adjacent to WA. Its interests extend to response to an unplanned spill event through its Maritime Environmental Emergency Response unit.
Kimberley Ports Authority	The Authority is responsible for the safe and efficient operation of the port and to protect the environment in which the port operates.
WA Marine Science Institution (WAMSI)	WAMSI is a government consortium of state, government and academic organisations working collaboratively for promotion of science research.
Section 25(1)(c) of the OPGGS(E)R: Department of the responsible Northern Territory Minister.	
Department of Mining and Energy (DME) (formerly the NT Department of Industry, Tourism and Trade– Mines and Energy (DITT-NT – Energy) during the initial consultation period for this Coastal Waters OEMP.(DITT-NT – Energy)	DITT-NT Energy is the department of the responsible Territory Minister and is required to be consulted under regulation 25(1)(c) of the OPGGS(E)R.
Section 25(1)(d) of the OPGGS(E)R: Persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the environment plan	
Academic and Research Organisations	
Arafura Timor Research Facility (ATRF)	ATRF is a joint venture between AIMS and the Australian National University. It was developed through a successful Major National Research Facilities grant application with support from the NT government and Charles Darwin University. The facility was established to accommodate world class research into marine and coastal ecosystems of the Arafura and Timor seas and to explore the increasing threats to Australia's fisheries and marine biodiversity in the region. A wide range of research activities are being processed.
Australian Marine Sciences Association – NT (AMSA-NT)	AMSA-NT is a professional body for marine scientists, with a branch in the NT. Its listed interests and stated activities include promoting all aspects of marine science in the NT and making formal comment on NT marine development assessments and NT Government policies, strategies and plans, and nominations of rare and threatened marine species and habitats in the NT.
AusTurtle Inc	AusTurtle Inc. is a non-profit organisation that promotes sea turtle conservation and research in northern Australia.
Charles Darwin University (CDU)	The NT's main university is research-intensive with a range of projects and partnerships in indigenous and tropical health, environmental science and public policy. One example is the current investigation of low technology, sea-based aquaculture systems for remote coastal communities. The team is sampling wild blacklip oysters from 8 locations across the NT, assessing shellfish quality, heavy metals and vibrio testing. CDU is a member of the Darwin Harbour Advisory Committee
Commercial fishing – Commonwealth managed	
Commonwealth-managed fisheries that overlap the EP EMBA (based on AFMA guidance):	Licence holders of these fisheries are entitled to fish within the EP EMBA and consultation based on published AFMA guidance, including via representative organisations.

Relevant Person Category	Summary of Relevance
• Northern Prawn Fishery • Southern Bluefin Tuna Fishery • Western Skipjack Tuna Fishery • Western Tuna and Billfish Fishery • North-West Slope Trawl Fishery • Torres Strait Fishery	
Commercial fishing – Northern Territory managed	
NT-managed fisheries that overlap the EP EMBA: • Aquarium Fishery • Bait Net Fishery (not entitled to fish in NT Coastal Waters OA) • Barramundi Fishery (not entitled to fish in NT Coastal Waters OA) • Coastal Line Fishery (not entitled to fish in NT Coastal Waters OA) • Coastal Net Fishery (not entitled to fish in NT Coastal Waters OA) • Demersal Fishery • Mollusc Fishery (not entitled to fish in NT Coastal Waters OA) • Mudcrab Fishery • Offshore Net and Line Fishery • Pearl Oyster Fishery • Spanish Mackerel Fishery • Trepang Fishery (not entitled to fish in NT Coastal Waters OA)	Santos has consulted via representative organisation, Northern Territory Seafood Council (NTSC).
Commercial fishing – Western Australian managed	
Licence holders in the following WA-managed fisheries: • Abalone Fishery • Kimberley Crab Fishery • Kimberley Prawn Fishery • Mackerel Managed Fishery • Marine Aquarium Fishery • Northern Demersal Scalefish Managed Fishery • Pilbara Crab Fishery	Licence holders of these fisheries are entitled to fish within the EP EMBA. Santos has consulted via representative organisation, Western Australian Fishing Industry Council (WAFIC), noting WAFIC published guidance on consultation of fishers.

Relevant Person Category	Summary of Relevance
• South-West Costal Salmon Fishery • Specimen Shell Fishery • West Coast Deep Sea Crustacean Fishery	
Energy Industry – Petroleum titleholders and GHG permit holders	
Operators: • Bengal Energy • Eni Australia Ltd • EOG Resources • Finder Energy • INPEX Ichthys Pty Ltd • Jadestone • Melbana Energy • Neptune • PTTEP Pty Ltd • Shell Development (Australia) Pty Ltd • SundaGas Bunda Unipessoal Lda • Woodside Energy Ltd	Operators within the EP EMBA.
Environmental conservation organisations	
ATSEA-2 Project	According to its website, ATSEA-2 is a Global Environment Facility-funded program, managed and executed under the United Nations Development Program. It has a Regional Steering Committee made up of representatives from national government and lead agencies in Australia, Indonesia, Papua New Guinea and Timor-Leste.
Australia Institute	The Australia Institute is a public policy think tank based in Canberra that carries out research and comments publicly on a broad range of economic, social, and environmental issues.
Australian Conservation Foundation (ACF)	ACF is a national non-government environmental advocacy organisation based in Melbourne.
Australian Marine Conservation Society – NT (AMCS NT)	According to its website, AMCS NT is a grassroots independent environmental conservation organisation and charity that works to protect ocean wildlife along the NT coastline, waters and seas. It advocates for evidence-based solutions to conservation activity and works closely with marine research centres.
Australian Parents for Climate Action Darwin and NT	According to its NT website, Australian Parents for Climate Action Darwin and NT is on a mission to empower parents, carers, families and everyone who cares about kids, to advocate for urgent action on climate. It plans family-friendly, non-partisan activities that engage communities, engage politicians in climate solutions, and amplify positive stories.
Climate Action Darwin	According to its website, Climate Action Darwin influences decision-makers to adopt climate-friendly policies, supports Darwin residents to take climate action and reduce their own climate impact, advocates for a transition to a zero-carbon economy, informs and educates audiences on NT climate change impacts and solutions and supports other local and active groups working for a safe climate.

Relevant Person Category	Summary of Relevance
Conservation Council of Western Australia (CCWA)	According to its website and correspondence dated 12 April 2023, CCWA promotes an interest in the protection and restoration of the WA natural environment, including waters, a marine park and marine life potentially within the EP EMBA.
Doctors for the Environment Australia	Doctors for the Environment Australia (DEA) is a national organisation of medical professionals concerned at the impacts of climate change on human health.
Environment Centre Northern Territory (ECNT)	According to its website, ECNT is a not-for-profit incorporated association whose objects include protection of all aspects of the natural environment, conducting campaigns to protect the natural environment, environmental research, and public education and information about the natural environment. ECNT is involved in the "Stop Barossa Gas" campaign.
Greenpeace	According to its website, Greenpeace's stated goals include the protection of ocean biodiversity and marine life, including campaigning for protection of whales[31] (fauna identified in this Coastal Waters OEMP as potentially affected by the Activity impacts or risks) and sea turtles[32] (also fauna identified in this Coastal Waters OEMP as potentially affected by the Activity impacts or risks).
Jubilee Australia Research Centre	Jubilee Australia Research Centre states that it engages in research and advocacy to promote economic justice for communities in the Asia-Pacific region and accountability for Australian corporations and government agencies operating there. The Centre is involved in the Stop Barossa campaign.
Keep Top End Coasts Healthy	According to its website, Keep Top End Coasts Healthy is part of an alliance of environment groups including the AMCS NT and the ECNT. Keep Top End Coasts Healthy claims to work with stakeholders with respect to coastal preservation and establishment of marine protected areas.
Sea Turtle Foundation	According to its website, the Sea Turtle Foundation[33] is a non-profit, non-government group based in Australia with a stated interest in protecting sea turtles through research, education and action, including specifically the olive ridley turtle, leatherback turtle, loggerhead turtle and flatback turtle, being turtle species cited in this Coastal Waters OEMP as being potentially affected by the impacts or risks of the Activity.
West Timor Care Foundation	According to previous correspondence received from West Timor Care Foundation, the Foundation claims to be an advocacy organisation concerned with the interests and welfare of people who depend on the coast of Timor for their livelihoods and who have been, or may be, impacted by oil spills from petroleum activities in the Timor Sea, including areas within the EP EMBA. Santos has been unable to locate a website for West Timor Care Foundation.
Wilderness Society	According to its website, the Wilderness Society is a peak conservation body with an interest in activities that may affect the marine environment.
WorldFish Timor-Leste	According to its website, WorldFish is a research organisation focusing on sustainable aquatic food systems in Timor-Leste. It has an interest in resilient and sustainable aquaculture projects and small-scale fisheries production, promoting community-based resource management of coastal fisheries to strengthen livelihoods and combat poverty and malnutrition and works in a partnership model with non-government organisations (NGOs) and governments.

[31] *https://www.greenpeace.org.au/what-we-do/protecting-oceans/whales/*

[32] *https://www.greenpeace.org/international/story/28229/turtle-journey-urgent-protect-the-oceans/; https://www.greenpeace.org/international/publication/28181/turtles-under-threat/*

[33] *https://seaturtlefoundation.org/about*

Relevant Person Category	Summary of Relevance
World Wildlife Fund (WWF)	WWF is a peak conservation body with an interest in activities that may affect the marine environment.
First Nations People and groups	
The following groups may have interests that intersect the EP EMBA. Information was also provided to these organisations to help identify and consult groups or individuals whose spiritual or cultural connections to land and sea country in accordance with Indigenous tradition may be affected by proposed activities. In addition, targeted regional advertising was conducted to provide opportunity for individuals whose functions, interests and activities may be affected by the proposed activity to self-identify as Relevant Persons.	
Representative organisations – NT	
Larrakia Nation Aboriginal Corporation (LNAC)	LNAC is one of Darwin's leading community service organisations. Larrakia Nation Aboriginal Corporation was set up in 1997 through the Northern Land Council originally to provide a corporate identity for Larrakia people to uphold Native Title claims. In the subsequent 20 years, it has grown to represent the Traditional Owners of the Darwin region and to speak on behalf of Larrakia people, deliver community and outreach services to the broader Darwin community, and operate the Larrakia Land and Sea Ranger services. LNAC board members, six of eight of whom are Larrakia member directors, are responsible for governing LNAC on behalf of all Larrakia members. LNAC has over 600 Larrakia families' members, any Larrakia person is eligible to be a member. Benefits of membership include election of family representatives at the Annual General Meeting and advocacy on a members' behalf. [34]
Northern Land Council (NLC)	The NLC is the Native Title Representative Body for the Northern Region, including sea country. Its functions are prescribed under the NT Act. The NLC also has statutory obligations under the ALR Act and is authorised to perform certain functions under the NT Act. The NLC's area of interest includes sea country where non-exclusive native title rights and interests may exist, including within the EP EMBA. NLC Executive Council members are also the directors of the Top End (Default Prescribed Body Corporate/Community Living Area) Aboriginal Corporation RNTBC (TED PBC) which is responsible for an area of sea country near the Croker Islands. The NLC also provides administrative services to the Corporation. The NLC is also responsible for the administration of Land Trusts. Consultation with Land Trusts also occurs via the NLC.
Tiwi Land Council (TLC)	The TLC is governed under the ALR Act. The Tiwi Aboriginal Land Trust was also established under the ALR Act and the TLC is the only body with authority to direct the Trust. The authority of the TLC does not extend into Commonwealth offshore waters, although the sea country interests of Tiwi Island clans do, including within the EP EMBA.
Wickham Point Deed Liaison Committee (WPDLC)	The objective of the WPDLC is to strengthen the dialogue between Santos and the Larrakia people and support the delivery of the parties' commitments under the Wickham Point Deed entered into between Darwin LNG and the Northern Land Council on 29 April 1999. Santos coordinates quarterly meetings with the Wickham Point Deed liaison committee, which includes representatives from Larrakia family groups, the functions of which are set out in the Wickham Point Deed and include making recommendations to Santos on various matters such as environmental, cultural heritage, employment and business opportunities.
First Nations Consultative Committees and coastal clan groups – NT	

[34] Source: https://larrakia.com/

Relevant Person Category	Summary of Relevance
Larrakia People	The Larrakia people are the traditional owners of the Darwin region. Larrakia country runs from Cox Peninsula in the west to Gunn Point in the north, Shoal Bay in the east and down to the Manton Dam area southwards. The Larrakia People consist of between eight to fourteen family groups, depending on how families are grouped.[35]
Cobourg Peninsula Consultative Committee	The Cobourg Peninsula Consultative Committee speaks for all of the Cobourg Peninsula, south to Endyalgout Island and east towards Wauk, and includes the adjacent sea country. The committee includes the Agalda, Murran, Ngaindjagar and Madjunbalmi clans, and includes the Garig Gunak Marine Park (NT)
Kardu Lalingkin Consultative Committee	The Kardu Lalingkin Consultative Committee FNCC speaks for country extending from the Fitzmaurice River, including Wadeye community to north of the Marri-Jabin (Thamururr) Indigenous Protected Area, and including coastal parts of the Joseph Bonaparte Marine Park.
Djulidki (Bradshaw) Consultative Committee	The Djulidki Consultative Committee speaks for the area approximately contiguous with, but larger than the Bradshaw Field Training Area, in the south west coast of the NT. It includes Quoin and Clump Islands and is bordered by the Victoria River to the south and the Fitzmaurice River to the north.
Gapu Maringa Consultative Committee	The Gapu Maringa Consultative Committee speaks for country extending from the Blyth River through to the westernmost part of Elcho Island. It includes coastal areas and islands (Darbada, Crocodile, Milingimbi, Rabuma, Banyan and Mooroongga Islands) and includes the western tip of Elcho Island, including the community of Galiwin'ku and the entirety of the Crocodile Islands Maringa IPA.
Goulburn Island Consultative Committee	The Goulburn Island Consultative Committee speaks for north and south Goulburn Islands. It includes the western section of the Arnhem Marine Park.
Jindiwi Consultative Committee	The Jindiwi Consultative Committee speaks for country extending east from the Adelaide River, through to just south of Endyalgout Island, at the bottom of the Cobourg Peninsula, and including Van Diemen Gulf, Field and Barron Islands. It includes groups living along the coastal areas, of the West, South and East Alligator Rivers, including the Wulna Clan. It also includes the coastal section of the Mary River IPA.
Maningrida Regional Consultative Committee	The Maningrida Regional Consultative Committee speaks for an extensive coastal area beginning south of Wauk and continuing east under the Goulburn Islands past the Nungbalgarri Creek and extending past Maningrida community to the west bank of the Blyth River. It includes the middle and eastern sections of the Arnhem Marine Park, and the Djelk Stage 2 IPA.
Miyarrka Consultative Committee	The Miyarrka Consultative Committee speaks for country around the community of Gapuwiy'ak (Lake Evella) and extends north and west to include the sea country and coastal areas of the Hardy Island Bay and including Inglis, and Cotton Islands, and includes Yolŋu language groups living in these areas. It extends east to the edge of the Dhimurru IPA and includes the south-eastern part of the Marthakal IPA.
Mulyurrud Consultative Committee	The Mulyurrud Consultative Committee speaks for Croker Island, including the Gadura-Minaga, Mangalarra and Mandilarri clan estates, and the adjacent sea country, including several islands to the east and north east of Croker Island and the Ildugidj clan estate located on the mainland coastline (south from Croker Island). This Committee's area includes the southern portion of the Arafura Marine Park.

[35] *2012 paper " Larrakia Family Groups" written by Mr Bill Day (https://www.drbilldayanthropologist.com/resources/Larrakia%20Family%20groups.pdf)*

Relevant Person Category	Summary of Relevance
Ngoy Garmak Consultative Committee	The Ngoy Garmak Consultative Committee speaks for the Wessel Islands chain, excluding Galiwin'ku, but including the central and northern parts of Elcho Island and small sections of adjacent mainland coastal areas. It includes Yolŋu language groups living in these areas. This Committee also speaks to the northern part of the Marthakal IPA.
Rak Badjalarr Consultative Committee	The Rak Bajalarr Consultative Committee speaks for country extending north from the Daly River to the Cox Peninsula, and adjacent coastal sea country, including the Peron Islands and the Dum In Mirrie, Beer Eeetar, Windirr and Grose, Quail and Indian Islands. It includes the western part of the Darwin harbour and associated waterways, and represents the Kenbi, Emmiyangal, Mendheyangal, Kiyuk, Wadigany, Murranungu, Malak Malak and Marriamu clans located over the coastal areas from the Cox Peninsula to the Daly River.
Tiwi Islands Clan Groups and Individuals	The Appeal Judgment found that "Mr Tipakalippa and the Munupi clan had interests within the meaning of reg 11(A)(d)[36] of the OPGGS(E)R that required them to be consulted[37]. Mr Tipakalippa had claimed that he and the Munupi clan, as well as other Tiwi Island people, have "sea country" in the Timor Sea to the north of the Tiwi Islands. The Tiwi Islands are located approximately 80 km north of Darwin in the Arafura Sea. There are three major communities on the Tiwi Islands. The largest community is Wurrumiyanga (on Bathurst Island), with smaller communities of Milikapiti and Pirlangimpi located on Melville Island. There are eight landowning groups (clans) on the islands, Mantiyupwi, Munupi, Yimpinari, Malawu, Wulirankuwu, Wurankuwu, Mirrikawuyanga and Jikilaruwu (or Tikalaru). Members of the Mantiyupwi clan also speak for the Vernon Islands, which are located between the Tiwi Islands and mainland NT.
Wulna Clan	Wulna Clan are a party to the Mary River ILUA. The Clan has representation through the Wulna members of the Jindiwi Consultative Committee, consistent with their preferences expressed at meetings with Wulna clans prior to this OEMP consultation.
Other First Nations organisations – NT	
Aboriginal Sea Company	Incorporated entity with administrative support provided by the NLC. The Aboriginal Sea Company's area of interest is the entire Top End (sea country and intertidal). The Company facilitates the participation of Traditional Owners in commercial fishing, aquaculture and other opportunities associated with fishing activities in NT waters that could be impacted by planned activities or an unplanned spill. The Company is governed by a board comprising representation from the three land councils with traditional ownership of sea country – Northern, Tiwi and Anindilyakwa land councils.
Gwalwa Daraniki Association (GDA)	Administers the Kalaluk and Minmarama communities near Darwin, including Larrakia people, and is responsible for overseeing a number of developments aimed at improving the long term physical and economic wellbeing of the tenants of those communities.
Kenbi Rangers	The Kenbi Rangers manage the country of the Cox Peninsula - Darwin and Bynoe Harbours and Islands. The Kenbi Rangers' base on Cox Peninsula is administered by the NLC.
Larrakia Development Corporation (LDC)	The LDC aims to create economic opportunity for Larrakia People through the creation and operation of sustainable businesses models, and the maintenance of the Larrakia Development Trust. The Larrakia Development Corporation's core activities include land holdings and development, property development, heritage monitoring, ground

[36] *Section 25(1)(d) of updated OPGGS(E)R 2023*

[37] *Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 [80]*

Relevant Person Category	Summary of Relevance
	maintenance, and landscaping. LDC is governed by a board of independent directors. Santos has consulted with LDC in its capacity as a commercial organisation that aims to support positive economic outcomes for Larrakia people
North Australian Indigenous Land and Sea Management Alliance	Darwin-based Native Title Prescribed Body Corporate with administrative services via the NLC. NLC Executive Council members are the directors of the Top End Default Prescribed Body Corporate. Place / Area of Interest (descriptions of land includes adjacent sea country): Entire Top End.
Representative Organisations – WA	
Kimberley Land Council (KLC)	The KLC is the Native Title Representative Body for the Kimberley region in WA. Its primary role is to provide native title services to Kimberley Aboriginal people. KLC's area of interest includes sea country where non-exclusive native title rights and interests may exist, including within a section of Commonwealth waters within the EP EMBA. The KLC is also named in several Marine Park Management Plans off the Kimberley coast.
Balanggarra Aboriginal Corporation	The Balanggarra Aboriginal Corporation, based in Wyndham, is the Registered Native Title Body Corporate (RNTBC) for the Balanggarra People and manages their native title determination
Bardi and Jawi Niimidiman Aboriginal Corporation	The Bardi and Jawi Niimidiman Aboriginal Corporation, based in Broome, is the RNTBC for the Bardi and Jawi Niimidiman People and manages their native title determination.
Dambimangari Aboriginal Corporation	The Dambimangari Aboriginal Corporation, based in Derby, is the Aboriginal corporation nominated by the Wanjina Wunggurr RNTBC, (which holds the larger native title determination over the area) to manage the southern part of the determination.
Mayala Inninalang Aboriginal Corporation	The Mayala Inninalang Aboriginal Corporation, based in Broome, is the RNTBC for Mayala Inninalang people, and manages their determination.
Miriuwung and Gajerrong Aboriginal Corporation	The Miriuwung and Gajerrong Aboriginal Corporation, based in Kununurra, is the RNTBC for the Miriuwung-Gajerrong People and manages their native title determination.
Wunambal Gaambera Aboriginal Corporation	The Wunambal Gaambera Aboriginal Corporation, based in Wyndham, is Aboriginal Corporation nominated by the Wanjina Wunggurr RNTBC (which holds the larger native title determination over the area) to manage the northern part of the determination.
Industry Associations – commercial fishing	
Australian Southern Bluefin Tuna Industry Association (ASBTIA)	ASBTIA represents the interests of commercial fishers in the Southern Bluefin Tuna Fishery and Western Skipjack Fishery.
Commonwealth Fisheries Association (CFA)	CFA represents the interests of commercial fishers with licences in Commonwealth waters.
Northern Prawn Fishery Industry (NPFI)	NPFI represents the interests of the interests of commercial fishers in the Northern Prawn Fishery.
Northern Territory Seafood Council (NTSC)	NTSC is the peak representative body for the wild catch, aquaculture and trader/processor seafood sectors in the NT.
Western Australian Fishing Industry Council (WAFIC)	WAFIC represents the interests of the WA commercial fishing, pearling and aquaculture sector.
Industry Associations – recreational fishing	
Amateur Fishermen's Association of the Northern Territory (AFANT)	AFANT is the peak body representing NT recreational fishers whose interests may intersect the EP EMBA.

Relevant Person Category	Summary of Relevance
Recfishwest	Peak WA body representing the interests of the recreational fishing sector.
Industry Associations – tourism	
Assosiasaun Turizmu Maritima iha Timor-Leste	The Association is a registered, national industry body that represents the marine tourism sector in Timor-Leste.
Kimberley Marine Tourism Association	Based in Broome, the Kimberley Marine Tourism Association represents charter boat operators from the Kimberley and wider region
Marine Tourism WA	Marine Tourism WA is the peak body representing WA charter boat owners and operators.
Northern Territory Guided Fishing Industry Association (NTGFIA)	NTGFIA is the peak body responsible for promoting, developing, and maintaining the guided fishing industry in the NT. It represents professional fishing guides and operators. Interests may intersect the EP EMBA.
Tourism Top End	Tourism Top End is the Regional Tourism Association, a non-profit entity serving businesses, individuals and organisations involved in tourism activities in the NT. Interests may intersect the EP EMBA.
WA Game Fishing Association	Coordinates game fishing activities throughout Western Australia.
Industry Associations – local industry	
Chamber of Commerce Northern Territory	Regional representative organisation representing the interests of local business.
Infrastructure operators	
BW Digital	BW Digital is a privately-owned, carrier-neutral and innovative to deliver optimal customer service. It develops, builds and operates a digital ecosystem, specialising in data transport, compute and storage to connect countries across oceans sustainably.
Darwin Port	Private consortium responsible for the management of shipping and other commercial activities requiring use of Darwin Harbour. Santos-contracted vessels plan to use Darwin Harbour.
NT Port and Marine	Private consortium that owns and operates the commercial port at Port Melville on the Tiwi Islands.
Power and Water Corporation (NT)	Power and Water Corporation is a government-owned corporation responsible for the transmission and distribution of electricity and provision of water and sewerage services across the NT. The Corporation's main operating facility relies on the water quality in Darwin Harbour.
Sun Cable	Privately-owned consortium with plans to install a new submarine cable infrastructure in NT and Commonwealth waters in the EP EMBA.
Telstra	Telstra Group Limited is an Australian telecommunications company that builds and operates telecommunications networks and markets related products and services.
Vocus	Operator of the following infrastructure, which is in the EP EMBA: Darwin-Jakarta-Singapore Cable and North West Cable System (NWCS).
Local Government Authorities – NT	
Belyuen Community Government Council	Represents the Belyuen Community, located approximately 120km from Darwin on the Cox Peninsula. The Council's area includes NT coastline within the EP EMBA.

Relevant Person Category	Summary of Relevance
City of Darwin	The City of Darwin includes the central business district of the capital, Darwin City, and represents two-thirds of its metropolitan population. The Council's area includes NT coastline within the EP EMBA.
City Of Palmerston Council	The City of Palmerston Council contains the suburbs of Darwin's satellite city, Palmerston, and is situated between the outer industrial areas of Darwin and the rural areas of Howard Springs. The Council's area includes NT coastline within the EP EMBA.
East Arnhem Regional Council	East Arnhem Regional Council services the communities of Milingimbi, Ramingining, Galiwin'ku, Gapuwiyak, Yirrkala, Gunyangara, Umbakumba, Angurugu and Milyakburra. The Council's area includes NT coastline within the EP EMBA.
Litchfield Council	Litchfield Council represents people living in some of Darwin's outer rural suburbs. The Council's area includes NT coastline within the EP EMBA.
Roper Gulf Regional Council	Roper Gulf Regional Council services the communities of Mataranka, Yugul Mangi, Numbulwar Numburindi, Borroloola, Nyirranggulung and Jilkminggan as well as a large amount of unincorporated land in the Gulf, Roper Valley, Stuart Plateau and Southern Arnhem Land. The Council's area includes NT coastline within the EP EMBA.
Tiwi Islands Regional Council	The Tiwi Islands Regional Council provides a range of local government and other services to Bathurst and Melville Islands and the communities of Wurrumiyanga, Wurankuwu, Milikapiti (Snake Bay) and Pirlangimpi (Garden Point), as well as several smaller outstations. The Council's area includes NT coastline within the EP EMBA.
Victoria Daly Regional Council	Victoria Daly Regional Council services the communities of Nauiyu/Daly River, Pine Creek, Timber Creek, Yarralin Walangeri and Kalgkarindji Daguragu. The Council's area includes NT coastline within the EP EMBA.
Wagait Shire Council	The Wagait Shire Council services community on the Cox Peninsula west of Darwin. The Council's area includes NT coastline within the EP EMBA.
West Arnhem Regional Council	West Arnhem Regional Council services the communities of Gunbalanya, Jabiru, Maningrida, Minjilang, Warruwi, as well as outstations. The Council's area includes NT coastline within the EP EMBA.
West Daly Regional Council	West Daly Regional Council services the communities of Wadeye, Palumpi and Peppimenarti. The Council's area includes NT coastline within the EP EMBA.
Tourism Operators – Timor-Leste	
Dreamers Dive Academy Timor	According to its website, the Dreamers Dive Academy is a tourism and diver training business operating from a base near Dili on the north shore of Timor-Leste. Diving activity is undertaken around Atauro Island in locations that may be within or transit the EP EMBA.
Tourism Operators – NT	
Darwin and Tiwi Islands-based operators	Marine tourism operators active within the EP EMBA are listed in Table 4-22.
Other Relevant Persons	
Autoridade Nacional do Petróleo – Timor-Leste (ANP)	ANP is a public institution established by the Timor-Leste Government to manage and regulate petroleum activities in the Timor-Leste area.

4.7.5 Consultation planning, preliminary and consultation activities

Santos acknowledges that consultation processes need to have sufficient flexibility to adapt to the "nature of the interests of the Relevant Persons"[38].

In planning the consultation program for the Coastal Waters OEMP and Barossa Production Operations EP Santos was initially informed by its previous experience in consulting with Relevant Persons about Barossa Project Activities (refer Section 4.1)

For the Coastal Waters OEMP and Barossa Production Operations EP consultation activities were generally undertaken in three broad phases[39]:

+ **Preliminary consultation (9 February – 10 March 2024)** – this included:
    - activities to allow authorities, persons and organisations opportunities to self-identify as Relevant Persons and provide feedback about consultation methods and information needs via a portal and form available on its website. [refer to Section 4.7.4]; and
    - directly contacting Relevant Persons and potential Relevant Persons to:
        - inform them about the consultation for the Coastal Waters OEMP and Barossa Production Operations EP, including sharing information about the OEMP and EP activity and associated environmental impacts and risks;
        - seek information to better understand if the person contacted was from a relevant government Department or agency, or was a person (or organisation) whose functions, interests or activities may be affected by the activities proposed to be carried out under the Coastal Waters OEMP and Barossa Production Operations EP; and, if so, the nature of those potentially affected functions, interests or activities; and to
        - share information about titleholder responsibilities and opportunities to provide guidance for consultation expectations.
+ **Formal consultation (11 March 2024 – 23 May 2024[40])** – this included seeking feedback from Relevant Persons to inform development of the Coastal Waters OEMP and Barossa Production Operations EP during or following exchanges that involved the provision of sufficient information and a reasonable period of time (refer to Section 4.7.6).
+ **Further consultation (23 May 2024 until submission to the regulator) –** Santos undertook consultation with some authorities, persons and organisations following the formal consultation phase given existing relationships, consultation preferences and standing meeting and consultation arrangements.

Santos offered and provided information in different formats and via a range of different mediums.

Preferences expressed by Relevant Persons regarding design of the consultation process were considered and accommodated by Santos, where reasonably practicable and appropriate. This approach has included:

- Providing Relevant Persons access to information using different mediums and platforms both at the request of Relevant Persons and of its own volition, having regard to the nature of particular Relevant Persons and their potentially affected functions, interests or activities;
- Consultation methods and platforms including by telephone, email, letters, website, electronic materials including power point presentations, video content, in person and virtual meetings. Santos provided a toll free 1800 number and a dedicated email address for Relevant Person input and feedback;
- Making information about the proposed activities to be managed under the Coastal Waters OEMP and Barossa Production Operations EP available on the Santos website at www.santos.com/offshoreconsultation. Provision of hyperlinks or QR codes to this website were included in consultation emails and in advertising in print media and on social media;
- Recognising NTSC's feedback that information should be provided via post direct to relevant licence holders in addition to being provided to the NTSC which consults directly with the chairs of each fishery;

[38] *Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [104]*

[39] In some cases, contact with persons or organisations identified at later stages in the consultation process did not strictly align with the typical phases as set out below.

[40] Although initial consultation correspondence advised that the consultation period would close on 9 April 2024, Santos subsequently sent further correspondence providing updated information to account for an additional risk associated with the activities proposed in this OEMP and the EP and extending the consultation period until 16-23 May 2024.

- Recognising NPFI's feedback that it will pass along any information to its members where required and relevant, acknowledging NPFI has advised there is no need for Santos to directly engage with its members;
- Recognising AFANT's feedback that it will respond on an Association level and pass along any information to its members where required and relevant for their own individual feedback;
- Recognising DFAT's feedback to contact DFAT's Indonesian and Timor-Leste desks on consultation matters relevant to Indonesia and Timor-Leste respectively;
- Continuing to respect direction from Tiwi Islands clans and individuals on appropriate consultation methods, which have for some time been a mutually agreed approach to support consultation for other environmental approvals for the Barossa Gas Project, which have been accepted or are under assessment by respective Regulators; and
- Consulting with First Nations communities via consultative committees, or other representative bodies where Santos understands this to have been culturally appropriate (see Section 4.7.5.1). This included consulting with Wulna Clan through the Jindiwi Consultative Committee and Algada Clans through the Cobourg Peninsula Consultative Committee in line with preferences expressed by each of these clans during the course of engagement relating to consultation for the Barossa Darwin Pipeline Duplication Environment Plan.

All authorities, persons and organisations engaged during the preliminary consultation and consultation phases were provided a link to the *NOPSEMA community information brochure: Consultation on offshore petroleum environment plans* and/or had hard copies of the brochure made available during in-person consultation sessions.

Santos also informed each Relevant Person that they may request that particular information they provide during the consultation not be published and that information subject to such a request will not be published under the relevant regulations (and will instead be included in a separate report which will not be published on NOPSEMA's website).

Typically, where Santos did not receive a response from a Relevant Person to its correspondence and/or in person conversations, follow-up attempts were made (usually using different mediums e.g. phone, email or letter) including to confirm receipt of emails/letters and/or to prompt provision of a response. Most cases involved multiple follow-up attempts.

4.7.5.1 Consultation with First Nations people and groups

For the Coastal Waters OEMP and Barossa Production Operations EP,, Santos has provided consultation opportunities and supporting information to First Nations communities, clans and groups, representative organisations and other First Nations organisations listed in Table 4-8, acknowledging the use of a highly conservative EP EMBA (as described in Section 3) for the purpose of assisting to identify potentially Relevant Persons.

This conservative approach has ensured a very broad capture of potential Relevant Persons and provided them an opportunity to provide input if they feel their functions, interests or activities may be impacted. The consultation process is further explained below and includes, if and where applicable:

- Consulting First Nations people through existing representative organisations, including Registered Native Title Bodies Corporate, groups associated with Native Title Determinations and groups in active Native Title Claims, Native Title Representative Bodies, and groups who may be parties to Indigenous Protected Areas, or be named in ILUAs;
- Consulting First Nations people through existing liaison committees or reference groups that have been established between Native Title Parties, Native Title Representative Bodies and industry/government;
- Supporting the establishment of First Nations consultative committees or groups that are intended to be representative and able to speak on behalf communities where formal structures do not exist and consulting such committees or groups;
- Working with First Nations communities, groups and clans to develop culturally appropriate consultation methods reflecting the information needs of First Nations communities, groups and clans. By way of example, Santos held multiple community consultations with Tiwi people at the community's request for previous Barossa EP consultation; and
- Consulting other First Nations organisations that may support specific interests of First Nations people, such as economic development and community well-being.

In addition, Santos has undertaken a range of activities to promote opportunities for First Nations people to provide input and feedback during consultation to support identification and evaluation of environmental impacts and risks for proposed activities and develop appropriate measures to reduce these impacts and risks to ALARP and to an acceptable level.

These activities included a public information campaign using a range of appropriate media, including, radio, print media, targeted social media, drop-in meetings with information about the project activities, provision of consultation materials and availability of Santos staff to answer questions at its central Darwin shopfront and inviting people to self-identify as a Relevant Person in response, where they considered to have interests, functions or activities that may be affected by the planned activities.

Details of the public information campaign for the Coastal Waters OEMP and Barossa Production Operations EP, are included in Section 4.7.4, Table 4-8 and Table 4-10, which outlines advertising and notifications targeting Tiwi and Larrakia clans/communities.

4.7.5.1.1 *Consultation with existing representative organisations*

For the Coastal Waters OEMP and Barossa Production Operations EP, consultation effort in the NT with existing representative organisations has focused on providing input and feedback opportunities for the NLC, TLC, LNAC and WPDLC.

Consultation effort in WA with existing representative organisations has focused on providing input and feedback opportunities for the KLC and six PBCs.

The EMBA modelled for the Barossa Production Operations EP intersects the Kimberley representative Aboriginal/Torres Strait Islander body (RATSIB) area (refer Figure 3-16Figure 3-16) As a RATSIB, the KLC has responsibility for providing services to native title parties in the Kimberley.

While both the Barossa Production Operations EP EMBA and the Coastal Waters OEMP EMBA do not intersect the native title interests of PBCs in the Kimberley region, Santos as a precautionary approach consulted six PBCs given their responsibilities under the *Native Title Act 1993* (Cth) for representing Native Title holders who may have a particular interest in the activity or knowledge that could assist with the consideration of management of environmental impacts and risks.

Santos recognises that native title rights and interests are held by PBCs on behalf of the native title group they represent and reflect the traditional laws and customs of the native title group. These rights and interests may include, among other things, management and protection of cultural values.

Wickham Point Deed Liaison Committee

A key mechanism for ongoing consultation by Santos with the Larrakia people is through the Wickham Point Deed Liaison Committee (previously title Wickham Point Deed Reference Group) which includes representation of Larrakia family groups. The Wickham Point Deed was entered into between DLNG and the NLC (which is also identified as a Relevant Person in Table 4-9) on 29 April 1999 and the liaison committee represents a long-running dialogue between Santos and Larrakia families.

Santos coordinates quarterly Wickham Point Deed Liaison Committee meetings and the functions of the committee include making recommendations to Santos on various matters such as environmental matters, cultural heritage, employment and business opportunities.

Santos has discussed the Barossa Gas Project with the Wickham Point Deed Liaison Committee as a regular agenda item for several years, including providing information on Project activities, approval requirements, impacts and risks, the AAPA Authority Certificate process and proposed management measures.

The Wickham Point Deed liaison committee was identified as a Relevant Person for consultation with respect to activities within the Coastal Waters OEMP and Barossa Production Operations EP (refer Table 4-9), with a consultation session held on 7 March 2024 covering the following:

- Recapitulation of the Barossa Project to include a project update on existing activities and Project progress;
- Recapitulation of the regulatory consultation processes and privacy considerations;
- Informing the committee that Relevant Persons may request that particular information they provide during the consultation not be published and that information subject to such a request will not be published under the relevant regulations (and will instead be included in a separate report which will not be published on NOPSEMA's website);
- Discussing the activities covered by the Coastal Waters OEMP and Barossa Production Operations EP, including installation steps and vessel descriptions
- Introducing and discussing the potential environmental impacts and risks involved with the planned activities and planned controls to manage those risks;
- Introducing and discussing the EP EMBA in the event of an unplanned event, the risks and planned controls to manage those risks;

- Providing opportunities for input, including in relation to potential cultural or other environmental impacts and risk of the activities under this OEMP and the EP and proposed control measures; and
- Responding to and closing out any outstanding matters including questions, issues or concerns.

Larrakia Nation Aboriginal Corporation

Outside of the Wickham Point Deed Liaison Committee, Santos also sought to consult with the Larrakia Nation Aboriginal Corporation (LNAC). The summary of Santos' consultation efforts is presented in Table 4-18.

The Larrakia Nation Aboriginal Corporation (LNAC) was set up in 1997 through the Northern Land Council to provide a corporate identity for Larrakia people to uphold Native Title claims. The LNAC has grown to represent the Traditional Owners of the Darwin region and to speak on behalf of Larrakia people while delivering community and outreach services to the broader Darwin community.

4.7.5.1.2 *Consultation with Larrakia people*

For the Coastal Waters OEMP and Barossa Production Operations EP, Santos adopted a multi-faceted approach to providing input and feedback opportunities for Larrakia people. Approximately 2000 Larrakia people live in the urban environment of Darwin and comprise eight family groups.

Consultation effort with Larrakia people focused on providing consultation opportunities through:

- existing representative organisations with a dedicated Larrakia focus, these being NLC, WPDLC and LNAC;
- face-to-face Larrakia People Consultation Sessions coordinated by Santos;
- provision of the Barossa Production Operations Information Booklet, playing of the Barossa project video on a large screen monitor and availability of Santos' staff to answer questions at its central Darwin shopfront;
- Santos Darwin LNG (DLNG) facility site tours;
- other First Nations organisations that support specific interests of First Nations people, such as economic development, these being LDC and GDA; and
- the public awareness campaign.

In addition to the above activities, Santos also met with the LDC to better understand a proposal for the development of a consultation framework allowing project proponents to consult all Larrakia families though the LDC, including the provision of additional and independent advice where needed to meet the information needs of Larrakia people. Santos understands that the framework is still under development and has not yet received confirmation that the framework is supported by all Larrakia family groups.

As such, the framework was not in place for the purpose of consultation for this OEMP. In addition, during Santos' consultation with Larakia people and Larrakia representative bodies, Santos was not advised that the Larrakia people want the LDC to represent them for the purpose of consultation for the Coastal Waters OEMP and Barossa Production Operations EP

Santos will continue to engage with LDC on their proposed consultation framework and if it is prepared and supported by all Larrakia family groups, will have regard to it in relation to ongoing consultation over the life of the Barossa project and for future proposals.

Santos' future consideration of the framework will include consideration of appropriate financial recompense for meeting attendance and input, and consideration of any financial assistance and/or access to independent advice that the framework may propose.

Larrakia People Consultation Sessions

To expand the opportunity to reach more Larrakia People outside of the families represented on the Wickham Point Deed Liaison Committee, Santos, has, in consultation unrelated to the Coastal Waters OEMP and Barossa Production Operations EP, requested and received assistance from LNAC.

Santos previously received advice from LNAC on the best way to directly consult with Larrakia People in a culturally sensitive and appropriate way. The consultation process comprised:

- Santos to undertake face-to-face consultation;
- Santos to advertise in the NT News the face-to-face consultation sessions; and
- LNAC to promote the consultation sessions on their social media.

In response, Santos implemented the following tailored consultation approach for Larrakia people:

- A total of four individual Larrakia consultation sessions were held specifically for Larrakia People between April and June 2024, including:
  - face-to-face consultation sessions, which were held on 23 April 2024 and 12 June 2024
  - two time slots (during and after work hours) were provided on each date to maximise opportunity to attend. There were no Larrakia attendees at the 12 June 2024 session during work hours.
  - the April consultation was held in Darwin CBD however feedback from Larrakia at this session was for future consultations to be held at more accessible and convenient location
  - the June session was held in the northern suburb of Malak in a community hall with free parking
- Consultation sessions were advertised as described in Table 4-10
- Santos requested LNAC (confirmed) to post the Notice of Consultation on social media channels (Facebook and LinkedIn) for the April and June 2024 Larrakia consultation sessions.

Hardcopy consultation materials were produced and distributed or made available prior to the start of the session for use as a tool to refer to during the consultation session. Material included, but was not limited to, copies of the Production Operations Information Booklet, Santos Privacy Statement and the *NOPSEMA community information brochure: Consultation on offshore petroleum environment plans*.

Other visual aids such as AO poster sized maps of the project area and EP EMBA, and AO sized posters with photos and images taken as part of the Barossa Project were positioned at each venue to present information regarding operational activity and the project more generally.

Santos also informed attendees that Relevant Persons may request that particular information they provide during the consultation not be published and that information subject to such a request will not be published under the relevant regulations (and will instead be included in a separate report which will not be published on NOPSEMA's website).

The consultation sessions were conducted as an open forum. People were encouraged to ask questions and raise concerns through the presentation. Santos' representatives and subject matter experts (SMEs) explained the activity and associated environmental risks and impacts during the face-to-face presentations, assisted by video content, and PowerPoint slides.

During the sessions Santos provided opportunities for input, including in relation to potential cultural or other environmental impacts and risk of the activities under the Coastal Waters OEMP and Barossa Production Operations EP and proposed control measures. Santos responded to questions and at the completion of each session, Santos' SMEs were also available to speak with individuals who had additional questions, concerns or wished to discuss matters that may not have been raised during the open forum. Table 4-18 includes a chronology of consultation with Larrakia people.

Through this approach Santos has provided sufficient opportunities and a reasonable period of time for Larrakia People to be consulted for the Coastal Waters OEMP and Barossa Production Operations EP and in accordance with the advice provided by LNAC.

Darwin shopfront and DLNG site tours

As part of its broader outreach program, Santos operates a shopfront office in central Darwin where members of the public can learn more about Santos' current and proposed activities. The shopfront is open Monday to Thursday, 10am to 3pm and provides resources and consultation materials and Santos' people are available to answer questions on Santos' activities.

During the development of the Barossa Gas Project more than 120 people have visited the shop front, including Larrakia people.

Similarly, Santos has conducted site tours of its DLNG facilities specially for Larrakia people, providing opportunities for Larrakia people to learn more about Santos' activities and ask questions about proposed activities, such as the Barossa Gas Project.

Public awareness campaign

The public awareness campaign used a range of appropriate media, including, radio, print media, targeted social media and drop-in sessions through which information about the proposed activities was made available. Table 4-8 and Table 4-10, which outlines advertising and notifications targeting Larrakia people.

4.7.5.1.3 *Consultation with Tiwi Islands clans and individuals*

As a result of specific requests and feedback as to the consultation process and consultation preferences, which Tiwi People have historically expressed during previous consultation on Barossa Project EPs, Santos implemented the following tailored and culturally considered consultation approach for Tiwi people:

- A total of 16 individual clan consultation sessions were held for Tiwi people from March to May 2024;
- Consultation activities were conducted face-to-face in the form of clan sessions held at two locations on Bathurst Island, and one location on Melville Island, collectively known hereon in as the Tiwi Islands;
- Scheduling of consultation sessions was undertaken in conjunction with Clan Trustees/Traditional Owners, the Tiwi Land Council, Tiwi Resourses and Tiwi Enterprises to ensure no clashes with community events, cultural ceremony or “Sorry Business”;
- Ensuring appropriate permissions from the Tiwi Land Council were obtained to allow Santos’ personnel to visit the Tiwi Islands;
- Clan sessions were scheduled with approximately four weeks’ prior written notice (see Table 4-10), ensuring community members were provided sufficient notice. Santos promoted the sessions via public notices at town stores and the Tiwi Islands Facebook page notice board. Santos employees also received and responded to phone calls and drop ins at the Darwin shop front from Tiwi people asking for details about consultation sessions;
- Tiwi Island Consultation sessions were on the following dates: 5–7 March 2024, 8-10 April 2024, 13 May 2024, 15-17 May 2024 and 21-22 May 2024;
- In addition to the above clan specific sessions, consultation sessions were also conducted in Darwin to accommodate Tiwi people who were unable to attend the Tiwi Island based sessions on 22 March 2024 and 8 April 2024. These sessions were open to whomever identified as being a representative from the Tiwi Islands;
- A Welcome/ Acknowledgement to Country was performed at each consultation session by the appropriate senior Clan Traditional Owner/Elder/Senior. This person also opened meetings in language, thanked people for their attendance and encouraged attendees to listen, ask questions and provide feedback;
- Consultation sessions were arranged for clans independent of one another and at a location convenient for that clan. Nevertheless, the attendance and representation at each designated clan session varied for a multitude of reasons. At times clans came together in one meeting in entirety and/or, there was diversified clan representation. Where clans came together in entirety, this was with the agreeance of the clans’ trustees. For the latter, this was managed between the individuals present;
- Consultation sessions were attended by qualified interpreters; and
- Consultation sessions were attended by third-party Tiwi Cultural Advisers (individuals and organisations) to Santos who provided advice to Santos to ensure meetings were conducted in a culturally appropriate and respectful way, as well as to provide interpretation support where needed.

On two occasions Santos rescheduled consultation sessions to accommodate ‘Sorry Business’ on the Tiwi Islands at the request of the impacted clans. On these occasions Santos liaised with the appropriate clan representatives to reschedule the session to an alternate and acceptable date.

Three rounds of meetings, not including the Darwin-based sessions, were held with each individual clan group with the aims of:

- recapitulation of the Barossa Project to include a project update on existing activities and Project progress;
- recapitulation of the regulatory consultation processes and privacy considerations;
- informing attendees that Relevant Persons may request that particular information they provide during the consultation not be published and that information subject to such a request will not be published under the relevant regulations (and will instead be included in a separate report which will not be published on NOPSEMA’s website);
- discussing the activities covered by the Coastal Waters OEMP and Barossa Production Operations EP, including installation steps and vessel descriptions;
- introducing and discussing the potential environmental impacts and risks involved with the planned activities and planned controls to manage those risks;
- introducing and discussing the EP EMBA in the event of an unplanned event, the risks and planned controls to manage those risks;

- providing opportunities for community input including in relation to potential cultural or other environmental impacts and risk of the activities under the Coastal Waters OEMP and Barossa Production Operations EP and proposed control measures; and
- responding to and closing out any outstanding matters including questions, issues or concerns.

Hard copy consultation materials were produced and distributed or made available prior to the start of the session to support informed discussion during the consultation session. Material included, but was not limited to, copies of the Production Operations Information Booklet, Santos Privacy Statement and the *NOPSEMA community information brochure: Consultation on offshore petroleum environment plans*.

Santos also presented information using videos and displayed other visual aids at each venue to present information regarding operational activity and the project more generally, such as iPads with images and additional materials for distribution during meetings and AO-sized maps of the project area and EP EMBA and AO-sized posters with photos and images featuring Barossa Project activities.

The consultation sessions were conducted as an open forum. People were encouraged to ask questions and raise concerns through the presentation. Santos' representatives and subject matter experts (SMEs) explained the activity and associated environmental risks and impacts during the face-to-face presentations, assisted by video content and PowerPoint slides.

During the sessions Santos responded to questions where appropriate. If a matter was raised that required additional information, this was taken on notice.

At the end of each session, Santos SMEs were also available to speak with individuals who had additional questions, concerns or wished to discuss matters that may not have been raised during the open forum.

Matters raised at meetings were captured and responded to in several ways, pending the forum in which it was raised and the nature of the discussion.

For example, open forum matters that were of interest to wider clan representatives were populated into a table and provided at subsequent meetings during the main presentation. Where appropriate, frequently asked questions (FAQ) documents in response to matters were prepared and distributed or made available at subsequent sessions.

Other confidential and/or individually specific matters were managed either in person at subsequent meetings, or via an emailed response pending the nature of the request, and the request of the questionee.

Consultation sessions for Tiwi people were notified and advertised as set out in Table 4-10 which provides a chronology of consultation with Tiwi Islands clans.

Tiwi people have also utilised the Santos shopfront in central Darwin and participated in site tours of DLNG specifically for Tiwi people, providing an opportunity for them to learn more about Santos' activities and ask questions about proposed activities, such as the Barossa Gas Project.

4.7.5.1.4 *Consultation with First Nations Consultative Committees*

Santos notes that there are remote areas of coastal Northern Australia where formal mechanisms for consultation are few or non-existent.

To support consultation in these areas for the Coastal Waters OEMP and Barossa Production Operations EP, Santos engaged a consultant to support the establishment of First Nations Consultative Committees (FNCCs) with the intention that these be self-nominating and self-governing, and independent of government or industry. The intended purpose of these committees is to provide a forum to allow for culturally appropriate consultation with First Nations peoples represented through FNCCs, and to serve as a means for those peoples to provide feedback to third parties on matters on which the FNCC is consulted.

The FNCC establishment process is led by cultural advisors, comprising a team of First Nations leaders with extensive knowledge and experience in relation to First Nations cultures of Northern Australia, and who possess deep cultural connections to First Nations peoples of the region.

The FNCC establishment process commences with the identification by the cultural advisers of First Nations clans and associated persons who may have functions, interests or activities that may be affected by activities Santos proposes to carry out under an environment plan.

The cultural advisors then contact the identified First Nations persons to discuss the FNCC concept. Santos understands that this includes meetings with Elders and other First Nations leaders who speak for coastal and sea country that may be affected by project activities. Where an interest to participate in the FNCC process is expressed, the cultural advisers support the relevant clan group to establish their own FNCC and to self-determine its functions and operations, including in relation to committee membership, leadership and governance arrangements and desired level and method of consultation.

This process involves the cultural advisors sharing knowledge and experience in relation to their participation on established committees and supporting the identified clan members to determine their own rules and processes for

committee decision-making, membership and the nomination of chairs. Once determined, these matters are formally documented in charters adopted by the FNCCs. Santos has been provided with copies of charters of FNCCs consulted for the Coastal Waters OEMP and Barossa Production Operations EP, which include details about the FNCCs' purposes, membership and procedures.

Once established, and subject to the wishes of FNCC members, the external cultural advisors may provide ongoing support to the FNCCs, including administrative and advisory services. Santos engaged a consultant to support FNCC establishment and operations. This consultant maintains regular contact with FNCCs and Clan groups to facilitate Santos' consultation with these groups.

The activities of these committees are complementary to the functions and responsibilities of representative organisations, such as Land Councils or other formal bodies, with the intention that they be in a position to represent First Nations peoples. FNCC activities are understood to include disseminating consultation information to First Nations community members of relevance.

Santos acknowledges the establishment and operation of these committees in response to the growing need for a means for First Nations voices to be heard and considered. This need is particularly relevant along the NT coastline where formal consultative mechanisms are typically not in existence, in contrast with the WA coastline Prescribed Bodies Corporate (PBCs) which provide an avenue for consulting First Nations people who have been recognised by Australian law as holding rights and interests to traditional land and waters.

Santos has consulted FNCCs with representative functions across the EP EMBA for this Activity, providing a broad coverage of any potential sea country interests within the EP EMBA. Eleven FNCCs were consulted in the preparation of the Coastal Waters OEMP and Barossa Production Operations EP given the expanded geographical coverage of the spill EP EMBA. Consultation sessions for FNCC members were notified via provision of a specific meeting invitation. Table 4-18 includes a chronology of consultation with FNCCs.

4.7.5.1.5 *Consultation with other First Nations organisations*

Santos has also consulted other First Nations organisations that support specific interests of First Nations people, such as economic development and community well-being.

These organisations were Aboriginal Sea Company, GDA, Kenbi Rangers, and North Australian Indigenous Land and Sea Management Alliance.

Santos also consulted LDC in its capacity as a commercial organisation that supports positive economic outcomes for Larrakia people.

4.7.5.1.6 *Advertising and notification of Tiwi and Larrakia Consultation Sessions*

Table 4-10: Advertising and notification of Tiwi and Larrakia Consultation Sessions

Date	Advertising/notice	Description	Reach
For Tiwi Island March/April/May 2024 consultation sessions			
March/April/ May 2024	Social media Notice	Facebook, Tiwi Notice Board Facebook Page	Geotargeted Tiwi Islands – 2,800 members
March/April/May 2024	Notice of Consultation	Emailed to several independent stakeholders for sharing across their direct networks, in person, and for posting on Tiwi Island notices boards	Geotargeted Tiwi Islands – 2,800 members
19 February 2024	Press Ad NT News	Page 19 advertising March sessions	Target NT with reach of 25,000
26 February 2024	Press Ad NT News	Page 6 advertising March sessions	Target NT with reach of 25,000
4 March 2024	Press ad – NT News	Page 6 Advertising March sessions	Target NT with reach of 25,000
23 March 2024	Press ad – NT News	Page 5 Advertising March Community drop-in sessions	Geo-targeted Darwin and surrounding areas (e.g. Burrundie and Kakadu, Tiwi Islands and NT)
26 March 2024	Press ad – NT News	Full page, page 6 Advertising April sessions	Target NT with reach of 25,000
2 April 2024	Press ad – NT News	Full page, page 6	Target NT with reach of 25,000

Date	Advertising/notice	Description	Reach
		Advertising April sessions	
6 April 2024	Press ad – NT News	Full page, page 12 Advertising April sessions	Target NT with reach of 25,000
8 May 2024	Press ad NT News	Full page, page 8 Advertising May sessions	Targeted NT with reach of 25,000
15 May 2024	Press ad NT News	Full page, page 6 Advertising May sessions	Targeted NT with reach of 25,000
20 May 2024	Press ad NT News	Page 6 advertising May sessions	Targeted NT with reach of 25,000
For Larrakia April/June 2024 sessions			
23 March 2024	Press ad – NT News	Page 5 advertising March Community drop-in sessions	Targeted NT with reach of 25,000
April	Notice of Consultation	Emails to representative organisations for sharing across their direct networks.	Targeted for Larrakia people
April	Notice of Consultation	Emails and phone calls notifying individual Larrakia family representatives	Targeted for Larrakia people
April	Notice of Consultation	Promotion via Santos' Darwin shop front	Targeted for Larrakia people
April	Notice of Consultation	Larrakia Nation social media advertising including Facebook and LinkedIn	Targeted Larrakia people
June	Notice of Consultation	Emailed to representative organisations for sharing across their direct networks.	Targeted for Larrakia people
June	Notice of Consultation	Promotion via Santos' Darwin shop front.	Targeted for Larrakia people
June	Notice of Consultation	Emails and phone calls notifying individual Larrakia family representatives	Targeted for Larrakia people
1 June 2024	Press ad – NT News	Page 30 advertising for June	Target NT with reach of 25,000
5 June 2024	Press ad – NT News	Page 8 advertising for June	Target NT with reach of 25,000
8 June 2024	Press ad – NT News	Page 21 advertising for June	Target NT with reach of 25,000
June	Notice of Consultation	Larrakia Nation social media advertising including Facebook and LinkedIn	Targeted Larrakia people

4.7.6 Provision of sufficient information

Having regard to the purpose of consultation (described above at Section 4.7.1), Santos provided Relevant Persons with sufficient information so they can make an informed assessment about the possible consequences of the Activity on their functions, interests or activities. As outlined above at Section 4.2 and for the reasons set out in that section, Santos provided Relevant Persons with information related to both the Coastal Waters OEMP and Barossa Production Operations EP together and consulted comprehensively on both activities. In particular, Santos provided Relevant Persons with information regarding:

- The Activity proposed under the Coastal Waters OEMP and Barossa Production Operations EP;
- The environment that may be affected by the Activity, including depictions of the modelled EP EMBA and explaining how the EP EMBA is determined;
- The potential environmental impacts and risks of the Activity and proposed control measures;
- The environmental approval process;

- The purpose of consultation, who may be a Relevant Person and how to self-nominate as a potential Relevant Person;
- The titleholder's obligations during consultation in the course of preparing an environment plan, including informing Relevant Persons that they can request that particular information they provide during consultation not be published and that information subject to such a request will not be published under the relevant regulations (and will instead be included in a separate report which will not be published on NOPSEMA's website);
- The obligation of the titleholder not to publish particular information if so requested by the Relevant Person; and
- How to provide feedback.

Relevant Persons were provided access to information using different mediums and platforms, including by telephone, email, website (https://www.santos.com/barossa/), hard copy and electronic materials, social media, in person and virtual meetings.

At a minimum, this information was available on the Santos website (including in a specific fact sheet providing an overview of pipeline operations in NT Waters) and was included in the Barossa Production Operations Information Booklet, which Santos typically shared with Relevant Persons by mail, email and/or made available during consultation sessions.[41]

Other examples of the consultation materials used are included in Appendix D and included the following:

- A FAQ document, responding to queries and feedback during consultation with Tiwi People provided as part of the consultation process; and
- For particular Relevant Persons or particular groups of Relevant Persons, videos, animations, PowerPoint slides, photos, and maps to convey technical information to different audiences in a clear and accessible way.
- Facebook page translated into Tetum and Bahasa Indonesian

Santos also sent Relevant Persons (and potential Relevant Persons) links to the NOPSEMA community information brochure, *Consultation on offshore petroleum environment plans* and/or made this available during in-person consultation sessions. This brochure contains information for community members to better understand the responsibilities of titleholders to consult Relevant Persons in the development of environment plans, the purpose of consultation and how Relevant Persons can provide feedback.

4.7.6.1 First Nations consultation sessions

In addition to the above, to ensure the information provided to First Nation people was culturally appropriate, for each First Nations consultation session, Santos played a short video explaining the purpose of the session and key information relating to the consultation process, how feedback could be provided, privacy considerations and the option for Relevant Persons to request that particular information they provide during consultation not be published and that information subject to such a request will not be published under the relevant regulations (and will instead be included in a separate report which will not be published on NOPSEMA's website).

Santos made available independent, qualified interpreters via the Aboriginal Interpreter Service to assist in the delivery of consultation sessions where appropriate. Santos also used local community members where qualified interpreters were not available.

Santos' representatives and subject matter experts explained the activity, risks and impacts during in person presentations. To improve accessibility and comprehension, they were assisted by visual aids/photos, maps, videos, animations, and PowerPoint slides to present information regarding the activity and the project more generally (including information of a more technical nature).

After each consultation session, Santos' representatives and subject matter experts were available to answer additional questions or provide further information to clan members and individuals. This offered First Nations people the opportunity to speak to Santos' representatives or subject matter experts one-on-one or in a smaller group setting (based on feedback this was a more comfortable format for some people).

[41] Between 8 April to 10 May 2024, Santos shared an updated Barossa Production Operations Information Booklet. This was updated to account for an additional risk associated with the Activity, namely a gas release in the unlikely event of an unplanned pipeline loss of containment. A link to the updated booklet was generally shared with Relevant Persons and potential Relevant Persons via email and/or by making a hard copy available during in-person consultation sessions. Santos sent further correspondence linking the updated booklet, highlighting the nature of the additional information in its subsequent emails and indicated where to find that information in the updated version, Santos typically extended the consultation period by approximately two weeks to allow reasonable time for its consideration and for Relevant Persons to provide any consultation inputs having regard to the additional information.

As mentioned at Section 4.7.6 above Santos also provided information about NOPSEMA's community information brochure, *Consultation on offshore petroleum environment plans* and made the brochure available at consultation sessions, as well as making the Barossa Production Operations Information Booklet available at all consultation sessions.

Further detail on First Nations consultation sessions is provided in Table 4-10 in Section 4.8.8.

4.7.7 Reasonable period for consultation

Santos is required to allow a Relevant Person a reasonable period for consultation. In considering what constitutes a reasonable period of time for consultation for each Relevant Person, Santos had regard to the nature, extent and likelihood of the potential impact of the Activity on that person's functions, interests or activities.

Santos has undertaken a comprehensive consultation program for the Barossa Gas Project commencing with the OPP. The OPP has been followed by extensive consultation for each of the activity specific EPs and other regulatory approvals prepared for different stages of the Barossa Gas Project.

For the Coastal Waters OEMP and Barossa Production Operations EP, Santos provided 31 days through a 'preliminary consultation' phase for Relevant Persons to consider consultation information, including that shared via a link to the Barossa Production Operations Information Booklet which contained information about the proposed activities and their potential impacts and risks.

Santos then generally provided approximately 70 days during the 'formal consultation' phase for Relevant Persons to respond with feedback about the proposed activities.

In cases where a different period was provided for consultation, Santos considered this to be reasonable having regard to:

- the nature, extent and likelihood of the potential impact of the Activity on that person's functions, interests or activities; and/or
- Santos' understanding of the Relevant Persons' consultation preferences.

Santos directly contacted Relevant Persons notifying them of the consultation process and formal consultation period. Emails or letters were sent to Relevant Persons to invite feedback for the Coastal Waters OEMP and Barossa Production Operations EP, confirming the date by which feedback was sought and outlining how feedback may be provided. In other cases, one or more meetings were arranged, by agreement with the Relevant Person, for the purposes of the consultation.

Following an approximate one month public awareness campaign during the preliminary consultation period to raise awareness of the Coastal Waters OEMP and Barossa Production Operations EP activity and to seek out Relevant Persons for consultation (Table 4-7), Santos also conducted a public awareness campaign from 11 March 2024 to 9 April 2024, specifically reminding Relevant Persons of the consultation opportunity and seeking feedback from Relevant Persons for the Coastal Waters OEMP and Barossa Production Operations EP (Table 4-7).

Where no comments were received from a Relevant Person, Santos generally followed up the Relevant Person during the formal consultation phase to prompt them to consider the information materials previously provided and/or confirm whether the Relevant Person intended to provide feedback. In some cases, Santos extended the formal consultation period to allow Relevant Persons more time to make an informed assessment of the possible consequences of the proposed activity on their functions, interests or activities. Santos also accepted feedback from Relevant Persons at any time prior to the submission of this OEMP, which was more than 12 months after consultation materials were initially provided to most Relevant Persons.

As outlined in Section 4.7.1, Santos notes that there is no reasonable possibility that planned impacts from the Activity will have any consequences on functions, interests or activities concerning areas at the extremities of the EP EMBA. In addition, the likelihood of the unplanned release is assessed as remote given the mitigation and management controls in place, and the residual risk is considered low. There is an even lower likelihood of an unplanned hydrocarbon release affecting a person's or organisation's functions, interests or activities where these relate to the extremities of the EP EMBA.

While Santos has still consulted Relevant Persons whose functions, interests or activities may only be affected by unplanned events (the likelihood of which is remote), consultation tended to focus more closely on those most proximate to the Operational Area and in respect of whom the period reasonably required for consultation is considered to likely be greater.

Considering the above, Santos considers it has provided a more than reasonable period for consultation.

4.8 Consultation report

A summary report including the outcomes of consultation with Relevant Persons, including any objections or claims about the adverse impact of the Activity and Santos' assessment of them, satisfying the requirements of section 24(b)(i)-(iii) of the OPGGS(E)R, is provided in Table 4-11 to Table 4-23. The full records of Relevant Persons consultation, as required by section 24(b)(iv) of the OPGGS(E)R, is provided in the Sensitive Information Report.

As outlined above at Section 4.2 and for the reasons set out in that section, the consultation report captures consultation across both the GEP Coastal Waters OEMP and the Barossa Production Operations EP.

Where objections or claims made during consultation were considered relevant to the Coastal Waters OEMP, sections within the Coastal Waters OEMP and GEP NT Waters OPEP have been referenced within the consultation report (refer Table 4-11 to Table 4-23) for each objection or claim, showing where existing information relevant to that objection or claim is located.

Where Santos has received input from Relevant Persons in consultations undertaken in the course of preparing other environment plans, it has considered and applied that input in the course of preparing the Coastal Waters OEMP and included OEMP references where appropriate.

Where a Santos' response provided to a Relevant Person related only to Production Operations activities covered by the Barossa Production Operations Environment Plan, this is indicated in the table.

In addition to including a statement of Santos' response to objections or claims (per section 24(b)(iii)), a statement of the titleholder's response, or proposed response, if any, to each objection or claim; and a summary of responses to Relevant Persons is also included where appropriate.

The EMBA referenced in Table 4-11 to Table 4-23 is the larger Barossa Production Operations EMBA, unless otherwise stated.

4.8.1 Commonwealth Government Agency or Authority

Table 4-11: Consultation Summary Table - Commonwealth Government Agency or Authority

Section 25(1)(a) of the OPGGS(E)R: Commonwealth agency or authority to which the activities to be carried out under the environment plan may be relevant			
Australian Communications and Media Authority (ACMA)			

Summary of consultation effort:
• On 9 February 2024 Santos emailed ACMA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
• The email advised that Santos was seeking information to better understand:
  ○ *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  ○ *what (if any) functions, interests, or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
• The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
• On 11 March 2024 Santos emailed ACMA further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
• On 27 March 2024 ACMA emailed Santos and advised that Vocus' North-West Cable System is likely to share a cable crossing with the proposed Gas Export Pipeline and is aware of other proposals to install submarine cables landing in Darwin and ACMA recommends engaging with the owners. ACMA advised there are no submarine cable protection zones declared by the ACMA in the vicinity of Santos' proposed activities and does not require additional consultation. [Con-3795]
• On 27 March 2024 Santos emailed ACMA and confirmed Santos is in ongoing engagement with Vocus, BW Digital, Sun Cable, Telstra and NT Power and Water Corporation. [Con-3796]
• On 7 May 2024, Santos emailed ACMA further to ACMA's response on 27 March 2024, to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from ACMA. [Con-4137]
• On 10 July 2024 Santos emailed ACMA to advise the consultation period had been completed. Santos advised that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
• On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-5982]
• On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
• No further correspondence or feedback was received from ACMA.			

Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP Reference**
ACMA recommended Santos engage with the owners of any submarine cables (existing or planned) within the OA to discuss the activities.	Santos has considered the matters raised in the OEMP and provided a response. Santos notes ACMA's advice and has consulted with the relevant owners of submarine cables (existing or planned) in preparing this OEMP.	Santos confirmed it was consulting with the relevant owners of submarine cables (existing or planned).	Refer to Table 4-20 (Infrastructure Operators) for consultation with submarine cable owners BW Digital, NT Power and Water Corporation, Sun Cable, Telstra and Vocus.
Australian Fisheries Management Authority (AFMA)			

Summary of consultation effort:
• On 9 February 2024 Santos emailed AFMA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
• The email advised that Santos was seeking information to better understand:
  ○ *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  ○ *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
• The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
• On 11 March 2024 Santos emailed AFMA further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
• On 14 March 2024, AFMA emailed Santos and advised that it has no specific comments on the proposal as it lies outside the main area of their fisheries operations and encouraged Santos to engage with state fisheries agencies and operators. [Con-3797]
• On 27 March 2024, Santos emailed AFMA to confirm it is consulting with the following organisations on production operations activities: WA Department of Fisheries, NT Department of Fisheries, WAFIC, NTSC, NPFI, ASBTIA, CFA and licence-holders in each fishery through their representative organisations. [Con-3798]
• On 27 March 2024 AFMA thanked Santos for confirmation of which organisations Santos was consulting with. [Con-3799].
• On 7 May 2024, Santos emailed AFMA further to AFMA's response on 27 March 2024, to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that that consultation will close on the revised date unless Santos hears otherwise from AFMA. [Con-4138]			

- On 10 July 2024 Santos emailed AFMA to advise the consultation period had been completed. Santos advised that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from AFMA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
AFMA advised Santos to consult directly with commercial fishing industry stakeholders, including via representative organisations.	Santos notes AFMA's advice and has consulted with relevant commercial fishing industry stakeholders in preparing the OEMP.	Santos confirmed it was consulting with relevant commercial fishing industry stakeholders.	Refer to Table 4-17 (Commercial Fishing (Commonwealth / NT managed) for consultation with licence holders. Refer to Table 4-19 (Industry Associations) for consultation with ASBTIA, CFA, NPFI and NTSC.

Australian Hydrographic Office (AHO)

Summary of consultation effort:

- On 9 February 2024 Santos emailed AHO to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 12 February 2024, AHO provided an acknowledgement to Santos that the email has been received and the data will now be registered, assessed, prioritised and validated. AHO advised that standards may result in some data generalisation or filtering due to the scale of existing charts, proximity to other features, and the level of risk a reported feature presents to mariners. [Con-3800]
- On 11 March 2024 Santos emailed AHO further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 13 March 2024, AHO provided an acknowledgement to Santos that the email has been received and the data will now be registered, assessed, prioritised and validated. [Con-3801]
- On 7 May 2024, Santos emailed AHO further to emails sent previously, to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from AHO. [Con-4139]
- On 8 May 2024, AHO provided an acknowledgement to Santos that the email has been received and the data will now be registered, assessed, prioritised and validated. [Con-4141]
- On 10 July 2024 Santos emailed AHO to advise the consultation period had been completed. Santos advised that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 23 August 2024 Santos phoned AHO and followed-up with an email on 28 August 2024 advising that, in the absence of any specific response from AHO, Santos has reverted to the standard advice provided by AHO in response to requests for feedback during consultation on other Barossa EPs. In the email Santos provided details of the DAFF information being included in the OEMP and EP and requested any further input by 9 September 2024. [Con-5609]
- On 5 September 2024 AHO responded to Santos' email of 23 August 2024. AHO advised it had no further comment other than requesting that the final positions of any permanent features are sent to the AHO for charting action. [Con-5640] Santos responded via email the same day stating the AHO's charting requirements would be cited in the relevant EPs. [Con-5641]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from AHO.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
Other than its standard advice with respect to maritime safety matters, the AHO advised it had no other comments that would value add to the activity. The AHO requested that, once the activity is fully complete, the final positions of any permanent features are sent to the AHO for charting action.	Santos has followed and actioned the standard advice provided by AHO and AMSA for every EP with respect to maritime safety matters. Santos has considered and applied this standard advice to this OEMP, including activity notifications. Santos notes that activities under the Coastal Waters OEMP do not involve the placement of any permanent features. Santos considers Section 25 consultation requirements to have been met.	• Santos will include all formal notification requirements in the relevant sections of this OEMP, specifically the following: ○ Requirement to notify the AHO through datacentre@hydro.gov.au no less than 4 working weeks before operations commence for the promulgation of related notices to mariners. ○ Requirement to notify AMSA's JRCC through rccaus@amsa.gov.au (Phone: 1800 641 792 or +61 2 6230 6811) for promulgation of radio-navigation warnings 24-48 hours before operations commence. • Santos also acknowledges the following standard AHO advice:	Notification requirements for AHO are included in Table 8-13 and control measure BAO-CM-6.6.1.

		○ Vessel obligations to comply with the International Rules for Preventing Collisions at Sea (COLREGs), in particular, the use of appropriate lights and shapes to reflect the nature of operations (e.g. restricted in the ability to manoeuvre). Vessels should also ensure their navigation status is set correctly in the ship's AIS unit. ○ Evaluation and implementation of adequate anti-collision measures, including the collision risk mitigation measures cited by AMSA, being additional warnings and/or lights to attract attention and offshore guard vessel/s that can monitor traffic and take early action to alert a vessel approaching the area of operations. ○ Santos' vessel anti-collision measures are in accordance with COLREGs and AMSA requirements. Additionally, Santos will implement cautionary zones around Project vessels and use surveillance vessel to guard cautionary zones. Santos confirmed in its response to AHO for the Production Operations EP that Santos will also provide the AHO with the final positions of any permanent features for charting action.	

Australian Institute of Marine Science (AIMS)

Summary of consultation effort:

- On 9 February 2024 Santos emailed AIMS to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 21 February 2024 AIMS emailed Santos and advised its schedule was indicative only. However, it has planned voyages around the Goodrich Bank area and enquired if Santos anticipated disruption to these operations. [Con-3802]
- On 28 February 2024 Santos emailed AIMS and advised it was waiting on internal feedback and would respond soon. [Con-3803]
- On 29 February 2024 Santos emailed AIMS and requested coordinates and details of its Goodrich Bank interests. [Con-3804]
- On 1 March 2024 AIMS provided Santos with the information requested. [Con-4120]
- On 5 March 2024 Santos thanked AIMS and advised it would revert back. [Con-4056]
- On 11 March 2024 Santos emailed AIMS further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 27 March 2024 Santos emailed AIMS with information on potential activities during dates in 2025, in response to AIMS' emails of 21 February 2024 and 1 March 2024. In the email Santos advised it did not believe there would be any impacts from Barossa activities on any AIMS activities during the advised time periods due to the distance from the nearest Barossa Operational Area. [Con-5153]
- On 2 May 2024 Santos emailed AIMS further to its response in March 2024, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet has been updated to account for an additional risk associated with the proposed activity. In the email, Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from AIMS. [Con-4219]
- On 3 May 2024 AIMS emailed Santos requesting information on the infrastructure it had in the approaches to Darwin Harbour. The email related to Barossa DPD activities in NT Internal waters and was not relevant to this OEMP. [Con-4945] Santos subsequently responded to AIMS separate to the consultation process for this OEMP.
- On 10 July 2024 Santos emailed AIMS to advise the consultation period had been completed. Santos advised that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from AIMS.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference

Discussion was held on indicative voyages planned by AIMS to Goodrich Bank.	Santos has considered the matters raised in the OEMP and provided a response. Planned activities to be managed under this OEMP are unlikely to affect AIMS' field activities given the distance from the OA to Goodrich Bank. As a result, no credible impacts to AIMS' potential field activities are expected from planned activities. While impacts to AIMS' functions, interests and activities are possible in the event of an unplanned hydrocarbon spill, Santos considers appropriate controls are in place to prevent a hydrocarbon spill. Santos considers the measures and controls described within the GEP NT Waters OPEP adequately address oil spill planning and response in the event of a spill. AIMS is kept updated on Santos' activities in the OA via Notice to Mariners issued by the Australian Hydrographic Office, Santos' pre-activity notifications to marine users and Santos' Barossa Quarterly Project Update.	Santos thanked AIMS for provision of details on its Goodrich Bank interests. Santos advised AIMS that it did not believe there would be any impacts from Barossa activities on any AIMS voyages during the advised time periods due to the distance from the nearest Barossa Operational Area. Santos advised AIMS that it would be kept updated on Santos' activities via Notice to Mariners issued by the Australian Hydrographic Office, Santos' pre-activity notifications to marine users and Santos' Barossa Quarterly Project Update.	Shoals and banks area described in Section 3.2.4.5 Control measures for unplanned events are described in Section 7.
AIMS asked for information on Santos' infrastructure in the approaches to Darwin Harbour.	Santos has considered the matters raised in the OEMP and provided a response. The information request from AIMS with respect to Darwin Harbour infrastructure is outside the scope of this OEMP. Santos' infrastructure in the approaches to Darwin Harbour are located in NT Internal waters. Petroleum activities in NT Internal waters are outside the scope of this OEMP.	Santos responded to AIMS and provided requested information, separate to the activities to be managed under the Coastal Waters OEMP.	Not applicable.

Australian Maritime Safety Authority (AMSA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed AMSA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
    - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
    - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 7 March 2024 AMSA emailed Santos and advised it would like to register as a relevant person for further consultation on the development of the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3805]
- On 11 March 2024 Santos emailed AMSA further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 12 March 2024 AMSA's marine safety division emailed Santos with an auto-response providing further information on relevant Maritime Safety Information (MSI). [Con-3806]
- On 9 April 2024 AMSA's marine safety division emailed Santos to advise that AMSA's Joint Rescue Coordination Centre (JRCC) should be notified for promulgation of radio-navigation warnings 24-48 hours before operations commence. Vessels should exhibit appropriate lights and shapes to reflect the nature of operations and comply with the International Rules for Preventing Collisions at Sea (COLREGs). In particular, the use of appropriate lights and shapes to reflect the nature of operations (e.g. restricted in the ability to manoeuvre). Vessels should also ensure their navigation status is set correctly in the vessel's AIS unit. Collision risk mitigation measures may include but are not limited to:
- Additional warnings and/or lights to attract attention
- Installation of Automatic Identification System (AIS) units
- Offshore guard vessel/s that can monitor traffic and take early action to alert a vessel approaching the area of operations. [Con-3807]
- On 8 May 2024, Santos emailed AMSA further to emails previously sent, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from AMSA. [Con-4142]
- On 10 July 2024 Santos emailed AMSA to advise the consultation period had been completed. Santos advised that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from AMSA's marine safety division. AMSA's marine pollution division did not provide any response.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
AMSA's marine safety division advised Santos of the required formal notifications process prior to and during activities.	Santos has considered the matters raised in the OEMP. Santos notes AMSA's advice and has included requirements in the relevant sections of this OEMP, specifically the following:	No response required.	Notification requirements for AHO and AMSA JRCC are included in Table 8-13 and

	• Requirement to notify the Australian Hydrographic Office through datacentre@hydro.gov.au no less than four working weeks before activities commence for the promulgation of related notices to mariners. • Requirement to notify AMSA's JRCC through rccaus@amsa.gov.au (Phone: 1800 641 792 or +61 2 6230 6811) for promulgation of radio-navigation warnings 24-48 hours before operations commence.		control measure BAO-CM-6.6.1 for notifying AHO.
AMSA's marine safety division advised Santos of the required maritime safety measures.	Santos has considered the matters raised in the OEMP. Santos notes AMSA's advice and has included requirements in the relevant sections of this OEMP, specifically the following: • Vessels to comply with COLREGs, in particular, the use of appropriate lights and shapes to reflect the nature of operations (e.g. restricted in the ability to manoeuvre). • Vessels to ensure their navigation status is set correctly in the ship's AIS unit. • Evaluation and implementation of adequate anti-collision measures, including the collision risk mitigation measures cited by AMSA, being additional warnings and/or lights to attract attention and offshore guard vessel/s that can monitor traffic and take early action to alert a vessel approaching the area of operations.	No response required.	Vessel anti-collision measures in accordance with COLREGs and AMSA requirements are included in a control measures (refer to BAO-CM-6.1.2 and BAO-CM-6.6.1) and associated performance standards.

Clean Energy Regulator (CER)

Summary of consultation effort:

- On 9 February 2024 Santos emailed CER to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed CER further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 28 March 2024, CER emailed Santos and provided detail on the schemes legislated by the Australian Government for measuring, managing, reducing or offsetting Australia's carbon emissions. It confirmed none of these schemes currently required Santos to obtain regulatory approval to progress. CER advised that during the course of its activities Santos will need to meet any reporting requirements that apply under the *National Greenhouse and Energy Reporting Act 2007* (NGER Act). Additionally, if the activities of the Barossa Gas project exceed covered 'scope 1' emissions of 100,000 tonnes of carbon dioxide equivalent (tCO_{2e}), it will have obligations under the Safeguard Mechanism. CER provided a case number and additional contact details. [Con-3808]
- On 30 March 2024, Santos emailed CER and requested a meeting in mid-April 2024 to discuss CER's response and other queries. [Con-3809]
- On 4 April 2024, CER emailed Santos and advised the NGER section can provide advice on the requirements for companies to report and that it appears the consultation relates primarily to safety and environment matters, which they were not able to provide any further information on. CER requested some questions or points of discussion for the meeting in mid-April, so it can determine attendees to support provision of advice on these matters. [Con-3810]
- On 18 June 2024, Santos sent CER an email requesting a meeting via Teams [Con-4946].
- On 28 June 2024 CER emailed Santos to accept the meeting request. [Con- 4947]
- On 3 July 2024 Santos met with CER to discuss how Santos will present the following information in the OEMP and EP:
- The role of the CER in administering the Safeguard Mechanism.
- Application of the Safeguard Mechanism to regulate GHG emissions in support of Australia meeting its emissions reduction targets.
- Application in principle of the Safeguard Mechanism to regulate GHG emissions from Barossa production operations. [Con-5036]
- At the meeting CER did not raise any concerns with the information presented by Santos.CER agreed to review the information provide within the next week. [Con-5036] Santos emailed the presentation slides to CER the same day for its further review. [Con-4948]
- On 9 July 2024 CER emailed Santos to advise it was satisfied with the information describing the Safeguard Mechanism regulations administered by the CER that will be included in the OEMP and EP, as presented by Santos at the meeting on 3 July 2024. [Con-5013]
- On 10 July 2024 Santos emailed CER to advise the consultation period had been completed. Santos advised that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from CER.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference

CER advised Santos that it was satisfied with information to be included in the EP on its regulation of GHG emissions from Barossa production operations.	The CER was included in consultation for the EP and OEMP, but they only provided feedback specific to the EP. Therefore, the specific feedback is not relevant to the OEMP. The GHG Emissions section of the OEMP describes the Safeguard Mechanism regulations, and that the Activity will comply with the requirements.	No response required.	Not applicable.

Climate Change Authority (CCA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed CCA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed CCA further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned CCA and spoke to a team member and advised it would send a request for a meeting.
- On 6 May 2024 Santos emailed CCA further to the phone call on 3 April 2024 to advise it had extended the consultation period until 20 May 2024. Santos repeated its request for a meeting. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from CCA. [Con-4132]
- On 10 July 2024 Santos emailed CCA to advise the consultation period had been completed. Santos advised CCA that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on this OEMP. from CCA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from CCA.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

CSIRO

Summary of consultation effort:

- On 9 February 2024 Santos emailed CSIRO to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed CSIRO further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 3 and 4 April 2024 Santos phoned and spoke to the general enquiries line and left a message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed CSIRO further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, the Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the CSIRO. [Con-3855]
- On 10 July 2024 Santos emailed CSIRO to advise the consultation period had been completed. Santos advised that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from CSIRO.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from CSIRO.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Department of Agriculture, Forestry and Fisheries (DAFF) – Biosecurity (marine pests) and Fisheries

Summary of consultation effort:

- On 9 February 2024 Santos emailed DAFF to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests, or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed DAFF further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 11 March 2024, DAFF's Conveyance Policy (Maritime) team (formerly Seaports Team) provided an automated response. [Con-3811]
- On 8 May 2024, Santos emailed DAFF further to the previous correspondence, to advise it has extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet has been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DAFF. [Con-4143]
- On 8 May 2024, DAFF's Conveyance Policy (Maritime) team (formerly Seaports Team) provided an automated response. [Con-4950]
- On 10 July 2024 Santos emailed DAFF to advise the consultation period had been completed. Santos advised DAFF that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 23 August 2024 Santos phoned DAFF and followed-up with an email on 28 August 2024 advising that, in the absence of any specific response from DAFF, Santos has reverted to the standard advice provided by DAFF in response to requests for feedback during consultation on other Barossa EPs. In the email Santos provided details of the DAFF information being included in the OEMP and EP and requested any further input by 9 September 2024. [Con-5608]
- On 28 August 2024 DAFF emailed an auto-response to Santos' email of 28 August 2024 [Con-5610]
- On 11 September 2024 Santos met with DAFF's Conveyance Policy Biosecurity Operations Division to discuss preparation of the Barossa FPSO Biosecurity Management Plan (relevant to activities under the Production Operations EP). Topics included the biosecurity roadmap for the FPSO, hull biofouling and cleaning, topside biosecurity & inspections, voyage preparations, ballast water treatment system exemption, FPSO arrival in Australia and the timing/ checklists, reporting requirements and arrival schedules. [Con-6019]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from DAFF.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
DAFF Biosecurity (Conveyance Policy Biosecurity Operations Division) provided input & guidance in the preparation of the FPSO Biosecurity Management Plan. It had no comments on any aspects of the OEMP.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. In the absence of any specific response, Santos has reverted to standard advice provided by DAFF Biosecurity with respect to biosecurity matters. Santos has considered and applied this standard advice to the Coastal Waters OEMP, including activity notifications. Santos considers Section 25 consultation requirements to have been met.	All relevant DAFF biosecurity requirements are understood and referenced in commitments documented in this OEMP. Santos will report and engage directly with DAFF for the management of biosecurity risk post EP and OEMP acceptance as stated in the cited offshore biosecurity guidelines and other associated documentation. Santos confirmed in its response to DAFF for the Production Operations EP that Santos will continue to keep DAFF informed and incorporate DAFF's assistance offer into relevant management plans.	Notifications to DAFF Biosecurity are included in Table 8-13 Santos' environmental management framework relevant to biosecurity risk for OEMP activities is outlined in Section 8.3.2.9 and is consistent with DAFF Biosecurity requirements. Adopted control measures are listed in Section 8.1.2.
No response was received from DAFF Fisheries.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. In the absence of any specific response, Santos has reverted to standard advice provided by DAFF Fisheries with respect to fishery matters. Santos has considered and applied this standard advice to this OEMP., including activity notifications. Santos considers Section 25 consultation requirements to have been met.	No response required.	Refer to Table 4-17 (Commercial Fishing/ Commonwealth / NT managed) for consultation with licence holders. Refer to Table 4-19 (Industry Associations) for consultation with industry association relevant to Commonwealth fisheries - ASBTIA, CFA and NPFI.

Department of Climate Change, Energy, the Environment and Water (DCCEEW) - Underwater Cultural Heritage Branch

Summary of consultation effort:

- On 9 February 2024 Santos emailed DCCEEW's Underwater Cultural Heritage Branch to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed DCCEEW's Underwater Cultural Heritage Branch further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 3 April 2024 Santos phoned the DCCEEW's Underwater Cultural Heritage Branch and left a message with reception regarding consultation for Production Operations activities.
- On 5 April 2024, a representative from DCCEEW's Underwater Cultural Heritage Branch phoned Santos and left a voicemail. [Con-4955]
- On 9 April 2024, DCCEEW's Underwater Cultural Heritage Branch emailed Santos advising Santos of the UCH Act requirements, including a summary of the UCH Act protections, key responsibilities and obligations, management considerations and recommendations. [Con-3814]
- On 8 May 2024, Santos emailed DCCEEW's Underwater Cultural Heritage Branch further to recent correspondence to acknowledge the advice provided in the Branch's 9 April 2024 email and advise that Santos had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DCCEEW's Underwater Cultural Heritage Branch. [Con-4144]
- On 10 July 2024 Santos emailed DCCEEW's Underwater Cultural Heritage Branch to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DCCEEW Underwater Cultural Heritage Branch.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
DCCEEW Underwater Cultural Heritage Branch provided advice to Santos on its obligations under the UCH Act.	Santos has considered the matters raised in the OEMP.. Santos acknowledged the advice from DCCEEW with respect to obligations under the UCH Act, including following DCCEEW guidance if UCH is detected during planned activities or as a result of an unplanned event.	No response required.	Underwater cultural heritage is described in Section 3.2.14.7.7 Notifications to DCCEEW Underwater Cultural Heritage Branch are included in Table 8-13

Department of Defence (DoD)

Summary of consultation effort:

- On 9 February 2024 Santos emailed DoD to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed DoD further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned DoD and left a voice mail message with two DoD contacts regarding consultation for Production Operations activities.
- On 6 May 2024 Santos emailed DoD further to previous correspondence to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DoD. [Con-4133]
- On 10 July 2024 Santos emailed DoD to advise the consultation period had been completed. Santos advised DoD that it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]

- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on this OEMP from DoD.
- In the absence of any specific response, Santos has reverted to standard advice provided by DoD with respect to defence matters. Santos has considered and applied this standard advice to this OEMP., including activity notifications.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from DoD.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Defence activities are described in Section 3.2.14.3. Notifications to DoD are included in Table 8-13

Department of Foreign Affairs and Trade (DFAT)

Summary of consultation effort:

- On 9 February 2024 Santos emailed DFAT to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests, or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed DFAT further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned DFAT regarding consultation for Production Operations activities. A DFAT representative requested Santos follow-up by email.
- On 15 April 2024 DFAT wrote to Santos and advised that given the location of the activity, there are several areas within DFAT that may need to provide views. DFAT asked if there was still an opportunity for DFAT to provide information, including the specific questions at the end of the email. [Con-3815]
- On 8 May 2024 Santos emailed DFAT further to its response of 15 April 2024 to advise it has extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DFAT. [Con-4146]
- On 24 May 2024 DFAT's Timor-Leste Branch emailed Santos and recommended it consult with the Government of Timor-Leste on Santos' Environment Plan given the proximity of Santos' operations to the territory of Timor-Leste. The appropriate authority for such consultation is the Autoridade Nacional Do Petróleo Timor-Leste (ANP - National Petroleum Authority). [Con-4215]
- On 24 June 2024 Santos responded via email to DFAT's Timor-Leste Branch confirming that it would be consulting with ANP. [Con-4956]. A separate email was sent to the Indonesia Branch of DFAT asking whether it had any similar advice re the consultation process. [Con-4957]
- On 2 July 2024 Santos followed up one of the emails sent on 24 June 2024 with a phone call to DFAT's Indonesia Branch. The Indonesia Branch representative asked that the email be re-sent which Santos did the same day. [Con-4958]
- On 10 July 2024 DFAT's Indonesia Desk emailed Santos to advise that it had no comment on the EP. [Con-5083]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DFAT.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
DFAT recommended, via its Timor-Leste Branch, that Santos consult with the Autoridade Nacional Do Petróleo Timor-Leste (ANP - National Petroleum Authority).	DFAT's response is not relevant to the Coastal Waters OEMP. DFAT's response is addressed in the Barossa Production Operations EP, in which the activity in Commonwealth waters is more proximate to Timor-Leste and the EMBA for which extends into international waters. With regard to the location of the proposed GEP operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any international persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any international persons.	No response required.	Not applicable.

Department of Home Affairs (DHA) / Australian Border Force (ABF)

Summary of consultation effort:

- On 9 February 2024 Santos emailed DHA/ABF to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*

- *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*

- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed DHA/ABF further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned DHA/ABF and spoke to a representative from the branch responsible critical infrastructure. The representative advised that its interest in Barossa Production Operations activities lies in offshore security matters once the floating production, storage and offloading (FPSO) facility is constructed and Santos' requirement to hold and maintain a security plan. The representative advised DHA/ABF had been separately in contact with the Health and Safety section of Santos re the requirements for the Barossa project.
- On 6 May 2024, Santos emailed DHA/ABF and acknowledged ABF's guidance in relation to the Maritime Transport and Offshore Facilities Security Act 2003 and accompanying Regulations. Details of DHA/ABF's request and Santos' response are listed below. In the email Santos also advised that it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DHA/ABF. [Con-4134]
- On 10 July 2024 Santos emailed DHA/ABF to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DHA/ABF.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
DHA/ABF advised that its interest in proposed production operations activities related to offshore security matters, specifically for Santos to hold and maintain a security plan following construction of the FPSO.	This response relates to the activities to be managed under the Barossa Production Operations EP. Issues related to Production Operations activities in the Barossa Field, including operation of the FPSO, are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	No response required.	Not applicable.

Department of Industry, Science and Resources (DISR)

Summary of consultation effort:

- On 9 February 2024 Santos emailed DISR to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 9 February 2024, DISR emailed Santos and advised DISR has no comment on the environmental management of the proposed activity. [Con-3816]
- On 15 February 2024, Santos emailed DISR thanking it for its response and advised it will continue to keep DISR updated on Barossa activities. [Con-3817]
- On 7 May 2024, Santos emailed DISR further to the previous correspondence, to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DISR. [Con-4140]
- On 10 July 2024 Santos emailed DISR to advise the consultation period had been completed. Santos advised DISR that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on this OEMP. from DISR.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	EP Reference
No response was received from DISR.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Director of National Parks (DNP)

Summary of consultation effort:

- On 9 February 2024 Santos emailed DNP to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed DNP further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 3 April 2024 Santos phoned DNP and left a voice mail.
- On 12 April 2024, DNP emailed Santos seeking an extension to comment until the week beginning 22 April. [Con-3812] Santos subsequently agreed to the request in a phone discussion with DNP on 18 April 2024.
- On 26 April 2024, DNP emailed Santos to advise that based on the information provided it had no objections and claims. However, as part of the ongoing inspection, maintenance, monitoring and repair (IMMR) of the Barossa GEP, Parks Australia would like to discuss the provision of a report, or similar, that outlines the findings of these activities in relation to the Barossa GEP which traverses parts of the Oceanic Shoals Marine Park. [Con-4122]
- On 30 April 2024, Santos emailed DNP to acknowledge the guidance note provided and confirm it will consider this information in the course of preparing the EP and OEMP and suggested dates for a meeting. [Con-4123]
- On 1 May 2024 DNP emailed Santos and advised that 24 May 2024 was suitable for a meeting. [Con-4124]
- On 1 May 2024, Santos emailed DNP further to the previous correspondence, to advise it has extended the consultation period until mid-May 2024 and that in providing this extension of time, the information in the booklet and factsheet has been updated to account for an additional risk associated with the proposed activity. [Con-4125]
- On 2 May 2024, DNP emailed Santos and advised that the preventative and mitigation measures appeared appropriate for the additional risk. Parks Australia requested a brief summary at the meeting and provided initial questions that could also be answered during the meeting. [Con-4127]
- On 24 May 2024 Santos met with DNP. At the meeting it was agreed that Santos would include a measure in the Barossa Production Operations EP to provide a report on outcomes of IMMR activities in the Oceanic Shoals Marine Park multiple use zone (for 30km) and the habitat protection zone (for 31km). If additional raw data is requested by DNP for the remainder of the Barossa GEP, Santos would also provide this. Santos also responded to questions asked by DNP at the meeting (see table entries below). [Con-4952]
- On 9 July 2024 Santos emailed DNP minutes of the meeting held with Parks Australia on 24 May 2024. [Con-5018]
- On 10 July 2024 Santos emailed DNP to advise the consultation period had been completed. Santos advised that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DNP.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
DNP asked for information on methods of pipeline monitoring to detect potential gas releases.	Santos has considered the matters raised in the OEMP and provided a response. Santos presented further information on the detection methods including live pressure monitoring and detection controls and ROV inspections. These are discussed in Section 7.5 of the OEMP and reflected in adopted management controls.	Santos confirmed: • Leaks could be long term or short term. Short term leaks / release could potentially occur in areas that are more at risk of dropped objects. • Safety procedures are strictly adhered to during lifting operations over the pipeline. • Long term leaks may potentially occur at flanges and would be detected during IMMR activities.	Management controls include BAO-CM-7.6.3.
DNP asked for information on timeliness to detect potential gas releases.	Santos has considered the matters raised in the OEMP and provided a response. Santos discussed the leak detection timeliness in respect to the cause and size of the leak. The detection methods include FPS process monitoring via pressure detection controls and ROV inspections. These are discussed in Section 7.5 of the OEMP and reflected in adopted management controls.	Santos confirmed: • It will send out a remotely operated vehicle (ROV) as soon as possible if a leak occurred due to a dropped object. Santos would then need to obtain equipment. The earliest response is within hours if equipment is available in Darwin. • The inspection of the leak and repair may take longer, e.g. up to a couple of months if the equipment is not available locally. • The FPSO and DLNG facility will pick up any pressure changes in the pipeline for a larger release. If a larger breach occurs, it could lose the full contents of the pipeline.	Management controls include BAO-CM-7.6.1 and BAO-CM-7.6.4.
DNP asked for information on response times following detection of gas releases.	Santos has considered the matters raised in the OEMP and provided a response. Santos discussed the scenarios and associated response times to a gas release. These are discussed in Section 7.5 of the OEMP and reflected in adopted management controls.	Santos confirmed: • Santos will respond immediately once a gas release is identified. • Response will be in accordance with emergency response plan, similar to the response information in Bayu Undan EP (which is also gas), which will also be provided in the OEMP. • For releases from flowlines/ wells, Santos will activate the Oil Pollution Emergency Plan which has a first strike response.	Management controls include BAO-CM-7.6.4.

DNP asked for information on proposed repair activities to be undertaken in proximity of the Barossa GEP.	Santos has considered the matters raised in the OEMP and provided a response. Santos discussed what potential repair activities could take place in the event of a subsea release. These are included in Section 7.5 of the OEMP and reflected in adopted management controls.	Santos confirmed: • A large release may require replacement of a component or section of pipeline. • Santos would need to mobilise a pipelay vessel and may take months to fix and would need environmental and safety approvals as well. • The gas flow would be turned off and the pipeline would be repaired and tested again before resuming operations. • Small leaks are generally from old equipment or poor installation. Newly installed pipelines have a rigorous regime of Quality Assurance. • Pipeline components have been tested onshore and tested again as part of full Barossa GEP system commissioning. • Leaks could potentially occur in areas where flanges are or areas where the pipeline may move over time. These areas will be priority areas during surveys and subject to further investigations during IMMR activities.	Management controls include BAO-CM-7.6.3 and BAO-CM-7.6.5.
DNP suggested provision of a report, or similar, that outlines the findings of Santos' IMMR activities in relation to the section of the Barossa GEP that traverses the Oceanic Shoals Marine Park.	The section of the GEP in NT Coastal Waters does not traverse the Oceanic Shoals Marine Park. Santos has provided a response to DNP and considered the matters raised by DNP in the Production Operations EP.	Santos confirmed in its response to DNP for the Production Operations EP that: • Santos will provide a report on outcomes of IMMR activities in the Oceanic Shoals Marine Park multiple use zone (for 30km) and the habitat protection zone (for 31km). • Santos will also provide raw data if requested by DCCEEW Parks Australia Branch for the remainder of the Barossa GEP.	Not applicable.

Fisheries Research and Development Corporation (FRDC)

Summary of consultation effort:

- On 9 February 2024 Santos emailed FRDC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed FRDC further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 4 April 2024 Santos phoned FRDC and was advised the Communication Program Team is the right contact and a message was left for that team.
- On 6 May 2024, Santos emailed FRDC further to the previous correspondence, to advise it has extended the consultation period until 20 May 2024 and that in providing this extension of time, the information in the booklet and factsheet has been updated to account for an additional risk associated with the proposed activity. In the email Santos stated that, if input is not received by this date Santos will infer this means you do not want Santos to consult with you further on the EP and OEMP. [Con-4131]
- On 10 July 2024 Santos emailed FRDC to advise the consultation period had been completed. Santos advised FRDC that it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on Coastal Waters OEMP from FRDC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from FRDC.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable

National Indigenous Australians Agency (NIAA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed NIAA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed NIAA further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 4 April 2024 Santos phoned the NIAA and left a message with reception regarding consultation on Production Operations activities with reception.

- On 5 April 2024, the NIAA emailed Santos to advise that it does not, as a general practice, make comments on proponent's environmental management plans and only responds to requests for comment under arrangements with the Department of Climate Change, Energy, the Environment and Water (through the Environmental Protection and Biodiversity Conservation Act 1999 public consultation process) and the Department of Industry, Science and Resources (through the Major Projects Facilitation Agency). [Con-3818]
- On 2 May 2024, Santos emailed NIAA to acknowledge its email of 5 April 2024 and advise it has extended the consultation period until 16 May 2024 and that in providing this extension of time, the information in the booklet and factsheet has been updated to account for an additional risk associated with the proposed activity. [Con-4128]
- On 10 July 2024 Santos emailed NIAA to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on Coastal Waters OEMP from NIAA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
NIAA advised Santos that it does not, as a general practice, make comments on proponent's environmental management plans	Santos notes the responses provided. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable

4.8.2 NT Government Agency or Authority

Table 4-12: Consultation Summary Table - NT Government Agency or Authority

Section 25(1)(b) of the OPGGS(E)R: Northern Territory agency or authority to which the activities to be carried out under the environment plan may be relevant

Aboriginal Areas Protection Authority (AAPA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed AAPA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed AAPA further to previous response, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 21 March 2024, the AAPA emailed Santos providing comments from the AAPA on the Production Operations activities and advising that it considers itself a Relevant Person. [Con-3819]
- On 30 April 2024, Santos emailed AAPA a letter of response to its comments. AAPA's comments and Santos' responses are summarised below. In the letter Santos also advised it had extended the consultation period until 13 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from AAPA. [Con-4364]
- On 10 July 2024 Santos emailed AAPA to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from AAPA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
AAPA stated that its interests and activities may be affected by the Production Operations activities as Santos spill modelling indicated potential impacts to sacred sites in the event of a spill.	Santos considers AAPA's claim has merit. However, there are no registered sacred sites in the Operational Area. As a result, no credible impacts to known sites are expected from planned activities. While impacts to sacred sites are possible in the event of an unplanned hydrocarbon spill, Santos considers appropriate controls are in place to prevent a hydrocarbon spill. Santos also has controls to respond in the highly unlikely event of a hydrocarbon spill. Santos notes access restrictions to sacred sites under the NTASS Act and the need for appropriate permissions in the event that access to sacred sites is required to support spill response.	No response required.	Sacred sites are described in Section 3.2.15.6 Control measures for unplanned hydrocarbon spill events are described in Section 7.
AAPA requested that Santos speak to the Australian Energy Producer's Oil Spill Working Group which had held recent discussions with the NT Government.	Santos has considered the matters raised in the OEMP and provided a response. Santos notes that it has conferred with a member of the Australian Energy Producer's Oil Spill Working Group.	Santos confirmed it had conferred with a representative of the Working Group.	No reference required.

Darwin Harbour Advisory Committee (DHAC)

Summary of consultation effort:

- On 9 February 2024 Santos emailed DHAC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed DHAC further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 2 May 2024, Santos emailed DHAC further to the previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DHAC. [Con-4374]
- On 3 May 2024 a representative from DEPWS NT emailed Santos on behalf of the Chairperson of DHAC and advised that Santos' email had been forwarded to DHAC committee members who will respond separately if they have questions. [Con-4369]
- On 10 July 2024 Santos emailed DHAC to advise the consultation period had been completed. Santos advised DHAC that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]

- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DHAC or DEPWS NT on behalf of the Chairperson of DHAC.
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on this OEMP from DHAC committee members.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from DHAC.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Department of Lands, Planning and the Environment (DLI) formerly the Department of Environment, Parks and Water Security (DEPWS-NT) during the initial consultation period for this OEMP.

Summary of consultation effort:

- On 9 February 2024 Santos emailed DEPWS-NT to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 9 February 2024 DEPWS-NT emailed Santos in response to the email of 11 March 2024 and raised a question related to produced water discharge during Production Operations activities. [Con-3823]
- On 11 March 2024 Santos emailed DEPWS-NT further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 May 2024, Santos emailed DEPWS-NT further to the previous correspondence, to advise it has extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DEPWS-NT. [Con-4966]
- On 10 July 2024 Santos emailed DEPWS-NT to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DEPWS-NT.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
DEPWS-NT did not provide any comments on the Coastal Waters OEMP.	Santos has considered the matters raised in the OEMP.. A request from DEPWS-NT for some technical information was outside the scope of the Coastal Waters OEMP.	No response required.	Not applicable.

Department of Agriculture and Fisheries (DAF) formerly the Department of Industry, Tourism and Trade – Fisheries Division (DITT-NT Fisheries) during the initial consultation period for this OEMP.

Summary of consultation effort:

- On 9 February 2024 Santos emailed DITTNT Fisheries to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 15 February 2024, the DITT NT Fisheries emailed Santos and provided contact details for appropriate persons within DITT NT Fisheries for consultation. It also nominated the NT Seafood Council, NT Guided Fishing Association and Amateur Fishing Association as other organisations that should be consulted and provided contact details. [Con-3826]
- On 15 February 2024, Santos emailed DITT NT Fisheries and confirmed it was consulting with those organisations and that it would add the Chief Scientist from DITT NT Fisheries as advised. Santos offered to meet in Darwin during 11-15 March 2024. [Con-3827]
- On 15 February 2024, DITT NT Fisheries advised it would meet with Santos while in Darwin and to please advise of specific questions to discuss. [Con-3828]
- On 11 March 2024 Santos emailed DITT NT Fisheries further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos met with DITT NT Fisheries. The Barossa Production Operations video was shown and potential impacts from planned activities and control measures to reduce impacts to ALARP was discussed. DITT NT Fisheries sought further information on seabed disturbance, planned discharges from the floating production system, and water discharge modelling. Santos confirmed that vessels would comply with MARPOL requirements and advised on fishery exclusion zones. No objections or claims were raised by DITT NT Fisheries. [Con-3832].
- On 17 April 2024 Santos emailed DITT NT Fisheries to provide a copy of the Minutes from the meeting of 3 April 2024 regarding the OEMP and EP. [Con-3833]
- On 10 July 2024 Santos emailed DITT NT Fisheries to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DITT NT Fisheries.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

DITT NT Fisheries requested information on seabed disturbance, planned discharges from the floating production system, and water discharge modelling.	Santos has considered the matters raised in the OEMP. Santos provided the information requested at the meeting. Santos will comply with MARPOL requirements to reduce impacts and risks from planned discharges to ALARP.	No additional response required.	Commercial fisheries are described in Section 3.2.14.1. Control measures for planned activities are described in Section 6. Control measures for unplanned events are described in Section 7.

Department of Logistics and Infrastructure (DLI), formerly the Department of Infrastructure, Planning and Logistics – Transport and Civil (DIPL-NT) during the initial consultation period for this OEMP.

Summary of consultation effort:

- On 9 February 2024 Santos emailed DIPL NT to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 12 February 2024, the DIPL NT identified itself as an interested party for all marine infrastructure projects in the NT and specifically around the Darwin Harbour. [Con-3820]
- On 15 February 2024, Santos emailed DIPL NT and advised it is planning to be in Darwin the week of March 11-15 and seeking a meeting on respective works in Darwin Harbour during 2024, including Darwin Pipeline Duplication, Mandorah Marine Facilities upgrade and Barossa Production Operations and reminded that DIPL provided input during the EPA assessment process. Santos sought a meeting during that week or alternatively earlier on Teams. [Con-3830]
- On 15 February 2024 DIPL-NT confirmed via email that the meeting arrangements were convenient. [Con-3831]
- On 11 March 2024 Santos emailed DIPL NT further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 20 March 2024, held a meeting with DIPL NT at which DIPL-NT advised it had read the information provided on the Coastal Waters OEMP and Barossa Production Operations EP and did not require a briefing. The meeting instead focused on operational matters associated with coming Santos and DIPL-NT activities in Darwin Harbour. [Con-5632].
- On 10 July 2024 Santos emailed DIPL-NT to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DIPL-NT.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
DIPL-NT provided a response on Santos' proposed activities in NT waters stating it had read the information provided on the Coastal Waters OEMP and Barossa Production Operations EP and did not require a briefing and instead discussed operational matters associated with coming Santos and DIPL-NT activities in Darwin Harbour.	Santos has considered the matters raised.. The information request from DIPL-NT with respect to NT waters is outside the scope of this OEMP.	No response required.	Not applicable.

NT Fire and Emergency Services, formerly the Department of Police, Fire and Emergency Services – NT (NT Police, Fire and Emergency Services) during the initial consultation period for this OEMP.

Summary of consultation effort:

- On 9 February 2024 Santos emailed NT Police, Fire and Emergency Services to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed NT Police, Fire and Emergency Services further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned NT Police, Fire and Emergency Services and spoke to a team member left a message regarding consultation for Production Operations activities.
- On 6 May 2024, Santos emailed NT Police, Fire and Emergency Services further to previous emails to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from NT Police, Fire and Emergency Services. [Con-4383]
- On 10 July 2024 Santos emailed NT Police, Fire and Emergency Services to advise the consultation period had been completed. Santos advised NT Police, Fire and Emergency Services that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]

- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on this OEMP. from NT Police, Fire and Emergency Services.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from NT Police, Fire and Emergency Services.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Department of Lands Planning and the Environment (DLI), formerly within the Department of Territory Families, Housing and Communities, NT Heritage branch (DTFHC NT Heritage) during the course of initial consultation for this OEMP.

Summary of consultation effort:

- On 9 February 2024 Santos emailed DTFHC NT Heritage to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 February 2024, the DTFHC NT Heritage advised it should be consulted throughout this process under the Heritage Act 2011 and the Underwater Cultural Heritage Act 2018 and asked that the generic email heritage.branch@nt.gov.au be used and signed off with a name. [Con-3821]
- On 13 February 2024, Santos emailed DTFHC NT Heritage to arrange a meeting to provide a more detailed briefing on how Santos is approaching the requirements and seeks to meet during the week of March 11- 15 in Darwin or via Teams another week. [Con-3822]
- On 14 February 2024, Santos emailed DTFHC NT Heritage and advised it will send an invitation via Teams. [Con-3825]
- On 15 February 2024, Santos emailed the DTFHC NT Heritage and confirmed it would send a meeting request. [Con-3829]
- On 11 March 2024 Santos emailed DTFHC NT Heritage further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 12 March 2024 Santos met with DTFHC NT Heritage. At the meeting DTFHC NT Heritage stated that it did not require a separate full consultation session on the Coastal Waters OEMP and Barossa Production Operations EP as its requirements will have already been met during the Project's DPD construction activities. As a result, the meeting instead focused on how the requirements will be met during Darwin Pipeline Duplication construction activities in NT and Commonwealth waters and is not relevant to this OEMP. [Con-4970]
- On 13 March 2024, Santos emailed the DTFHC NT Heritage minutes from the meeting held on 12 March 2024. [Con-4970]
- On 19 March 2024, the NT Heritage Branch confirmed the minutes from the meeting held on 12 March 2024. [Con-4972]
- On 10 July 2024 Santos emailed DTFHC NT Heritage to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DTFHC NT Heritage.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
DTFHC-NT-Heritage provided a response that its requirements will have already been met during the project's DPD construction activities in NT and Commonwealth waters.	The project's construction activities are not within the scope of the Coastal Waters OEMP.DPD construction activities in NT waters are already approved under NT legislation. DPD construction activities in Commonwealth waters were approved under a separate EP assessed by NOPSEMA. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Environment Protection Authority (NT) (EPA NT)

Summary of consultation effort:

- On 9 February 2024 Santos emailed EPA NT to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed EPA NT further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned EPA NT and spoke to a team member regarding consultation for Production Operations activities. The team member advised that the emails sent on 9 February 2024 and 11 March 2024 had been forwarded to the assessments team which had advised that engagement with Santos had concluded.
- On 3 May 2024, Santos emailed EPA NT further to the previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the EPA NT. [Con-4966]
- On 10 July 2024 Santos emailed EPA NT to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from EPA NT.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
EPA NT advised that engagement with Santos had concluded.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

NT Parks and Wildlife Commission

- Summary of consultation effort:
- On 9 February 2024 Santos emailed NT Parks and Wildlife Commission to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed NT Parks and Wildlife Commission further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned NT Parks and Wildlife Commission and left a message with a team member regarding consultation for Production Operations activities.
- On 6 May 2024, Santos emailed NT Parks and Wildlife Commission further to the previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the NT Parks and Wildlife Commission. [Con-4377]
- On 10 July 2024 Santos emailed NT Parks and Wildlife Commission to advise the consultation period had been completed. Santos advised NT Parks and Wildlife Commission that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on this OEMP from NT Parks and Wildlife Commission.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from NT Parks and Wildlife Commission.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Department of Tourism and Hospitality (DTH), formerly Tourism NT during the course of initial consultation for the Coastal Waters OEMP.

Summary of consultation effort:

- On 9 February 2024 Santos emailed Tourism NT to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Tourism NT further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Tourism NT and left a message with a team member regarding consultation for Production Operations activities.
- On 6 May 2024, Santos emailed Tourism NT further to the previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the Tourism NT. [Con-4375]
- On 10 July 2024 Santos emailed Tourism NT to advise the consultation period had been completed. Santos advised Tourism NT Commission that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Tourism NT.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Tourism NT.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Section 25(1)(c) of the OPGGS(E)R: Department of the responsible Northern Territory Minister

Department of Mining and Energy (DME), formerly the Department of Industry, Tourism and Trade, NT – Mines & Energy (DITT NT Energy) during the course of initial consultation for the Coastal Waters OEMP.

Summary of consultation effort:

- On 9 February 2024 Santos emailed DITT NT Energy to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed DITT NT Energy further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned DITT NT Energy and spoke to the nominated contact person who advised that DITT NT Energy input on Barossa Production Operations would be via assessment of Operations Environmental Management Plans under NT legislation.
- On 3 May 2024, Santos emailed DITT NT Energy further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DITT NT Energy. [Con-4382]
- On 7 May 2024 DITT NT Energy emailed Santos acknowledging the email sent on 3 May 2024. [Con-4968]
- On 10 July 2024 Santos emailed DITT NT Energy to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DITT-NT-Energy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

No objections or claims were raised by DITT NT Energy which advised it will provide comments on Production Operations activities via its assessment of Operations Environmental Management Plans under NT legislation.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

4.8.3 WA Government Agency or Authority

Table 4-13: Consultation Summary Table - WA Government Agency or Authority

Section 25(1)(b) of the OPGGS(E)R: Western Australia agency or authority to which the activities to be carried out under the environment plan may be relevant

Department of Biodiversity, Conservation and Attractions (DBCA WA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed DBCA WA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Barossa Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed DBCA WA further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned DBCA WA and left a voice mail message regarding consultation for Production Operations activities.
- On 4 April 2024 DBCA-WA emailed Santos with advice that based on the documentation provided for review and other readily available information, DBCA WA has no comments in relation to its responsibilities under the *Conservation and Land Management Act 1984* and *Biodiversity Conservation Act 2016*. [Con-3836]
- On 7 May 2024, Santos emailed DBCA WA further to its response on 4 April 2024, to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DBCA WA. [Con-4367]
- On 10 July 2024 Santos emailed DBCA WA to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DBCA-WA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
DBCA WA responded that it had no comments in relation to its responsibilities under the *Conservation and Land Management Act 1984* and *Biodiversity Conservation Act 2016.*	Santos notes DBCA WA's response is not relevant to the Coastal Waters OEMP as the OEMP EMBA does not extend beyond Commonwealth Waters off the Northern Territory.	No response required.	Not applicable.

Department of Primary Industries and Regional Development – Fisheries (DPIRD Fisheries)

Summary of consultation effort:

- On 9 February 2024 Santos emailed DPIRD Fisheries to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed DPIRD Fisheries further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned DPIRD Fisheries and left a message with a team regarding consultation for Production Operations activities.
- On 8 May 2024, Santos emailed DPIRD Fisheries further to the previous correspondence, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DPIRD Fisheries. [Con-4370]
- On 10 July 2024 Santos emailed DPIRD Fisheries to advise the consultation period had been completed. Santos advised DPIRD-WA-Fisheries that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]

- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No objections or claims were raised by DPIRD Fisheries.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from DPIRD Fisheries.	The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. There are therefore no impacts from planned GEP operations activities in NT Coastal Waters that may affect the functions, interests or activities of any WA-based persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any WA-based persons. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Department of Transport (DoT WA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed DoT WA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 22 February 2024 DoT WA emailed Santos to advise that if there is a risk of a spill impacting State waters to please ensure that the Department of Transport is consulted. [Con-3834]
- On 11 March 2024 Santos emailed DoT WA further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 27 March 2024 Santos emailed DoT WA to confirm that the environment that may be affected (EMBA) modelled and provided for the Coastal Waters OEMP. does not show impact to WA State Waters. [Con-3835]
- On 5 April 2024 DoT WA emailed Santos to thank it for the clarification. [Con-3837]
- On 8 May 2024, Santos emailed DoT-WA further to the previous correspondence, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DoT WA. [Con-4371]
- On 10 July 2024 Santos emailed DoT-WA to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DoT WA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
DoT WA responded that it sought clarification on spill modelling given its marine pollution response authorities in WA water and that it should be consulted if there is a risk of a spill impacting State waters.	DoT WA's response is not relevant to the Coastal Waters OEMP as the OEMP EMBA does not extend beyond Commonwealth Waters off the Northern Territory. There are therefore no impacts from planned GEP operations activities in NT Coastal Waters that may affect the functions, interests or activities of any WA-based persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any WA-based persons. DoT WA's response is addressed in the Barossa Production Operations EP	No response required.	Not applicable.

Kimberley Ports Authority

Summary of consultation effort:

- On 9 February 2024 Santos emailed Kimberley Ports Authority to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]

- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024and close on 9 April 2024.
- On 11 March 2024 Santos emailed Kimberley Ports Authority further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned the Kimberley Ports Authority regarding consultation for Production Operations activities. A representative asked that the emails be re-sent and emails previously sent on 9 February and 11 March 2024 were resent the same day. [Con-4372]
- On 7 May 2024, Santos emailed Kimberley Ports Authority further to the previous correspondence, to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Kimberley Ports Authority [Con-4057]
- On 10 July 2024 Santos emailed Kimberley Ports Authority to advise the consultation period had been completed. Santos advised Kimberley Ports Authority that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP. from Kimberley Ports Authority.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Kimberley Ports Authority.	The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. There are therefore no impacts from planned GEP operations activities in NT Coastal Waters that may affect the functions, interests or activities of any WA-based persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any WA-based persons. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

WA Marine Science Institution (WAMSI)

Summary of consultation effort:

- On 9 February 2024 Santos emailed WAMSI to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
- *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
- *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024and close on 9 April 2024.
- On 13 March 2024 Santos emailed WAMSI further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 4 April 2024 Santos phoned WAMSI and left a voice mail message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed WAMSI, further to the previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from WAMSI. [Con-4368]
- On 10 July 2024 Santos emailed WAMSI to advise the consultation period had been completed. Santos advised WAMSI that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from WAMSI.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

No response was received from WAMSI.	The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. There are therefore no impacts from planned GEP operations activities in NT Coastal Waters that may affect the functions, interests or activities of any WA-based persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any WA-based persons. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

4.8.4 Academic and Research Organisations

Table 4-14: Consultation Summary Table - Academic and Research Organisations

Section 25 (1)(d) of the OPGGS(E)R: Persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the environment plan

Arafura Timor Research Facility

Summary of consultation effort:

- On 9 February 2024 Santos emailed AIMS, in its capacity as operator of the Arafura Timor Research Facility, to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed AIMS further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned AIMS, in its capacity as operator of the Arafura Timor Research, regarding consultation for Production Operations activities but was unable to leave a voice message.
- On 2 May 2024, Santos emailed AIMS, in its capacity as operator of the Arafura Timor Research facility, further to the previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the Arafura Timor Research facility [Con-3854]
- On 10 July 2024 Santos emailed AIMS, in its capacity as operator of the Arafura Timor Research facility, to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Arafura Timor Research Facility.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Arafura Timor Research Facility.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Australian Marine Sciences Association – NT (AMSA-NT)

Summary of consultation effort:

- On 9 February 2024 Santos emailed AMSA-NT to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*

- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed AMSA-NT further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos attempted to phone AMSA NT on three occasions without success. On 3 April 2024, Santos resent the emails sent on 9 February and 11 March 2024 and advised that the consultation is closing on April 9. [Con-3838]
- On 11 April 2024, AMSA-NT advised that it wished to be considered as 'Relevant Person' for the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3839]
- On 8 May 2024, Santos emailed AMSA-NT further to previous correspondence, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from AMSA-NT.[Con-3927]
- On 25 June 2024 Santos returned a phone message left by AMSA-NT on 24 June 2024. AMSA-NT requested an extension until the end of that week for submittal of its comments. Santos followed-up with an email to AMSA-NT the same day agreeing to the extension. [Con-5053]
- On 30 June 2024 AMSA-NT emailed a letter to Santos with comments on Production Operations activities. A summary of the comments is provided below. [Con-5054]On 13 August 2024 Santos emailed AMSA-NT a letter in response to AMSA-NT's letter of 30 June. [Con-5351]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from AMSA-NT.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
AMSA-NT correspondence to Santos on 30 June 2024 AMSA-NT raised concerns that the Barossa Production Operations information booklet was insufficient to assess the potential environmental risks and impacts of the proposed activity and control measures. (paragraphs 4-5)	Santos does not agree with the AMSA-NT's assertion that the information booklet does not provide sufficient information to enable the AMSA-NT to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities. The information booklet provides a comprehensive description of the environment that may be affected by the Activity, identification of impacts and risks from planned activities and unplanned events and associated proposed control measures.	Santos' correspondence to AMSA-NT on 13 August 2024 in response to AMSA-NT's letter of 30 June 2024 Santos considers the Production Operations information booklet and NT Waters GEP Operations Overview Factsheet provide AMSA-NT with sufficient information to allow it to make an informed assessment of the possible consequences of the activity on any of AMSA's functions, interests or activities.	Not applicable
AMSA-NT noted their opinion that the regulatory framework is flawed for assessing the cumulative impact of oil and gas industry. (para 7)	The regulatory framework is out of scope of the OEMP.	NOPSEMA's regulatory framework is outside the scope of consultation for activity under the OEMP.	Not applicable
AMSA-NT stated that it reiterated concerns raised in previous Barossa Offshore Gas Project submissions regarding the project's environmental impact and risk assessment. (para 8)	Santos noted the feedback.	Santos notes your previous correspondence and has responded accordingly for these, a copy of which was included in the relevant approvals document submitted to the regulator, NOPSEMA.	Not applicable
AMSA-NT suggests Santos and the regulator are not adequately considering globally significant environmental, fisheries and megafauna values of Darwin Harbour and the region and the international and transboundary issues, when assessing major development activities in the Arafura and Timor Seas region including: • ecological connectivity, shared species, shared resources of the region and failure to assesses potential transboundary species, resources and impact in the EMBA and MEVA (para 9(a)). • Failure to consult with relevant stakeholders in Indonesia and Timor-Leste that meets the requirements of international law (para 9(b)). • Failure to assess potential transboundary environmental harm (para 9(c)).	Santos noted this request and has provided details on how the impacts associated with the proposed activity are assessed, including the potential for transboundary environmental harm. AMSA-NT's response relates primarily to the EMBA for the Production Operations EP which extends beyond Australia's EEZ. The Barossa Production Operations EP addresses those aspects of AMSA-NT's response. The GEP Coastal Waters EMBA does not extend beyond Australia's EEZ. Relevant information regarding the presence of marine mammals, marine reptiles and birds in Darwin Harbour was provided in the Northern Territory Waters GEP Operations Overview Factsheet..	[9(a)] The Barossa Production Operations information booklet provides a summary of the existing environment (Regional Existing Environment Summary) against which impacts were assessed. Santos has assessed the full potential spatial extent of a worst-case spill event with consideration for biological impacts within the MEVA and socio-economic impacts within the EMBA, including beyond Australia's EEZ into parts of Indonesian and Timor-Leste sovereign waters and impacts to marine users such as commercial and subsistence fishing activities (pages 11, 12, 28 - 36 of the information booklet). Santos has assessed potential impacts on known migratory, rare, threatened, endangered, and protected marine species in the Timor Sea – particularly cetaceans, sea turtles and sharks/rays (Figure 10 and pages 28 - 36 of the information booklet). Potential impacts and risks to marine fauna have been assessed as environmentally acceptable and ALARP. [9(b)] Santos considers its consultation for the EP meets the requirements of s 25 of the Environment Regulations and is consistent with NOSPEMA guideline 'Consultation in the course of preparing an environment plan' (N-04750-GL2086 A900179; 12/05/2023). This has included consultation with the Autoridade Nacional Do Petróleo Timor-Leste (ANP - National Petroleum Authority) and Department of Foreign Affairs and Trade's Indonesia Branch. [9(c)] Internationally significant fauna, wetlands of international importance, internationally significant habitats and internationally	No additional measures adopted.

		significant marine parks are described in the OPP and will be described in the EP. Potential impacts associated with unplanned releases of hydrocarbons that may enter international waters are also described in the OPP and will be described in the Barossa Production Operations EP.	
AMSA-NT stated that it reiterated concerns regarding data gaps, data analysis and integrity and independence of data, including: • lack of assessment of cumulative impacts (para 10(a)). • data gaps in baseline information (para 10(b)). • issues associated with monitoring, impact and risk assessments in a 'data-poor' setting (para 10(c)). • assessing potential impacts from the seabed through the water column (para 10(d)). • impact detection and monitoring of marine megafauna populations (para 10(e)). • failure to use appropriate data particular for matters of national environmental significance (MNES) species (para 10(f)). • lack of scientific independence and peer review of studies (para 10(g)).	Questions related to Production Operations activities in the Barossa Field, including operation of the FPSO, are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP. Notwithstanding this, Santos has considered AMSA-NT's concerns and notes that: • Santos performed detailed field and desktop environmental studies and considers adequate data is available; • potential cumulative impacts will be assessed and evaluated through the Activity specific' sediment and water quality monitoring program, and managed (if required) through the Produced Water adaptive management plan; • Santos has a chemical selection process (BAO-CM-6.7.5); • concurrent activities and cumulative impacts area assessed in the OEMP; • the NOPSEMA EP content requirement guidance note relevant to protected matters is presented in the OEMP; • assessments are undertaken on the full spatial extent of the MEVA and EMBA, based on worst-case credible spills; • interactions with marine fauna are recorded and reported (BAO-CM-6.1.1); • for the OEMP concurrent activities are not planned to occur in the NT Coastal Waters OA.	[10(a)] As noted in the Production Operations information booklet, all planned discharges will be managed in accordance with maritime industry standards and MARPOL requirements to reduce the potential for significant cumulative impacts. Potential for longer term cumulative impacts will be assessed through water and sediment quality monitoring during production operations and need for any additional mitigations assessed. [10(b), (f) and (g)] The information utilised in the development of the OEMP is appropriate to identify risks and impacts arising from production and operations activities and for informing risk mitigation and controls. Santos has followed the NOPSEMA EP content requirement guidance note relevant to matters protected under Part 3 of the EPBC Act, which will be presented in the OEMP for assessment by the regulator. [10(c)] Santos considers adequate data is available and appropriate environmental studies have been undertaken to characterise the existing marine environment within and surrounding the Operational Area. [10(d)] Santos has assessed the full potential spatial extent of a worst case spill event with consideration for biological impacts within the MEVA and socio-economic impacts within the EMBA, including those that extend beyond Australia's Exclusive Economic Zone. [10(e)] Interactions with marine fauna will be recorded and reported as per the requirements of the Protected fauna Interaction and Sighting Procedure (page 26 of the Production Operations information booklet). Incident reporting, investigation and follow-up is monitored (page 37 of the Production Operations information booklet).	Table 3-1 and Table 3-2 for marine and additional studies Section 3.2.2 for Physical environment Section 3.2.13 for Threatened and migratory fauna Section 7.3 and Section 7.6. No additional measures adopted.
AMSA-NT raised concerns regarding Santos' proposed control measures for marine fauna interactions (para 11). AMSA-NT noted its ongoing concern regarding Santos' non-inclusion of five voluntary (non-legislated) control measures in the Drilling EP including: • further measures to those outlined in EPBC Regulations 2000 — Part 8 Division 8.1 during peak periods of ecological sensitivity, for vessels outlined in the Australian national guidelines National Guidelines for Whale and Dolphin Watching (2017) (para 12(a)); • avoiding peak periods of ecological sensitivity (para 12(b)); • restricting vessel speeds in the OA (para 12(c)); • having a dedicated marine mammal observer (MMO) on vessels (EPBC Policy Statement 2.1 Part B) (para 12(d)); and • activities occurring in daylight hours only (para 12(e)). AMSA-NT criticised Santos' decision to not incorporate these control measures in previous Barossa approval documents, including: • Barossa Development Drilling and Completions Environment Plan (para 13(a)); and • Barossa Area Development Offshore Project Proposal (para 13(b). AMSA-NT highlighted findings from acoustic baseline studies by JASCO for the Barossa OPP and asserted that noise impacts are not well understood Bryde's, Omura's and Pygmy Blue Whales within the Barossa field area (para 14). AMSA-NT recommended Santos: • undertake further analysis of existing acoustic data (JASCO 2016) to identify habitat use of to better understand and evaluate noise impacts (para 15); and	Santos notes AMSA-NT feedback regarding Santos proposed control measures for marine fauna interaction and concern regarding non-inclusion of non-legislated control measures in the Drilling EP. Although drilling is outside the scope of the Coastal Waters OEMP, Santos has evaluated the control measures from the Drilling EP which are addressed for the purposes of this OEMP in Section 6.1.3 and Section 7.3.3 of the EP and no additional control measures have been adopted for this OEMP Control measures evaluated at the request of AMSA NT include: • further measures to those outlined in 'EPBC Regulations 2000 — Part 8 Division 8.1 during peak periods of ecological sensitivity, for vessels outlined in the Australian National Guidelines for Whale and Dolphin Watching (2017) BAO-CM-6.1.1 • •Application of EPBC Policy Statement 2.1 Interaction between offshore seismic exploration and whales and having a dedicated MMO. Activities occurring in daylight hours only. Santos' assessment is that it has reduced impacts and risks from Activity to ALARP and acceptable levels regarding marine fauna interaction.	[11] See response to #12(a)-(e) below. [12(a)] The Production Operations information booklet contains proposed control measures that will be adopted as relevant to potential impacts to species, including marine fauna, and in relation to biologically important areas. All considered control measures (adopted and not adopted) will be presented in the EP for assessment by the Regulator/s. Santos' planned vessel activities overlap the internesting buffer for flatback turtles. Specific to marine fauna interactions, the Production Operations information booklet describes control measures at pages 9, 10 and 26. Santos adopts the following specific controls to protect marine fauna from vessel activities for Barossa Operations in accordance with: (a) Part 8 of the Environment Protection and Biodiversity Conservation Regulations 2000: i) avoid collision; ii) reduce speed to 6 knots & steer away within caution zone (300m of whales / whale sharks and 150m of dolphins); iii) operate vessel at constant speed (6 knots); iv) do not drift or approach marine fauna; v) do not restrict fauna pathway or pursue fauna; and (b) Australian National Guidelines for Whale and Dolphin Watching 2017: Adopting cautionary and no approach distances for whales, whale sharks (100m no approach and 300m cautionary distances) and dolphins (50m no approach and 150m cautionary distances). [12(b)] The risk of interactions with marine fauna in the OA is very low. Ongoing inspection, maintenance, monitoring and repair (IMMR) activities will be temporary in nature and performed	Section 7.3 No additional measures adopted.

• accept the five voluntary control measures based on:
  ○ threatened marine fauna have been detected acoustically in the Barossa area (para 16(a))
  ○ uncertainty of extent of habitat use by Bryde's, Omura's and Pygmy Blue Whales (para 16(b))
  ○ vessel shipping impacts such as fauna displacement and avoidance (para 16(c))
  ○ ability to detect marine mammals and potential impacts (by restricting to daylight hours and have MMOs on board) (para 16(d))
  ○ having consistency with the National Vessel Stike Strategy (reduce speed to < 12 knots in the OA) (para 16(e))
• a lack of uncertainty of habit use by threated marine fauna (para 16(f)).
		according to a planned inspection and maintenance schedule, or at other intervals if unplanned inspections or repairs are required (page 5 of the Production Operations information booklet).
		It is not practical to operate the activity to avoid 'sensitive periods'. The acceptability evaluation of environmental risks is described in the OEMP for assessment by the regulator.
		[12(c)] Operational area speed restrictions refer to limits on vessel speeds within the OA to maintain safe operations (see page 26 of Information Booklet).
		[12(d)] Dedicated MMOs on IMMR vessels have been assessed during the risk assessment process and based on the nature and scale of the activity have been determined as not required. Further details will be provided in the OEMP for assessment by the regulator.
		[12(e)] Activities to occur during daylight hours only has been assessed during the risk assessment process and based on the nature and scale of the activity, these restrictions have not been adopted.
		[13(a)] The Barossa Development Drilling and Completions Environment Plan was accepted by NOPSEMA on 15 December 2023.
		Control measures for the production operations activity are separately considered and evaluated by Santos with a view to reducing impacts and risks to ALARP and acceptable levels. Santos' evaluations will be documented in the EP and will be reviewed by NOPSEMA during its assessment of the EP. Refer also to #12.
		[13(b)] The Barossa Development Drilling and Completions Environment Plan was accepted by NOPSEMA on 15 December 2023.
		Control measures for the production operations activity are separately considered and evaluated by Santos with a view to reducing impacts and risks to ALARP and acceptable levels. Santos' evaluations will be documented in the OEMP and will be reviewed by NOPSEMA during its assessment of the OEMP. Refer also to #12.
		[14(a)-(h) and 15] The Production Operations information booklet refers to noise sources and identified proposed control measures for managing potential impacts on marine mammals (e.g. whales) from noise. It presents a summary of the results of underwater acoustic assessments for noise sources relevant to the scope of the Coastal Waters OEMP.
		Santos' evaluation of impacts and risks to marine mammals from noise emissions will be a matter for the Regulator to assess against the requirements of the Regulations.
		[Para 16(a) and (b)] Santos' proposed control measures associated with interaction with marine fauna are outlined on page 26 of the Production Operations information booklet and are designed to align with management actions outlined in government-published fauna recovery plans, the Environment Protection and Biodiversity Conservation Regulations 2000 and include speed restrictions.
		Refer to #12(a)-(e) above.
		[Para 16(c)] Page 26 of the Production Operations information booklet outlines that the highest potential for interactions with marine fauna will be during temporary IMMR vessel operations. The risk of interactions with marine fauna is very low.
		The ALARP and acceptability evaluation of environmental risks in the OEMP for assessment by the regulator.
		[Para 16(d)] Refer to #12(a)-(e) above.
		[Para 16(e)] Operational area speed restrictions refer to limits on vessel speeds within the operational area/s to maintain safe operations (page 26 of the Production Operations information booklet). Vessel speeds will be addressed in the EP for assessment by the regulator, which includes vessel speed of 8	

		knots or less within 500m safety zone around the FPSO and campaign vessels. [Para 16(f)] Santos will address the precautionary principles in the ALARP and acceptability evaluation of environmental risks in the OEMP for assessment by the regulator.	
AMSA-NT stated that it reiterated and highlighted Santos' possible contravention or non-alignment with Blue Whale Conservation Management Plan (CMP) including: • vessel strike and underwater noise are key threats (para 17(a). • recent research providing evidence of Pygmy Blue Whales aggregation and foraging in the Timor Sea and within the defined EMBA and MEVA for this Barossa Offshore Gas project, i.e. see 'aggregation' and 'foraging/reproduction' areas identified in the Timor Trough region (Sahri et al. 2022, Burton et al. 2023, Ferreira et al. 2024). (para 17(b)). • recent major sightings of Pygmy Blue Whales in close proximity (approximately 40 km) to the Barossa OA (para 17(c)). • uncertainty regarding habitat usage by Pygmy Blue Whales in the Barossa field area (para 17(d)). • the OPP acoustic studies (JASCO 2016) should be reassessed (para 17(e). • BIAs should be updated (para 17(f)). AMSA NT noted that temporal control measures were adopted by another operator in the Timor Sea to deal with uncertainty in blue whale presence (para 17(g))	Santos has considered the recommendation from AMSA-NT to review published research papers on the Pygmy Blue Whale by Sahri et al. 2022, Burton et al. 2023, Ferreira et al. 2024. These papers provide evidence of foraging, migration, and aggregation activity, which has been incorporated into Section 3.2.13.1.1. Santos' assessment is that Pygmy Blue Whale foraging, migration and aggregation activity occurs outside the OA therefore no additional control measures are required. Santos also notes the feedback from AMSA-NT regarding temporal control measures adopted by another operator. Santos has reviewed and evaluated the relevant controls adopted by the operator in Section 6.1.3 of the OEMP with regard to environmental benefits gained versus risk/cost of implementation. No additional control measures were adopted.	[17(a) and (d)] Figure 10 in the Production Operations information booklet depicts the blue whale biologically important area (page 9). Operational areas 1 and 2 do not overlap with the blue whale BIA. Potential impacts to marine mammals (e.g. whales) from vessel strike an underwater noise have been assessed and control measures presented in the Production Operations information booklet on page 16 (noise) and page 26 (interaction with marine fauna). The nature and scale of environmental impacts, taking into account the Blue Whale CMP, will be provided in the OEMP for assessment by the regulator. [17(b)] The information utilised in the development of the OEMP is appropriate to identify risks and impacts arising from the activities and for informing risk mitigation and controls. Santos has followed the NOPSEMA environment plan content requirement guidance note for matters of national environmental significance protected under Part 3 of the EPBC Act, which will be presented in the OEMP for assessment by the regulator. (In further response to AMSA-NT recommendations, published research studies on the Pygmy Blue Whale by Sahri et al.2022, Burton et al. 2023 and Ferreira et al. 2024 have been reviewed and Section 3.4.3.2 has been updated) [17(c)] The information utilised in the development of the OEMP is appropriate to identify risks and impacts arising from the activities and for informing risk mitigation and controls. Santos has followed the NOPSEMA environment plan content requirement guidance note for matters of national environmental significance protected under Part 3 of the EPBC Act, which will be presented in the OEMP for assessment by the regulator. [17(e)] Refer to #15 above. [17(f)] BIAs are addressed in Figure 10 of the Production Operations information booklet. BIA data and maps are managed by the Australian Government - Department of Climate Change, Energy, the Environment and Water (DCCEEW), therefore the updating of BIA data and maps are outside the scope of consultation for this activity. [17(g)] Refer to #15 above.	Sections 3.2.13 and 6.1.3. No additional measures adopted.
Concerns were raised regarding lack of biologically important areas (BIAs) for Threatened Marine Megafauna, Baseline Marine Megafaunal Surveys, noting that additional marine megafauna surveys are required and the need to develop BIAs for other known conservation priority marine species occurring in the EMBA, MEVA and the region including Bryde's Whale, Omura Whales, Fin Whales, Sei Whales and Sperm Whales (para 18)	Santos has considered the matters raised and provided a response. The development of BIAs is out of scope of the OEMP.	Undertaking surveys and developing BIAs is outside the scope of consultation for this activity.	Not applicable

AusTurtle Inc

Summary of consultation effort:

- On 9 February 2024 Santos emailed AusTurtle Inc to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed AusTurtle Inc further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned AusTurtle Inc regarding consultation for Production Operations activities and spoke to the nominated person who advised that AusTurtle would be sending Santos some information.

- On 7 April 2024, AusTurtle emailed Santos and provided a submission with detailed information on sea turtles, sea snakes and sea birds within the area, including an assessment of nesting, internesting and migration patterns. AusTurtle advised that the number of nests laid on the island during the standard fortnightly survey appears independent of anthropogenic offshore activities such as petroleum or fishing activities. [Con-4006]
- On 27 May 2024, Santos emailed AusTurtle to thank it for the feedback provided to assist Santos' preparation of the OEMP and EP. Santos noted that AusTurtle did not raise any objections or claims and referenced information provided on AusTurtles' ongoing research at Bare Sand Island. Santos advised it was interested in the Olive Ridley and Flatback species, to be referenced in the OEMP and EP with respect to the presence and behaviour of sea turtles within the Environment that May Be Affected. Santos also referenced the information on the presence of Crested Sea Terns on Bare Sand Island and sea snake behaviour in the proposed Operational Areas, which correlated with comments previously provided. Santos asked if AusTurtle research papers or details could be provided to enable it to be referenced in the appropriate sections of the OEMP and EP. [Con-4211]
- On 28 May 2024, AusTurtle emailed Santos and advised that it would get some papers together and that most of the information has come from AusTurtle internal annual reports. [Con-4213]
- On 10 July 2024 Santos emailed AusTurtle to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from AusTurtle.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
AusTurtle provided the following information in relation to flatback sea turtles (on 11 March 24): • AusTurtle has monitored nesting flatback sea turtles since 1996 on Bare Island which is located at the edge of the MEVA. • During construction of the Bayu-Undan to Darwin gas pipeline from 2004-2006 and the INPEX Ichthys gas pipeline in 2014-2016 there was no detectable impact on the numbers of nesting turtles. • The DPD section will pass through the flatback turtle internesting area where gravid females will dive to depths of 40 m and rest on the bottom to surface every hour or so to breathe. • The previous pipelines had no detectable impact as is expected with this pipeline. • Any impact, including attraction to lights, is likely to be on individuals rather than the population.	Santos has considered the matters raised in the OEMP and provided a response.. Santos notes information provided on 11 March 24 by AusTurtle. The reference by AusTurtle to Bare (Sand) Island being located at the edge of the MEVA is relevant to the Productions Operations EP only. Bare Sand Island is not located in the OEMP EMBA. Santos notes that AusTurtle has not provided the papers as per correspondence 28 May 2024.	Santos responded to AusTurtle thanking it for the information provided.	Marine turtles are described in Section 3.2.13.2.1. Sea birds are described in Section 3.2.13.4.

Charles Darwin University (CDU)

Summary of consultation effort:

- On 9 February 2024 Santos emailed CDU to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed CDU further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned CDU and left a voice mail message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed CDU to advise further to its previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from CDU. [Con-3856]
- On 10 July 2024 Santos emailed CDU to advise the consultation period had been completed. Santos advised CDU that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from CDU.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference

No response was received from CDU.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

4.8.5 Energy Industry Titleholders / Operators

Table 4-15: Consultation Summary Table - Energy Industry Titleholders / Operators

Section 25(1)(d) of the OPGGS(E)R: Persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the environment plan			
Bengal Energy			
Summary of consultation effort: • On 9 February 2024 Santos emailed Bengal Energy to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 11 March 2024 Santos emailed Bengal Energy further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793] • On 4 April 2024 Santos phoned Bengal Energy and left a voice message regarding consultation for Production Operations activities. • On 2 May 2024, Santos emailed Bengal Energy further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Bengal Energy. [Con-3984] • On 10 July 2024 Santos emailed Bengal Energy to advise the consultation period had been completed. Santos advised Bengal Energy that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130] • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Bengal Energy.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP Reference**
No response was received from Bengal Energy.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.
Eni Australia			
Summary of consultation effort: • On 9 February 2024 Santos emailed Eni Australia to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 11 March 2024 Santos emailed Eni Australia further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793] • On 3 April 2024 Santos phoned Eni Australia and spoke to a company representative and left a message regarding consultation for Production Operations activities. • On 6 May 2024, Santos emailed Eni Australia further to previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Eni Australia. [Con-3989] • On 10 July 2024 Santos emailed Eni Australia to advise the consultation period had been completed. Santos advised Eni Australia that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130] • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Eni Australia.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP Reference**
No response was received from Eni Australia.	Santos considers it has provided sufficient information and a reasonable period of time for consultation.	No response required.	Not applicable.

	Santos considers Section 25 consultation requirements to have been met.		

EOG Resources

Summary of consultation effort:

- On 9 February 2024 Santos emailed EOG Resources to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed PO activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed EOG Resources further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 5 April 2024 Santos phoned EOG Resources and left a voice mail message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed EOG Resources further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from EOG Resources [Con-3986]
- On 3 May 2024, EOG Resources emailed Santos to advise it does not have any input for Production Operations activities and asked to be kept updated if there are any material changes. [Con-3987]
- On 10 July 2024 Santos emailed EOG Resources to advise the consultation period had been completed. Santos advised EOG Resources that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from EOG Resources.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from EOG Resources.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Finder Energy

Summary of consultation effort:

- On 9 February 2024 Santos emailed Finder Energy to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Finder Energy further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 19 March 2024 Finder Energy emailed Santos and advised it has no comment or objection to the Production Operations activities. [Con-3981]
- On 7 May 2024, Santos emailed Finder Energy further to previous correspondence, to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Finder Energy. [Con-3994]
- On 10 July 2024 Santos emailed Finder Energy to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence has been received from Finder Energy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
Finder Energy advised it had no comment or objection.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

INPEX

Summary of consultation effort:

- On 9 February 2024 Santos emailed INPEX to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed INPEX further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 21 March 2024 INPEX emailed Santos to enquire about the INPEX contacts on Santos' mailing list. [Con-3575]
- On 3 April 2024 Santos phoned INPEX regarding consultation activities and left a message with a company representative.
- On 23 April 2024 Santos emailed INPEX and provided information requested on 21 March 2024. [Con-3786]
- On 6 May 2024, Santos emailed INPEX to further to previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from INPEX. [Con-3990]
- On 10 July 2024 Santos emailed INPEX to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from INPEX.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No correspondence was received from INPEX.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met	No response required.	Not applicable

Jadestone Energy

Summary of consultation effort:

- On 9 February 2024 Santos emailed Jadestone Energy to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 28 February 2024 Jadestone Energy emailed Santos and advised it has no comments regarding Production Operations activities and indicated that if the project outlined in correspondence changed significantly they would like to remain informed. [Con-3190]
- On 11 March 2024 Santos emailed Jadestone Energy further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 7 May 2024, Santos emailed Jadestone Energy further to previous correspondence, to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Jadestone Energy. [Con-3993]
- On 10 July 2024 Santos emailed Jadestone Energy to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence has been received from Jadestone Energy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Jadestone Energy advised it had no comments.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Melbana Energy

Summary of consultation effort:

- On 9 February 2024 Santos emailed Melbana Energy to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Melbana Energy further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 12 March 2024 Melbana Energy emailed Santos and advised it had no feedback or objection to Production Operations activities. [Con-3980]
- On 4 April 2024 Santos phoned Melbana Energy regarding consultation for Barossa Production Operations EP activities and left a voice mail message.
- On 7 May 2024, Santos emailed Melbana Energy further to previous correspondence, to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Melbana Energy. [Con-3992]
- On 10 July 2024 Santos emailed Melbana Energy to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence has been received from Melbana Energy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Melbana Energy advised it had no feedback or objection.	Santos considers it has provided sufficient information and a reasonable period of time for consultation.	No response required.	Not applicable.

	Santos considers Section 25 consultation requirements to have been met.		

Neptune Energy

Summary of consultation effort:

- On 9 February 2024 Santos emailed Neptune Energy to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Neptune Energy further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Neptune Energy regarding consultation for Production Operations activities and was not able to leave a message.
- On 2 May 2024, Santos emailed Neptune Energy further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Neptune Energy. [Con-3970]
- On 20 May 2024, Neptune Energy emailed Santos and advised that it does not have any input for the Production Operations activities and supports Santos' Barossa Gas Project. Neptune Energy further requested that due to the location of the Petrel field in the Bonaparte Basin, that they continue to be kept updated of Santos' activities in relation to this field and mentioned Eni's acquisition of Neptune Energy. [Con-3979]
- On 10 July 2024 Santos emailed Neptune Energy to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence has been received from Neptune Energy.
- Santos notes that Eni Australia's acquisition of Neptune was completed in January 2024. https://www.eni.com/en-IT/media/press-release/2024/01/eni-acquisition-neptune-completed.html

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Neptune Energy requested that Santos keep them informed of activities in relation to Barossa.	Santos has considered the matters raised in the OEMP. Santos provides pre-activity notifications and quarterly project updates to Eni, noting that the Neptune assets are now owned by Eni Australia.	No response required.	Quarterly updates are included in Table 8-13

PTTEP Australia

Summary of consultation effort:

- On 9 February 2024 Santos emailed PTTEP Australia to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed PTTEP Australia further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned PTTEP Australia regarding consultation for Production Operations activities and was not able to leave a message.
- On 2 May 2024, Santos emailed PTTEP Australia further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from PTTEP. [Con-3982]
- On 2 May 2024, PTTEP Australia emailed Santos and advised it had no input or objections to the proposed Production Operations activities. [Con-3985]
- On 10 July 2024 Santos emailed PTTEP Australia to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence has been received from PTTEP Australia.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
PTTEP Australia advised it had no input or objections.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Shell Development

Summary of consultation effort:

- On 9 February 2024 Santos emailed Shell Development to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787],
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Shell Development further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Shell Development regarding consultation for Production Operations activities and left a voice mail message.
- On 2 May 2024, Santos emailed Shell Development further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Shell Development. [Con-3983]
- On 10 July 2024 Santos emailed Shell Development to advise the consultation period had been completed. Santos advised Shell Development that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Shell Development.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No correspondence was received from Shell Development.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

SundaGas

Summary of consultation effort:

- On 9 February 2024 Santos emailed Sunda Gas to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Sunda Gas further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 5 April 2024 Santos phoned Sunda Gas regarding consultation for Production Operations activities and was not able to leave a message.
- On 6 May 2024, Santos emailed Sunda Gas further to previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Sunda Gas. [Con-3988]
- On 10 July 2024 Santos emailed SundaGas to advise the consultation period had been completed. Santos advised SundaGas that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from SundaGas.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No correspondence was received from SundaGas.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Woodside Energy

Summary of consultation effort:

- On 9 February 2024 Santos emailed Woodside Energy to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Woodside Energy further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Woodside Energy and left a message with a company representative regarding consultation for Production Operations activities.
- On 6 May 2024, Santos emailed Woodside Energy further to previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Woodside Energy. [Con-3991]
- On 10 July 2024 Santos emailed Woodside Energy to advise the consultation period had been completed. Santos advised Woodside Energy that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Woodside Energy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No correspondence was received from Woodside.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

4.8.6 Environmental Conservation Organisations

Table 4-16: Consultation Summary Table – Environmental Conservation Organisations

Section 25 (1)(d) of the OPGGS(E)R: Persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the environment plan			
Conservation Organisations			
ATSEA-2 Project			
Summary of consultation effort: • On 9 February 2024 Santos emailed ATSEA-2 Project to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 13 March 2024 Santos emailed ATSEA-2 Project further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794] • On 4 April 2024 Santos phoned ATSEA-2 Project and left a message regarding consultation for Production Operations activities with a team member. • On 8 May 2024, Santos emailed ATSEA- 2 Project further to previous correspondence to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from ATSEA- 2. [Con-4029] • On 10 July 2024 Santos emailed ATSEA-2 Project to advise the consultation period had been completed. Santos advised ATSEA-2 Project that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130] • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from ATSEA-2 Project.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP reference**
No response was received from ATSEA-2 Project.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.
Australia Institute			
Summary of consultation effort: • On 9 February 2024 Santos emailed Australia Institute to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 13 March 2024 Santos emailed Australia Institute further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794] • On 4 April 2024 Santos phoned Australia Institute and left a voice message regarding consultation for Production Operations activities. • On 2 May 2024, Santos emailed Australia Institute further previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the Australia Institute. [Con-4012]. • On 3 May 2024 the Australia Institute emailed Santos to thank it for the reminder and advised the Australia Institute would be providing input by 16 May. [Con-4016] • On 10 July 2024 Santos emailed Australia Institute to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130] • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • No further correspondence has been received from Australia Institute.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP reference**

The Australia Institute responded that it would be providing input by 16 May 2024.	Santos notes that the institute did not provide further input by 16 May 2024. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Australian Conservation Foundation (ACF)

Summary of consultation effort

- On 9 February 2024 Santos emailed ACF to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Barossa Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Barossa Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed the ACF to advise that the formal consultation period for Production Operations activities had commenced. Santos provided links to the Barossa Production Operations Activity Information Booklet, the Barossa Production Operations section of Santos' website, and NOPSEMA's Brochure: 'Consultation on offshore petroleum environment plans – Information for the Community'. Santos advised that consultation period closes on 9 April 2024. [Con-3794]
- On 9 April 2024 the ACF wrote to Santos to express its concerns and request further information on a range of topics related to Production Operations activities. The ACF's concerns primarily related to sufficiency of information in relation to GHG emissions from the project, the project's ability to meet the requirements of the Safeguard Mechanism, potential spill impacts and decommissioning. The ACF also requested a meeting with Santos to discuss Production Operations activities. [Con-4007]
- On 13 June 2024 Santos wrote to the ACF in response to the ACF's letter of 9 April 2024. Santos responded to each of the ACF's concerns and information requests, as well as its concerns regarding the consultation process. Santos also provided the ACF with notice of an update to the information booklet and factsheet. Santos requested the ACF provide its availability for a meeting. [Con-5022]
- On 19 June 2024 the ACF wrote to Santos to suggest dates and times for a meeting. The ACF asserted that it was not satisfied with the answers Santos provided in its letter of 13 June 2024, and Santos' correspondence to date was not sufficient to meet the consultation requirements. [Con-5023]
- On 26 June 2024, Santos wrote to the ACF to confirm its availability for a meeting at 2pm on 9 July 2024 (WST). Santos requested the ACF send an agenda by 1 July 2024. [Con-5024]
- On 26 June 2024, the ACF wrote to Santos to confirm its attendees at the meeting [Con-5025]
- On 2 July 2024 Santos emailed ACF thanking it for confirming the meeting attendees and again asked ACF to send an agenda by no later than 4 July 2024. [Con-5028]
- On 8 July 2024 Santos emailed ACF to ask them to send an agenda or list of topics that they would like to discuss at the upcoming meeting. [Con-5138]
- On 9 July 2024, ACF emailed Santos with an agenda for the upcoming meeting. [Con-5050]
- On 9 July 2024, Santos met with ACF via a Microsoft Teams video conference. [Con-5212] At the meeting the ACF:
  - queried how Santos is assessing climate change impacts attributable to the Activity on matters of national environmental significance and vulnerable ecosystems and communities;
  - queried how the Activity is aligned with the Paris Agreement temperature targets;
  - queried how Santos is assessing scope 3 emissions impacts;
  - requested details regarding the management procedures and/or management plans that will be in place for marine fauna and ecosystems.
- At the meeting on 9 July 2024 Santos stated that:
  - there are limitations to linking the Activity's emissions with specific climate change impacts;
  - it has considered impacts to matters of national environmental significance from global climate change;
  - it acknowledged ACF's concerns regarding climate change impacts on matters of national environmental significance, as well as vulnerable ecosystems and communities;
  - the Barossa project will be subject to the Safeguard Mechanism, which is the regime that implements Australia's Paris Agreement targets;
  - customers of the Barossa project will be subject to their own countries' emissions regulation frameworks, which implement their Paris Agreement Nationally Determined Contributions (NDCs);
  - the management procedures and/or plans for marine fauna and ecosystems align with DCCEEW guidance and EPBC regulations;
  - it will consider any further information that ACF provides in writing following the meeting.
- At the conclusion of the meeting, ACF said that it will write to Santos to set out its remaining concerns and any further information it requires to assess the impacts of the Activity on its functions, interests or activities.
- On 11 July 2024, ACF emailed Santos [Con-5117]. In its email the ACF:
  - reiterated its concerns regarding how Santos is considering climate change impacts attributable to the Activity;
  - reiterated its concerns regarding how the Barossa project will comply with the Paris Agreement 1.5-degree scenario; and
  - request details of the control measures and protocols that Santos has developed to protect marine fauna and biologically important areas.
- On 7 August 2024, Santos wrote to ACF in response to ACF's email of 11 July 2024. Santos responded to the matters raised by ACF. Santos thanked ACF for its comments and submissions in respect of the risks, impacts, and potential controls in relation to the activity. Santos advised ACF that Santos was finalising the Barossa Production Operations EP for submission in coming weeks. [Con-5283]
- On 9 September 2024 ACF responded to Santos' email of 7 August 2024 claiming Santos had not sufficiently addressed a number of the concerns ACF had raised during the consultation process to date. [Con-5642]
- On 20 September 2024 Santos wrote to ACF in response to ACF's letter of 9 September 2024. Santos responded to the matters raised or restated by ACF. Santos thanked ACF for its comments and submissions in respect of the risks, impacts, and potential controls in relation to the activity. Santos advised ACF that Santos was finalising the EP for submission. [Con-5644]
- On 30 September 2024 ACF emailed Santos in response to Santos' letter of 20 September 2024. In the email the ACF stated it did not agree with Santos' assertion that sufficient information has been provided, it was reviewing the information sent and would provide follow-up correspondence on these matters before 14 October 2024. [Con-5661].
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 19 December 2024 Santos emailed ACF to advise that, given that no further correspondence was received by 14 October or since, and having regard to the elapsing of time, Santos has proceeded on the basis that the ACF does not intend to provide any further feedback and that consultation for preparation of environment plans relating to Barossa Production Operations activities is complete. [Con-6023]
- On 20 December 2024 ACF responded to Santos' email of 19 December 2024. ACF stated in the email that it was finalising its response and will provide it to Santos early next week. [Con-6031]
- On 23 December 2024 ACF emailed the response to Santos. [Con-6034]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- On 31 January 2025 Santos emailed ACF and provided responses to the matters raised by ACF in its email of 23 December 2024. [Con-6038]
- On 24 March 2025 ACF responded to Santos' letter of 31 January 2025 with concerns about the content of the Barossa Production Operations EP.[Con-6071]
- On 31 March 2025 Santos responded to the ACF's letter of 24 March 2025 [Con-6017]

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
ACF correspondence to Santos on 9 April 2024 Concern raised that the Information Booklet provided insufficient information in relation to: • GHG emissions from the project; • the project's ability to meet the requirements of the Safeguard Mechanism; • whether carbon capture and storage (CCS) is considered a component of the project; • hydrocarbon and non-hydrocarbon spills; and • decommissioning.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. CCS is not part of the Barossa Gas Project and thereby not relevant to the Coastal Waters OEMP. Santos does not agree with the ACF's assertion that the information booklet does not provide sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities. The information booklet provides a comprehensive description of the environment that may be affected by the Activity, identification of impacts and risks from planned activities and unplanned events and associated proposed control measures.	**Santos' correspondence to ACF on 13 June 2024 in response to ACF's letter of 9 April 2024**[i42] *Santos notes your comments regarding the sufficiency of information provided by Santos in consultation, and your requests for further information.* *Santos considers that the information provided to date (in the Production Operations Information Booklet and NT Waters GEP Operations Overview Factsheet) is sufficient for the ACF to make an informed assessment of any potential consequences of the Production Operations Activity (Activity) on any of its functions, interests or activities (FIAs). Notwithstanding this, Santos has provided responses to requests #1-15 below, where possible and reasonable.*	Not relevant to the ACF's assertion that the information booklet does not provide sufficient information.
The ACF raised concerns about the project's emissions intensity and availability of offsets and requested further information in relation to how the Barossa project will enter the Safeguard Mechanism system at net zero emissions.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Santos will meet its Safeguard Mechanism compliance obligations, set by the CER in accordance with Australian Government policy and emissions reduction targets, through the purchase and/or generation of Australian Carbon Credit Units (ACCUs) or Safeguard Mechanism Credits (SMCs). The responsible Commonwealth minister has communicated to the Barossa joint venture partners on a number of occasions that he anticipates there being ACCUs available for this project. Natural gas remains an integral part of the energy mix out to 2050 (AEMO 2024, IEA 2023c) and, with ACCUs being part of the national carbon management framework, it is reasonable to assume the availability of ACCUs for gas projects would have been contemplated in setting Australia's NDCs. In this regard, the projected ACCU demand and issuance for the period 2025-2040 is set out at Figure 17 of Australia's emissions projections 2024 chart data, which was released with the DCCEEW reports released in November 2024, as referenced above. This data has been derived by reference to the emissions projection information in these reports and it is therefore reasonable to assume that the number of ACCUs anticipated by the Barossa Development have been considered with relation to Australia's anticipated ACCU issuance. Santos' reliance on ACCUs will form part of its reporting to the CER and will continue to be monitored by the CER. Section 6.3.2.6.2. further captures Santos' consideration of the availability of ACCUs and SMCs. GHG emissions reporting for this Activity are included in the OEMP. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	**[Response (1)]** *The treatment of the Barossa project under the Safeguard Mechanism is a matter for the Clean Energy Regulator. Santos will abide by the Clean Energy Regulator's final determination.* *There are various options available to meet a baseline (including direct abatement and acquiring offsets, in addition to mechanisms available under the Safeguard Rules such as borrowing adjustments and multi-year monitoring periods).* *Santos will be required to comply with the applicable baseline for the Barossa project in each compliance year. It is a matter for Santos to determine how it will achieve this compliance. This information is not necessary for the ACF to make an informed assessment of the possible consequences of the Activity on any of its FIAs.*	Section 6.3. BAO-CM-6.3.11
The ACF requested Santos clarify whether CCS is a component of the project.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. It was clarified that CCS is not part of the Activity described in the EP or the Coastal Waters OEMP.	**[Response (2)]** *While Santos has committed to explore CCS opportunities at Bayu-Undan and elsewhere, CCS is not part of the Barossa development and any CCS developments will be subject to a separate environmental approvals process, and is not within the scope of the Production Operations EP.*	Not applicable.
The ACF requested a range of further information in relation to CCS development and operation.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. As CCS is not part of the Activity for the EP or the Coastal Waters OEMP, Santos did not provide ACF further information in response to this request.	**[Response (3)]** *As noted in response to #2, CCS is not part of the Barossa development, and any CCS developments will be the subject of a separate environmental approvals process. Therefore, the information you have requested is not relevant to the EP, which is the subject of this consultation.*	Not applicable.
The ACF raised concerns about the project's emissions impact on climate change. The ACF requested further information regarding how Santos will address climate change impacts of scope 1 and 3 emissions.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. The Barossa Production Operations EP and this OEMP acknowledge the linear relationship between cumulative anthropogenic CO_2 emissions and global warming. The EP and OEMP references the latest commentary from the IPCC on the causes and impacts of climate change. Climate change is a global problem with the solution being led at the international level. Domestically, GHG emissions are regulated through Australia's NDC and the Barossa JV and its contractors have legal obligations to ensure that the Activity operates in accordance with that framework. The projected emissions for the Activity described in the Coastal Waters OEMP are contextualised against established emissions budgets (national and global). The Barossa Joint Venture (JV) has adopted environmental performance outcomes and control measures directed to minimising the GHG emissions from the Activity. A range of controls have been considered for both direct (Scope 1) and indirect (Scope 3) emissions. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	**[Response (4)]** *As outlined in the Booklet, as a result of the complex nature of the global emissions system, climate change impacts cannot be meaningfully linked to any one activity or emissions source.* *The 'GHG emissions' section of the Booklet provides information about Santos' proposed control measures to reduce impacts and risks of Scope 1 and 3 emissions from the Activity to as low as reasonably practicable and an acceptable level.* *To the extent the ACF believes that there is any potential impact on the ACF's FIAs as a result of GHG emissions, the ACF is able to make an informed assessment of that impact with the information set out in the Booklet, including the total annual estimates provided. Santos welcomes the ACF's input regarding any control measures that it considers may be appropriate to adopt for Santos' consideration when preparing the EP for submission to NOPSEMA, including in relation to GHG emissions. Santos has invited a meeting with the ACF, in part to provide an opportunity to receive any such input.*	Section 6.3. BAO-CM-6.3.1 BAO-CM-6.3.9 BAO-CM-6.3.11 BAO-CM-6.3.12 BAO-CM-6.3.16 BAO-CM-6.3.17 BAO-CM-6.3.18 BAO-CM-6.3.21 BAO-CM-6.3.22 BAO-CM-6.4.10
The ACF requested further information regarding how Santos will address the direct or indirect consequences to the environment, including matters of national environmental significance, from GHG emissions.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. The Barossa JV has adopted environmental performance outcomes and control measures directed to minimising the GHG emissions from the Activity. A range of controls have been considered for both direct (Scope 1) and indirect (Scope 3) emissions.	**[Response (5)]** *See response to #4.* *Globally, the energy sector needs to simultaneously invest in and develop two energy systems; ensure the current system continues to operate and meet global energy demands, while increasing efforts to build the new system centred on lower carbon alternatives. Maintaining a steady supply of*	Section 6.3.

[42] Santos has given each ACF response a corresponding response number which is marked in bold. Where Santos has cross-referred to earlier responses within its letter of 13 June 2024, it has not reproduced the text in this consultation table but rather than included the response number.

The ACF raised concerns that providing more gas to the market will make it more difficult for countries to progress renewable developments.	The OEMP describes the role of natural gas in energy transition. Gas plays a critical role in the transition to a lower carbon future, able to flexibly fill market supply gaps as alternative energy sources emerge. Analysis of almost 100 IPCC scenarios, all aligned to the temperature goals of the Paris Agreement, show a range of gas demand profiles and all include a continued role for gas in the global energy mix out to 2050. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	*gas allows for the orderly and measured development of the new energy system.* *For further information on this topic, please refer to Santos's Sustainability and Climate Report 2023, available here: https://www.santos.com/wp-content/uploads/2024/03/Sustainability-and-Climate-Report-2023.pdf*	
The ACF raised concerns regarding Santos' proposed scope 3 emission control measure. The ACF asked Santos whether it will be checking its customers' countries performance against their Paris Agreement NDC's and adjust or revoke sales contracts accordingly.	Santos has provided a response to ACF. The ACF's concern relates to a control measure proposed to be implemented under the Production Operations EP. This control measure is not proposed to be implemented under the OEMP.	**[Response (6)]** *See responses to #4 and #5.* *Santos otherwise thanks the ACF for providing this feedback, which it will consider.*	BAO-CM-6.3.21 BAO-CM-6.3.22
The ACF asked Santos whether it will ensure customers are using its product in a responsible way to reduce emissions. The ACF provided examples, which included ensuring: • Santos's customers are meeting best practice standards for LDAR and MRV; and • Santos is not selling gas to customers for new (post 2020) gas-fired power stations unless it can unequivocally prove that energy is displacing coal and not renewables.	Santos has provided a response to ACF. Scope 3 emissions associated with Barossa Gas Project customers and the associated use of sold products are beyond the scope of this document and are addressed in the Production Operations EP.	**[Response (7)]** *See response to #6.*	BAO-CM-6.3.21 BAO-CM-6.3.22
The ACF raised concerns that Santos had provided inconsistent emission estimates for different Barossa approval documents. The ACF requested: • further information regarding discrepancies in emissions estimates; • confirmation regarding whether Santos will share data on the methodologies used to calculate emissions estimates; • confirmation regarding whether Santos will provide ongoing transparency to the public in relation to the quantity of Greenhouse Gases it finds in it's wells and details on the technologies used and uncertainty factors.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. The discrepancy between emissions estimates provided in the SER and the Activity information booklet are explained by different inputs and assumptions for the respective estimates, based on the level of engineering and design at time of the approval preparation, with the conservative estimates reflecting this. The OEMP includes greenhouse gas estimates for both Scope 1 and Scope 3 emissions including the assumptions that underpin these estimates. Santos will meet applicable regulatory requirements of the National Greenhouse and Energy Reporting Act 2007, as relevant to Barossa production operations.	**[Response (8)]** *a. The annual emissions estimates included in the Booklet are applicable to the Activity. The annual emissions estimates provided in the Booklet are conservative (when extrapolated for 25 years of production operations) given annual emissions are expected to reduce over the life of the Activity as production rates decline. For the purpose of the Activity, the ACF should focus its review on the information provided in the Booklet. To the extent that the ACF believes there is any potential impact on the ACF's FIAs as a result of GHG emissions, the ACF is able to make an informed assessment of that impact with the information set out in the Booklet.* *b. Information regarding calculation of the GHG emissions and emissions intensity (as required) will be presented in the EP for consideration and assessment by the Regulator for assessment against the requirements of the Regulations.* *c. (i) Santos has and will continue to be transparent in both the EP, and other published information, about the quantity of GHG emissions in the Barossa wells.* *(ii) Santos will meet applicable regulatory requirements of the National Greenhouse and Energy Reporting Act 2007, as relevant to Barossa production operations.* *In any event, Santos considers that the ACF does not require this additional technical information about reporting of Barossa GHG emissions in order to make an informed assessment of the potential consequences of the Activity on any of its FIAs.*	Section 6.3
The ACF raised concerns regarding the adequacy of information Santos provided in relation to non-hydrocarbon liquid releases. In particular, the ACF requested more detail in relation to the 'suite of procedures, storage, handling and clean-up', and the control measures proposed to be adapted.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Santos does not agree with the ACF's claim that the information booklet does not provide sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities. Section 7.4 of the OEMP address unplanned impacts and risks of non-hydrocarbon liquid releases, and proposed control measures to reduce impacts and risks to ALARP and acceptable levels. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	**[Response (9)]** *The potential impacts and risks from an unplanned non-hydrocarbon liquid release event are described on page 27 of the Booklet, with consideration for the extent of potential impacts and sensitive receptors that could be affected.* *The suite of operational procedures referred to in the Booklet to manage risk of non-hydrocarbon liquid releases relates to both prevention of unplanned releases and mitigation of environmental impact if an unplanned release were to occur. Procedures relevant to prevention of unplanned releases include chemical handling and storage, equipment inspection and maintenance and dropped object prevention. Procedures relevant to impact mitigation include chemical selection, drain system management and spill response. These suites of procedures form the basis of the proposed control measures for non-hydrocarbon liquid releases.* *The adequacy of the procedures as proposed control measures will be a matter for the Regulator to assess against the requirements of the Regulations. To the extent the ACF believes the risk of a non-hydrocarbon liquid release (as outlined in the Booklet) may affect the ACF's FIAs, Santos welcomes the ACF's input regarding this in accordance with the legislative*	Section 7.4 BAO-CM-6.1.2 BAO-CM-6.4.5 BAO-CM-6.7.5 BAO-CM-7.1.1 BAO-CM-7.1.2 BAO-CM-7.1.3 BAO-CM-7.1.4 BAO-CM-7.4.1 BAO-CM-7.4.2 BAO-CM-7.4.3

		purpose of s 25 consultation and has invited a meeting with the ACF, in part to provide an opportunity to receive any such input.	
The ACF raised concerns regarding impact of a potential hydrocarbon spill on surrounding habitats and species, and requested further information, including: • copies of condensate spill modelling; • the Production Operations Oil Pollution Emergency Plan'; and • the Well Operations Management Plan; and • other response plans which detail the actions Santos will take to control and manage cleanup activities if a spill occurs.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Santos has appropriately addressed the potential risks and impacts associated with a potential hydrocarbon spill. Sections 7.4,7.6 and 7.7 of the OEMP describe the potential impacts for a range of unplanned hydrocarbon release scenarios of relevance to the Activity for the Coastal Waters OEMP; and proposed control measures to reduce impacts and risks to ALARP and acceptable levels. The concerns and requests related to Production Operations activities in the Barossa Field (including regarding the Production Operations OPEP – noting that there is a separate Barossa GEP NT Waters OPEP and the Well Operations Management Plan) are outside the scope of the GEP Coastal Waters OEMP and are addressed in the Barossa Production Operations EP. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	**[Response (10)]** *a) Santos has performed sufficient stochastic spill modelling of credible unplanned spill events and applied exposure value impact thresholds in line with NOPSEMA guidance, to present the entirety of the risk, which has informed the EMBA and MEVA as presented in the Booklet. It is not necessary for the ACF to have the spill modelling in order for the ACF to make an informed assessment of the potential consequences of the Activity on any of its FIAs.* *To the extent the ACF believes the risk of an unplanned hydrocarbon release (as outlined in the Booklet and Factsheet) may affect the ACF's FIAs, Santos welcomes the ACF's input regarding this in accordance with the legislative purpose of s 25 consultation and has invited a meeting with the ACF, in part to provide an opportunity to receive any such input.* *b) The Production Operations Oil Pollution Emergency Plan (**Production OPEP**) will be provided to the Regulator for assessment against the requirements of the Regulations. Consistent with the requirements of the Regulations, Santos plans are not finalised at the time of consultation and won't be finalised until plans are submitted to the Regulator for assessment. It is not necessary for the ACF to have the Production OPEP in order for the ACF to make an informed assessment of the potential consequences of the Activity on any of its FIAs however, this consultation offers an opportunity for the ACF to provide input on the kinds of measures that it would like to see included in the OPEP.* *c) The Well Operations Management Plan (**WOMP**) will be provided to the Regulator for assessment against the requirements of the Regulations. It is not necessary for the ACF to have the WOMP in order for the ACF to make an informed assessment of the potential consequences of the Activity on any of its FIAs.* *d) Reference to response plans on pp. 31 refers to secondary Production OPEP plans. Further to the response above, the Production OPEP will be provided to the Regulator for assessment against the requirements of the Regulations. Consistent with the requirements of the Regulations, Santos plans are not finalised at the time of consultation and won't be finalised until plans are submitted to the Regulator for assessment. It is not necessary for the ACF to have the Production OPEP in order for the ACF to make an informed assessment of the potential consequences of the Activity on any of its FIAs, however, this consultation offers an opportunity for the ACF to provide input on the kinds of measures that it would like to see included in the OPEP.*	Sections 7.4, 7.6 and 7.7. GEP NT Waters Oil Pollution Emergency Plan
The ACF raised concerns regarding methane emissions and suggested that a "strong" methane reduction and mitigation plan, as well as publicly available transparent reporting can help Santos address scope 1 emissions associated with the project.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Concerns related predominantly to Production Operations activities in the Barossa Field (including methane emissions) and are addressed in the Barossa Production Operations EP. Section 6.3 of the Barossa Production Operations EP details the facility design and operations measures to reduce Scope 1 emissions to ALARP, inclusive of sources of methane emissions. Section 6.3 of the OEMP has considered the potential for fugitive emissions. The Barossa JV has adopted environmental performance outcomes and control measures directed to minimising the GHG emissions from the Activity. A range of controls have been considered for both direct (Scope 1) and indirect (Scope 3) emissions.	**[Response (11)]** *Management of fugitive GHG emissions (inclusive of methane emissions) during production operations will be addressed by the GHG Management Plan which is identified as a proposed control measure in the Booklet. Santos reports its scope 1 emissions transparently through its annual Sustainability and Climate Report, and under the National Greenhouse and Energy Reporting framework.* *The adequacy of proposed control measures to address impacts/risks from methane emissions will be a matter for the Regulator to assess against the requirements of the Regulations however, this consultation offers an opportunity for the ACF to provide input on the kinds of measures that it would like to see Santos consider in its management plans.*	Section 6.3 Section 8.3.2.12 BAO-CM-6.3.12 BAO-CM-6.4.1
The ACF queried how Santos will approach flaring and venting on the FPSO, and whether Santos can commit to no venting and routine flaring.	Flaring and venting activities on the FPSO are out of scope for the Coastal Waters OEMP. Santos has provided a response to ACF and considered the matters raised by ACF in the Production Operations EP.	**[Response (12)]** *Santos has committed to no routine flaring, with the exception of the continuously-lit high pressure flare pilot to ensure the operation of the safety critical flare is not impaired.* *Santos has not committed to no planned venting for production operations. Some planned venting is unavoidable for safety reasons when undertaking planned maintenance activities, such as tank/vessel integrity inspections. Santos has however designed the FPSO to include a vapour recovery system that captures low pressure vented gas that would otherwise be vented. This system reduces unplanned venting.*	Section 6.3 of the Barossa Production Operations EP.
The ACF requested further information regarding, and queried whether Santos would apply, practice leak detection and repair to the Barossa project.	Santos has provided a response to ACF and considered the matters raised by ACF in the Production Operations EP. Concerns related to predominantly to production operations activities in the Barossa Field are addressed in the Barossa Production Operations EP. Section 6.3 of the Barossa Production Operations EP details the facility design and operations measures to reduce Scope 1 emissions to ALARP, inclusive of sources of methane emissions. Section 6.3 of the OEMP has considered the potential for fugitive emissions. The Barossa JV has adopted environmental performance outcomes and control measures directed to minimising the GHG emissions	**[Response (13)]** *Management of fugitive GHG emissions (with consideration for best practice leak detection and repair) during production operations will be addressed by the GHG Management Plan which is identified as a proposed control measure in the Booklet.*	Section 6.3 Section 8.3.2.12 BAO-CM-6.3.12

	from the Activity. A range of controls have been considered for both direct (Scope 1) and indirect (Scope 3) emissions.	*The adequacy of proposed control measures to address impacts/risks from fugitive emissions will be a matter for the Regulator to assess against the requirements of the Regulations however, this consultation offers an opportunity for the ACF to provide input on the kinds of measures that it would like to see included in Santos' management plans.*	
The ACF requested further information in relation to Santos's commitment to use the Oil & Gas Methane Partnership 2.0 (OGMP 2.0) framework level 5 for reporting on its methane emissions and whether Santos would publicly report its OGMP 2.0 findings.	Santos has provided a response to ACF and considered the matters by the ACF in the OEMP. The OEMP includes a proposed control measure that commits to compliance with GHG emissions reporting under the NGER Scheme. Control measures adopted have reduced the impacts of GHG emissions including methane to ALARP. Santos will continue to report its Scope 1 and 3 emissions, and specifically its methane emissions, transparently via its annual Climate Report. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	**[Response (14)]** *Santos is not a signatory to the Oil & Gas Methane Partnership 2.0 (**OGMP 2.0**) reporting framework. Santos is committed to action on methane and will continue to evaluate potential enhancements to our measurement and mitigation programs. Earlier this year, Santos signed up to the OGCI's near zero methane initiative.* *In any event, Santos will continue to report its scope 1 and 2 emissions, and specifically its methane emissions, transparently via its annual Sustainability and Climate Report. This is in line with regulatory requirements in the countries in which we operate, such as the National Greenhouse and Energy Reporting Framework in Australia.*	Santos reports on GHG emissions as per the NGER scheme BAO-CM-6.3.9 Section 6.2.2.2 Section 6.2.2.3
The ACF requested further information in relation to the decommissioning of the Barossa project, including whether Santos could commit to taking responsibility for decommissioning.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Although decommissioning and removal of the Barossa production facilities are outside the scope of the Coastal Waters OEMP, the GEP has been designed and selected to meet the regulatory base case for full removal. Notwithstanding, Santos will meet all relevant and applicable regulatory requirements at the time of decommissioning. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	**[Response (15)]** *Barossa decommissioning will be the subject of a future Barossa Decommissioning Environment Plan, that will meet the requirements of the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth) and the Regulations, and any additional relevant legislation, policies (such as NOPSEMA Policy 'Section 572 Maintenance and removal of property') and guidelines (such as Department of Industry, Science and Resources [DISER] Guideline 'Offshore Petroleum Decommissioning Guideline') in force at the time (NOPSEMA, 2020; DISER, 2022).*	Section 8.2.5
Meeting with ACF on 9 July 2024 The ACF reiterated concerns regarding the Activity's climate change impacts on matters of national environmental significance and vulnerable communities and ecosystems. The ACF suggested Santos should undertake the analysis required to attribute the Barossa project's climate change impact on specific environments of national significance.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP . The Barossa Production Operations EP and this OEMP acknowledge the linear relationship between accumulative anthropogenic CO_2 emissions and global warming. The impacts on the climate cannot be attributed to one specific sector or activity. The Activity's projected emissions are contextualised against established emissions budgets (national and global). The EP references the latest commentary from the IPCC on the causes and impacts of climate change. The projected emissions for the Activity described in the Coastal Waters OEMP are contextualised against established emissions budgets (national and global). The Barossa Project's overall GHG emissions and proposed management are addressed in the Barossa Production Operations EP. The Barossa JV has adopted environmental performance outcomes and control measures directed to minimising the GHG emissions from the Activity. A range of controls have been considered for both direct (Scope 1) and indirect (Scope 3) emissions.	Santos explained that there are limitations to linking emissions from the Activity to any specific climate change impacts. Santos invited ACF to provide further information regarding how it is able to undertake an analysis that links climate change impacts from the Activity to specific environments or ecosystems.	Section 6.3
The ACF reiterated concerns that the Barossa project is not aligned with the temperature targets of the Paris Agreement. The ACF also queried whether Santos will be ensuring its customers are abating or offsetting their emissions to align with Paris Agreement targets.	Santos has provided a response to ACF and considered the matters raised by ACF in the Barossa Production Operations EP. Scope 3 emissions associated with Barossa Gas Project customers and the associated use of sold products are addressed in the Production Operations EP.	Santos explained that it will comply with the Safeguard Mechanism, which is the regime that implements Australia's commitment to the Paris Agreement. Santos response to ACF for the Production Operations EP also explained that it will only sell gas to customers of Paris Agreement signatory countries, and Santos is unable to influence how those countries comply with the Paris Agreement temperature targets.	Section 6.3 Section 8.3.2.12
The ACF requested any management plans that Santos has prepared in relation to marine fauna and biologically important areas / ecosystems.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. The Barossa Production Operations EP and this OEMP contain information on the procedures required for the Activity, to protect marine fauna, that aligns with DCCEEW guidance and EPBC regulations. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	Santos explained that the Environment Plan will provide specific information regarding each plan and/or procedure required for the Activity. Santos assured ACF that the management procedures and plans for marine fauna and ecosystems align with DCCEEW guidance and EPBC regulations. Santos invited ACF to provide more information in relation to the specific detail they require on this topic that is not already provided in the Information Booklet and regulatory guidance.	Section 7.3 BAO-CM-6.1.1 BAO-CM-6.3.12 BAO-CM-6.7.5 BAO-CM-7.2.1
The ACF requested further information regarding the type of offsetting methodology Santos intend to use to abate emissions from the Activity.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Santos will meet its Safeguard Mechanism compliance obligations, set by the CER in accordance with Australian Government policy and emissions reduction targets, through the purchase and/or generation of ACCUs or SMCs. This is described in Section 6.3.2.3.2 National greenhouse gas emissions framework Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	Santos explained that it will comply with the rules of the Safeguard Mechanism, which is administered by the Clean Energy Regulator. Santos also stated that it does not decide what the criteria for ACCUs or SMCs are but that it is rather Santos' responsibility to comply with the rules set by the Clean Energy Regulator.	Section 6.3.2.3.2
Noting the Barossa gas's CO_2 composition, the ACF requested information regarding how the gas will be vented in first instance on the FPSO and/or at the DLNG facility.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Concerns related to Production Operations activities in the Barossa Field (including operation of the FPSO and of the DLNG facility) are outside the scope of the GEP Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	Santos confirmed that there is approximately 18% CO_2 in the Barossa gas. The DLNG facility is designed to process and vent 6% CO_2. The balance (approximately 12%) is processed and vented offshore.	Not applicable.
The ACF queried the expected lifespan of the DLNG facility.	Santos has considered the matters raised and provided a response to ACF.	Santos confirmed that the DLNG facility is undergoing minor modifications and maintenance to extend the design life of the facility to process Barossa gas for another 20-25 years.	Not applicable.

	Operation at the DLNG facility is outside the scope of the Coastal Waters OEMP and is controlled by a different joint venture to this Activity, Notwithstanding that, Santos provided information on the design life of DLNG. to ACF in response the Barossa Production Operations EP.		
The ACF queried whether produced water from seabed would contain mercury.	Concerns related to Production Operations activities in the Barossa Field (including produced water from the FPSO) are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	Santos confirmed that produced water from the seabed would likely contain very low levels of mercury, which is not atypical for these types of projects.	Not applicable.
The ACF queried where else Santos is exploring CCS opportunities, other than at Bayu Undan.	Santos has provided a response to ACF. Other CCS opportunities are outside the scope of the Coastal Waters OEMP, notwithstanding this, Santos provided information to ACF in response to this request.	Santos confirmed it has exploration permits located in the Bonaparte Basin for seismic and drilling exploration in the next 12 to 24 months	Not applicable.
The ACF queried how Santos is making a decision about acceptable climate change impacts on MNES without having conducted an analysis regarding direct climate impacts attributable from the project and whether it is able to articulate what an acceptable level of impact is.	Santos has considered the matters raised by ACF in the Coastal Waters OEMP and provided a response to ACF. The Barossa Production Operations EP and this OEMP acknowledge the linear relationship between GHG cumulative anthropogenic CO^2 emissions and global warming and reference the latest commentary from the IPCC on the causes and impacts of climate change. Even assuming that emissions from the Barossa Gas Project (including this Activity) will cause an equivalent net increase in cumulative Australian and global emissions, this increase comprises a nominal amount in the overall scheme of the national and international carbon budgets and will not materially or substantially contribute to Australia's GHG emissions or global emissions levels; and there is no correlation between where GHG emissions are released and where climate change impacts are felt. It is not possible to draw a link between GHG emissions from the Activity and any specific climate related impact on any specific element of the Australian environment which may result from any net increase to cumulative GHG emissions globally. By keeping the Project emissions under the Safeguard Mechanism baseline, the Project's incremental contribution to global warming is within acceptable limits as determined by reference to Australia's NDC under the UNFCCC.	Santos explained that the Paris Agreement is key to the solution of managing climate impacts because the Paris Agreement is designed to limit global temperature increase and by doing so limit climate impacts to the environment to acceptable levels. Santos also stated that the acceptable level will depend specifically on the ecosystem and global cooperation to reduce emissions to limit temperature increase. Santos reiterated that the goal is for no significant impacts on MNES from climate impacts.	Section 6.3
ACF correspondence to Santos on 11 July 2024 The ACF reiterated its concerns regarding how Santos are considering climate change impacts attributable to the Activity. The ACF asserted that Santos must state in the Environment Plan what the environmental impacts from climate change due to the Activity will be. To do this, ACF asserted that Santos must undertake an analysis that measures the temperature increase attributable to the total lifetime emissions of the project and then analyse what this temperature increase would mean for the environment (including MNES).	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. The Barossa Production Operations EP and this OEMP acknowledge the linear relationship between GHG cumulative anthropogenic CO2 emissions and global warming and reference the latest commentary from the IPCC on the causes and impacts of climate change. The Activity's projected emissions are contextualised against established emissions budgets (national and global). Climate change is a global problem with the solution being led at the international level. Domestically, GHG emissions are regulated through Australia's NDC and the SGM and the Barossa JV has legal obligations to ensure that the Activity operates in accordance with that framework. It is not possible to draw a link between GHG emissions from the Activity and any specific climate related impact on any specific element of the Australian environment which may result from any net increase to cumulative GHG emissions globally. By keeping the Project emissions under the Safeguard Mechanism baseline, the Project's incremental contribution to global warming is within acceptable limits as determined by reference to Australia's NDC under the UNFCCC.	**Santos correspondence to ACF on 7 August 2024** *Santos refers ACF to paragraph 4 of the Annexure to Santos' 13 June 2024 correspondence.* *The acceptability of environmental impacts of GHG emissions from the Activity will be evaluated in the EP, for assessment by the Regulator against the requirements of the Regulations. Santos' methodology for this evaluation of acceptability will be broadly consistent with the methodology adopted for previous Barossa EPs, as an example refer section 5.1 of the Barossa Subsea Infrastructure Installation Environment Plan.*	GHG impact assessment is outlined in Section 6.3.4 GHG ALARP assessment Section 6.3.5 GHG Acceptability evaluation Section 6.3.6
The ACF asserted that Santos must demonstrate in the Environment Plan how the Barossa project is compatible with the 1.5-degree scenario under the Paris agreement. The ACF also requested Santos provide it with more information to demonstrate how it will comply with the 1.5-degree scenario.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Given that natural gas has a continued role under a range of Paris-aligned scenarios, GHG emissions associated with the Activity are able to be accommodated and managed under Australia's carbon budget and, internationally, under the carbon budget of Paris Agreement signatories and countries with mid-century net-zero commitments. The Barossa Gas Project will meet its Safeguard Mechanism compliance obligations, set by the CER in accordance with Australian Government policy and emissions reduction targets, including through the purchase and/or generation of ACCUs or SMCs. Management of the emissions of the Barossa Development in accordance with the Safeguard Mechanism will ensure that this Activity does not have an unacceptable impact on climate change, as the Scope 1 GHG emissions of the Activity are being considered as part of Australia's NDC and, therefore, also into the global trajectory to limit global warming in line with the Paris Agreement targets. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	*Santos refers ACF to paragraphs 4 and 5 of the Annexure to Santos' 13 June 2024 correspondence.* *Santos will be required to comply with the applicable baseline under the Safeguard Mechanism for the Barossa project in accordance with Australia's Paris Agreement targets and associated emissions budget. Santos understands that ACF has a specialist understanding of the Safeguard Mechanism. Compliance with Santos' obligations under the Safeguard Mechanism may be achieved through (among other things) purchase or surrender of ACCUs or SMCs. Santos refers ACF to page 22 of Santos' 2023 Annual Report, which provides further information on Santos' generation and acquisition of carbon credits as follows:* *In 2023, Santos executed agreements to build a portfolio of projects supporting the development of five nature-based projects across Queensland, Alaska and Papua New Guinea, to generate carbon credits. Further, in 2023 Santos entered into forward contracts for the purchase of 2.5 million ACCUs at fixed prices to be delivered and paid between December 2023 and January 2027.* *NOPSEMA, in the exercise of its functions as Regulator, will consider whether Santos has demonstrated how the requirements applicable to the Activity will be met.*	Section 6.3 BAO-CM-6.3.9 BAO-CM-6.3.11
The ACF requested details of the control measures and protocols that Santos has developed for the Barossa project to protect marine fauna and biologically important areas.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Santos provided the ACF with additional information of the specific protocols adopted in Santos procedures adopted in accordance with guidance from Part 8 *of the Environment Protection and Biodiversity Conservation Regulations 2000 and the Australian National Guidelines for Whale and Dolphin Watching 2017.* Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	*The Production Operations information booklet contains proposed control measures that will be adopted as relevant to potential impacts to species, including marine fauna, and in relation to biologically important areas. All considered control measures (adopted and not adopted) will be presented in the EP for assessment by the Regulator/s.*	Section 7.3

		Santos' planned vessel activities overlap the internesting buffer for flatback turtles. *Specific to marine fauna interactions, the Production Operations information booklet describes control measures at pages 9, 10 and 26. Santos adopts the following specific controls to protect marine fauna from vessel activities for Barossa Operations in accordance with:* *(a) Part 8 of the Environment Protection and Biodiversity Conservation Regulations 2000:* *(i) avoid collision;* *(ii) reduce speed to 6 knots & steer away within caution zone (300m of whales / whale sharks and 150m of dolphins);* *(iii) operate vessel at constant speed (6 knots);* *(iv) do not drift or approach marine fauna;* *(v) do not restrict fauna pathway or pursue fauna; and* *(b) Australian National Guidelines for Whale and Dolphin Watching 2017:* *(i) Adopting cautionary and no approach distances for whales, whale sharks (100 m no approach and 300 m cautionary distances) and dolphins (50 m no approach and 150 m cautionary distances).*	
ACF correspondence to Santos on 9 September 2024 The ACF reiterated concerns that Santos has not provided it with sufficient information in relation to the climate change impacts attributable to the project, including an analysis that measures the impact on the environment as a result of an increase in temperatures attributable to the total lifetime emissions of the project.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. The Barossa Production Operations EP and this OEMP acknowledge the linear relationship between cumulative anthropologic GHG emissions and global warming. The impacts on the climate cannot be attributed to one specific sector or activity. In the context of evaluating potential impacts and risks that may be associated with GHG emissions from all sources globally, including from this Activity, this OEMP has considered broader climate change issues. The OEMP references the latest commentary from the IPCC on the causes and impacts of climate change By keeping the Project emissions under the Safeguard Mechanism baseline, the Project's incremental contribution to global warming is within acceptable limits as determined by reference to Australia's NDC under the UNFCCC The Barossa Project's overall GHG emissions and proposed management are addressed in the Barossa Production Operations EP. Santos considered this claim having regard to the previously exchanged information and correspondence as described above in this table, noting that the ACF's 30 September 2024 correspondence reiterated the ACF's claim that it has not been provided with sufficient information, but did not elaborate on it any further. Santos views that ACF has been provided sufficient information and a reasonable period of time to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	**Santos correspondence to ACF on 20 September 2024** *Thank you for your letter of 9 September 2024. Santos has considered the matters raised or restated by ACF in that letter and provided responses to your concerns and requests for further information, where possible and reasonable, in the attached Annexure.* *Santos remains of the view that sufficient information, and more than a reasonable amount of time, has been provided to ACF to allow ACF to make an informed assessment of the possible consequences of the activity to be carried out under the EP on any of ACF's functions, interests or activities.* *Santos is finalising the EP for submission to NOPSEMA and thanks ACF for its comments and submissions in respect of the risks, impacts, and potential controls in relation to this EP. (Note: This element of the response to ACF was referring to the Production Operations EP)* *Santos will comply with its Safeguard Mechanism obligations, which is part of the Australian Government's approach to meeting Australia's Nationally Determined Contribution under the Paris Agreement. Direct GHG emissions from Barossa (and a portion of indirect emissions associated with processing at DLNG) are to be managed under Australian regulations.* *As a result of the complex nature of the global emission system, climate change impacts cannot be meaningfully linked to any one activity or emissions source. The whole system for achieving emissions reductions involves additions in some areas and reductions in others, with net emissions reducing over time and there are many pathways to achieve NDCs in each country. Products generated from the Barossa Development will only be sold to customers from countries that are signatories to the Paris Agreement (or that have policies for reducing GHG emissions that are equivalent to policies required by the Paris Agreement).* *Santos confirms that in drafting the EP, it has had regard to the IPCC AR6 and relevant CSIRO publications.* *Otherwise, Santos:* • *refers ACF to paragraph 4 of the Annexure to Santos' 13 June 2024 correspondence and Santos' response in the first row of the Annexure to Santos' 7 August 2024 correspondence; and* • *is of the view that sufficient information has been provided to ACF to allow ACF to make an informed assessment of the possible consequences of the activity to be carried out under the EP on any of ACF's functions, interests or activities.* *The acceptability of environmental impacts of GHG emissions from the activity will be evaluated in the EP, for assessment by the Regulator against the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (OPGGS Regulations).*	Section 6.3 BAO-CM-6.3.9 BAO-CM-6.3.11
The ACF asserted that it was concerned about marine impacts and has engaged a marine expert to provide specific questions and solutions, which it expected to provide Santos in mid-October.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Santos has provided information to the ACF regarding the marine impact of the Activity, and these are assessed in Sections 6 & 7 of the OEMP. Santos views that ACF has been provided sufficient information and a reasonable period of time to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	*Santos notes the ACF's concern. Santos' consultation with ACF for the EP commenced on 9 February 2024. During the period of consultation, Santos has provided information in relation to impacts to marine species, based on the extensive scientific literature publicly available, and has consulted with the ACF in respect of concerns regarding potential impacts. Santos has provided ACF more than a reasonable amount of time to make an informed*	Sections 6 & 7 .

		assessment of the possible consequences of the activity on its functions, interests or activities. The matters raised by ACF during consultation demonstrate that it has been able to engage comprehensively in the consultation process based on the information provided by Santos. **Note:** Santos undertook consultation under s 25 of the OPGGS(E)R regarding activities under this Coastal Waters OEMP concurrently with consultation on activities under the Barossa Production Operations EP.	
The ACF reiterated concerns regarding the activity's impact on marine species and requested further information regarding: a. the precautions Santos were taking to protect precious and vulnerable species; b. crossover or near crossover with Santos' operations and Pygmy Blue Whale feeding/foraging or possible breeding areas; and c. whether Santos is open to evaluating and consulting on additional control measures.	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Santos has considered potential impacts to threatened, migratory and local fauna from planned activities and unplanned events in preparing this OEMP. Santos views that ACF has been provided sufficient information and a reasonable period of time to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities. Concerns related to the FPSO and activities in Operational Areas 1 and 2 of the Barossa Production Operations EP, including the Pygmy Blue Whale feeding / foraging areas or possible breeding areas, are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	*a. In addition to the control measures set out in its letter of 7 August 2024, Santos proposes to adopt a control measure that will limit vessel speeds within 500m around the FPSO, IMMR vessels and campaign vessels to further mitigate the risk of marine fauna interaction.* *b. Operational Areas 1 and 2 do not overlap with pygmy blue whale biologically important areas (BIAs) for migration or foraging. The closest pygmy blue whale BIA (migration) is 173km from Operational Area 1. (*Note: The reference to Operational Area 1 and Operational Area 2 refers to activities under the Barossa Production Operations EP) *c. Santos refers to and repeats its response to paragraph 2 above. Santos has remained open during the consultation phase to considering additional measures (and has considered measures where proposed}.* *Based on all information available to Santos about the level of impact and risk to marine fauna from the proposed Activity, Santos does not consider any additional measures (in addition to those already proposed) to be necessary. An ALARP evaluation of all potential control measures (adopted and not adopted) to reduce impacts to marine fauna will be presented in the EP for assessment by the Regulator/s. In relation to the measure proposed by the ACF, this measure is not relevant to the activity proposed under this EP, which does not include build operations.* *Santos otherwise refers ACF to its response in the third row of the Annexure to Santos' 7 August 2024 correspondence. In accordance with Section 22 (15) of the OPGGS Regulations, the EP will contain an implementation strategy to enable appropriate consultation with the ACF should concerns arise during operations.*	Sections 6 & 7 Section 7.3 BAO-CM-6.1.1 BAO-CM-6.1.2 BAO-CM-6.6.6
The ACF asserted that compliance with the Safeguard Mechanism does not address Barossa's exported emissions. It also stated that Santos does not have accountability measures in place to ensure end users meet Paris Agreement obligations. The ACF stated that it questioned the legitimacy of any claim that the Barossa Project is compliant with a 1.5 degree aligned pathway under the Paris Agreement.	Santos has considered the matters raised and provided a response to ACF. The Barossa Project's overall GHG emissions and proposed management are addressed in the Barossa Production Operations EP.	*Santos refers ACF to paragraphs 6 and 7 of the Annexure to Santos' 13 June 2024 correspondence and Santos' response in the second row of the Annexure to Santos' 7 August 2024 correspondence.* *Santos reiterates that:* • *Santos will be required to comply with the Safeguard Mechanism, which is the regime that implements Australia's commitment to the Paris Agreement in relation to industrial emissions; and* • *Santos will only sell gas to customers from countries that are signatories to the Paris Agreement or that have a net-zero commitment as at the date of the relevant contract of sale, and therefore, Santos' international customers are subject to the requirements their respective governments set to achieve their Paris Agreement commitments.* *NOPSEMA, in the exercise of its functions as Regulator, will consider whether Santos has demonstrated how the requirements applicable to the activity will be met.*	EPO 11
The ACF stated that its functions, interests or activities include: • engaging with investors across Australia who have an interest in preserving the environment and safeguarding climate; and • monitoring and engaging with government and businesses on climate change and emissions reduction measures.	Santos has considered the matters raised and provided a response to ACF. Santos acknowledges ACF's functions, interests and activities. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities. The Barossa Project's overall GHG emissions and proposed management are addressed in the Barossa Production Operations EP.	*Santos acknowledges ACF's functions, interests and activities. Santos is of the view that sufficient information has been provided to ACF to allow ACF to make an informed assessment of the possible consequences of the activity to be carried out under the EP on any of ACF's functions, interests or activities. See, in particular, Santos' response in the second row of the Annexure to Santos' 7 August 2024 correspondence.* *Santos' compliance with the SGM is a matter for Australia's Clean Energy Regulator to determine. Santos confirms that it will comply with the SGM using offsets or direct abatement. Santos continues to pursue carbon capture and storage opportunities which would provide direct abatement.*	Not applicable.
The ACF sought further information on Santos' compliance with the Safeguard Mechanism, including: • the Baseline scenarios it will comply with across the life of the project; and • specific details of how it intends to comply with the Safeguard Mechanism across the	Santos has provided a response to ACF and considered the matters raised by ACF in the OEMP. Barossa will meet its Safeguard Mechanism compliance obligations, set by the CER in accordance with Australian Government policy and emissions reduction targets, including through the purchase and/or generation of ACCUs or SMCs. Santos considers that the information requested is not necessary for the ACF to make an informed assessment of the possible consequences of the activity on any of its functions, interests or activities. Santos views that ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	*Santos refers ACF to paragraph 1 of the Annexure to Santos' 13 June 2024 correspondence and Santos' response in the second row of the Annexure to Santos' 7 August 2024 correspondence.* *Santos reiterates that the treatment of the Barossa project under the Safeguard Mechanism is a matter for the Clean Energy Regulator.* *Notwithstanding this, Santos notes that it will be required to comply with the applicable baseline for the Barossa project in each compliance year, and*	Section 6.3 BAO-CM-6.3.9 BAO-CM-6.3.11 BAO-CM-6.3.12

life of the project, including abatement options, purchase of carbon credits, emissions reduction strategies, financial assessments for future credit purchases, and the projected percentage of abatement it expects to achieve through ACCUS/SMCs.		*there are various options available to meet a baseline {including direct abatement and acquiring offsets, in addition to mechanisms available under the Safeguard Rules such as borrowing adjustments and multi-year monitoring periods).* *It is a matter for Santos to determine how it will achieve compliance with the Safeguard Mechanism. This information is not necessary for the ACF to make an informed assessment of the possible consequences of the activity on any of its functions, interests or activities.*	GHGEMP is summarised in Section 8.3.2.12
ACF correspondence to Santos on 30 September 2024 The ACF acknowledged Santos' response on 20 September 2024 and expressed its disagreement with Santos' position that it has provided sufficient information, but did not further elaborate on the complaint. The ACF foreshadowed follow up correspondence before 14 October 2024.	As of 19 December 2024 ACF had not provided follow up correspondence. Santos does not agree with the ACF's claim that it has not been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	**Santos correspondence to ACF on 19 December 2024** *Your 30 September correspondence was in response to our letter of 19 September 2024 where we noted that:* • *Santos remained of the view that sufficient information, and more than a reasonable amount of time, had been provided to ACF to allow ACF to make an informed assessment of the possible consequences of the activity to be carried out under the EP on any of ACF's functions, interests or activities; and* • *that Santos was finalising the EP for submission to NOPSEMA.* *Given that no further correspondence was received by 14 October, or since, and having regard to the elapsing of time, Santos has proceeded on the basis that the ACF does not intend to provide any further feedback and that consultation for preparation of environment plans relating to Barossa Production Operations activities is complete.* *As always, while Reg 11A consultation is complete, Santos remains open to engagement with our stakeholders and any input on our activities that you may have. We will also continue to engage in accordance with our post-implementation consultation plan once the Environment Plan is in force.* *Santos would like to thank you for your responses and any input provided to date.*	Not applicable
ACF correspondence to Santos on 20 December 2024 ACF stated in the email that it will provide it to Santos early next week.	A total 12 weeks had elapsed since the ACF stated on 30 September 2024 that it would be providing follow-up correspondence to Santos by 14 October 2024. Santos remains of the view that sufficient information, and more than a reasonable amount of time, had been provided to ACF to allow ACF to make an informed assessment of the possible consequences of the activity to be carried out under the OEMP on any of ACF's functions, interests or activities. Santos advised the ACF in the same communication on 19 December 2024 that the Barossa Production Operations EP was being finalised for submission to NOPSEMA. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.
ACF correspondence to Santos on 23 December 2024. ACF stated that its letter raised concerns about the content of the EP version dated 24 September 2024 and set outs issues Santos should address in an amended EP.	This letter and the issues raised in it relate to the Barossa Production Operations EP, and in particular to the version of the EP published on NOPSEMA's website in September 2024. Santos has included this letter, and its response to this letter, for completeness noting that many (although not all) of the concerns raised by the ACF may be assumed to apply equally to the OEMP. Santos has considered the matters raised by ACF in the Barossa Production Operations EP and provided a response to ACF. Refer below for assessment of matters raised. For completeness, Santos confirms that the ACF's comments were made in relation to Rev 1 of the Barossa Production Operations EP, and Santos' response was based on Rev 2 of the Barossa Production Operations EP. For completeness noting that many (although not all) of the concerns raised by the ACF may be assumed to apply equally to the OEMP,concerns that apply to the OEMP have been considered in the OEMP.	**Santos correspondence to ACF on 31 January 2025.** *The ACF's 23 December letter sets out issues that the ACF proposes should be addressed by Santos in an amended EP. In this regard, we note that the ACF's comments in that letter refer to the EP as it stood on 24 September 2024 (that version, the 24/9/2024 Version).* *An updated version of the EP was provided to NOPSEMA on 23 December 2024 (that version, the Current Version) The distinction is made to explain Santos' responses to your letter of 23 December at Appendix A..*	Not Applicable
[4] – [5] ACF stated the 23/9/2024 version of the EP is deficient in material respects, resulting in non-compliance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023	Notwithstanding that this issue was raised in relation to the Production Operations EP, Santos has considered the matters raised by ACF in the OEMP. Santos has provided a response to ACF. Santos does not agree that the EP and OEMP and is deficient or otherwise non-compliant with the Regulations.	*Santos notes that whether or not the EP is deficient or otherwise non-compliant with the Regulations, is a matter NOPSEMA will consider and determine in the exercise of its functions..*	Not Applicable
[7] ACF stated that its concerns on impacts and protection of marine fauna, raised during the meeting on 9 July 2024, had not been accurately characterised in the EP. [8] ACF also stated it had not been provided with sufficient information to inform its assessment, specifically alleging:	Notwithstanding that this issue was raised in relation to the Barossa Production Operations EP, Santos has considered the matters raised by ACF in the OEMP and provided a response to ACF. Santos disagrees with the assertion that ACF's concerns regarding impacts and protection of marine fauna, raised in the 9 July meeting, have not been accurately characterised in the EP and OEMP. These concerns are captured in Con 5212 and 5117 and have been consistently reflected and considered in the Barossa Production Operations EP. Regarding point [8.1], Santos acknowledges that the GHG emissions estimates in the Production Operations EP are lower than the estimates provided in the information booklet for the reasons explained in Santos' response to	*Santos has considered the ACF's views as to the sufficiency of information provided to date and remains of the view that Santos has properly consulted with the ACF to the standard required under section 25 of the Regulations.* *Regarding point 1, Santos confirms that the GHG emissions estimates in the EP are lower than the estimates provided in the information booklet for the 25 year lifecycle of Barossa production operations (inclusive of commissioning, start-up and steady state operations), and are based on best available information about the Activity at time of submission of the EP. As the annual*	Not Applicable

1. Emissions estimates provided changed over time without specification or explanation, 2. Santos refused to model the impact of emissions on MNES; 3. Santos refused to engage regarding compliance with the Safeguard Mechanism, including regarding offsets; and 4. Data provided to inform impacts (particularly on fauna) was insufficient and of low-quality.	ACF. In circumstances where the GHG emissions estimates in the EP are lower than the estimates provided in the information booklet, Santos does not consider this has affected the ACF's ability to make an informed assessment of the possible consequences of GHG emissions on the ACF's functions, interests or activities. Santos' assessment relating to ACF's allegations on each of the items listed in [8.2] – [8.4] of the 23 December letter are assessed in relevant sections below. Santos considers it has provided sufficient information to the ACF, and that section 25 consultation requirements have been met, including for the reasons given in response to the ACF.	*emissions estimates provided in the information booklet preceded the finalisation of the EP for submission to NOPSEMA, they were conservative (if extrapolated at a flat rate for 25 years of production operations) when considering that annual emissions are expected to reduce over the life of the Activity as production rates decline. For further discussion relating to emissions estimates and to each of the other items listed in [8.2] – [8.4] of the 23 December letter inclusive, please see further discussion in the relevant sections below.*	
[9] – [21] ACF stated the following in relation to infrastructure design being responsive to changing weather: • it is unclear from the 23/9/2024 version of the EP how long operations will be undertaken for; • The infrastructure design needs to account for environmental changes (including emissions, temperature and climate change scenarios) that will occur at least until 2050. • In relation to the FPSO, the EP does not deal with the consequences of a potential mooring line failure; • The risk of a condensate spill is not appropriately assessed in light of increasingly extreme weather events • The 23/9/2024 Version of the EP does not satisfy the Regulations because it fails to include: ○ comprehensive consideration of changing weather patterns; ○ design responses and contingency plans in response to such changing weather patterns; and ○ detail regarding use of support vessels in the event of extreme weather under the above scenarios.	Notwithstanding that this issue was raised in relation to the Barossa Production Operations EP, Santos has considered the matters raised by ACF in the OEMP. Santos disagrees that there is any lack of clarity as to how long operations will be undertaken. The EP and the OEMP identify the duration of activities and address the substance of the concerns raised by the ACF. In any case, to avoid any uncertainty, Santos has made consequential amendments to Rev 3 of the Barossa Production Operations EP in order to clarify the matters raised by the ACF. Santos considers this OEMP satisfies regulatory requirements, the OEMP has considered and includes control measures to ensure integrity management of the subsea infrastructure within the Pipeline Integrity Management Plan (BAO-CM-7.6.3). In addition, the Barossa Nearshore Gas Export Pipeline Operations Pipeline Management Plan includes measures to ensure safe operations and ongoing integrity of all facilities and vessels (including support vessels) during adverse weather conditions.	*As identified in Section 2.3 of the 24/9/2024 Version of the EP, the total duration of FPSO steady state operations is approximately 25 years.* *The design of the Barossa facilities has considered climate change risks and associated changes in weather patterns, and these have been incorporated into the project design across the 25-year facility design life. (Note: the facility design life of 25 years aligns with the currently planned 25 years of operations. Operations beyond this period would be subject to detailed design life extension assessments.)* *In any case, Santos notes the EP is required to be revised every five years and there will therefore be at least four opportunities for Relevant Person consultation and regulator assessment and acceptance of the revised EPs before the design life of 25 years is reached* *Cyclonic events are the dominant climatic influence on the design of surface infrastructure. During project definition, a cyclonic event dataset was developed and subjected to a range of modelled sensitivities to account for extreme weather conditions (winds, waves, currents) which resulted in modelled 10,000 year cyclonic storm conditions. This dataset informed the facility mooring system design against survivability acceptance criteria for a 10,000 yr return period cyclonic event, and a 100 yr return period cyclone event with a single mooring line failure as described in Sections 2.4.4.1 and 2.10 of the 24/9/2024 Version. The conservatism in the FPSO mooring system design survivability acceptance criteria is sufficient to account for changing weather patterns due to climate change, over the design and operational life of the Barossa facilities.* *In the event there is the potential for offshore operations to be impacted by extreme weather events, the Barossa FPSO Facility Safety Case (**Safety Case**) includes measures to ensure safe operations and ongoing integrity of all facilities and vessels (including support vessels) during adverse weather conditions. The Safety Case is subject to assessment by NOPSEMA under the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009 (Cth).* *Notwithstanding, the 23/09/2024 version of the EP evaluates impacts and risks of a loss of marine diesel oil (**MDO**) from a support or other Activity vessel, caused by a vessel collision (Section 7.7.10). The EP considers poor/adverse weather conditions as a contributing factor for a vessel collision event and includes proposed control measures to reduce impacts and risks from a vessel loss of containment event to ALARP and acceptable levels.*	BAO-CM-6.4.10 BAO-CM-7.6.3
[22] – [24] ACF stated the scope of the activity is unclear in relation to condensate offtake and cited contradiction in the offtake process once the offtake tanker is disconnected from the FPSO but still in the Operational Area	Santos has considered the matters raised by ACF in relation to the FPSO and condensate offtakes in the Barossa Production Operations EP and provided a response to ACF. These matters are not relevant to this Activity and not addressed in this OEMP.	*1. Offtakes will be periodic, approximately one every 3 months (described in Section 2.7.4.1).* *2. The EP defines the Operational Areas with coordinates in Section 2.2.3 and Figure 2-1.* *3. Section 2.7.4.1 describes the offtake activities. For clarity, the operations of the offtake tanker constitute part of Santos' petroleum activities (for the purposes of the Regulations) under this EP when the tanker is under Santos' navigational control in Operational Area 1 (OA1), and when the offtake tanker is connected to the FPSO.* *4. Santos has assessed the planned impacts and unplanned event risks associated with offtake tanker operations within the OA1. (Refer Section 6.1, 6.2, 6.3 and 6.6 of the 24/9/2024 Version in relation to impacts from planned activities and Section 7.7 in relation to impacts and risks from unplanned hydrocarbon release events.)*	Not Applicable
[25] – [30] ACF stated the following in relation to spill risk: • The statement in the 23/9/2024 Version of the EP that the maximum credible release of	Santos has considered the matters raised by ACF in relation to the FPSO and condensate releases in the Barossa Production Operations EP and provided a response to ACF. These matters are not relevant to this Activity and not addressed in this OEMP.	*This EP does not cover Varanus Island Operations which are regulated by another regulator and different legislation and regulations. The 24/9/2024 Version sets out the basis on which the maximum credible release of condensate from offtake equipment has been calculated. The incident referred to by the ACF has no bearing on this calculation because the offtake*	Not Applicable

condensate due to rupture or leak of offtake equipment is 465m3 is not credible and not compliant with the requirement to identify and evaluate risk. • The lack of credibility arises from the details of the 20 March 2022 spill Santos was responsible for at Varanus Island • The 23/9/2024 Version of the EP does not explain what "major loss" means nor how the detection would occur or how detection would result in "instantaneous" shutdown. • Given the Varanus spill the EP needs to particularise this and address the Varanus situation specifically. The 23/9/2024 Version of the EP indicates production flowlines can be monitored for pressure drops indicating leaks. The EP should consider applying this to offtake lines.		*operations for the Barossa FPSO are materially different than that at the Varanus Island Operations. The offtake hose on the BW Opal is reeled on the FPSO and deployed for offtakes. In the case of an unplanned event, and the release of condensate from the hose, the release would be on the sea surface, as the hose is floating.* *In contrast, as identified in the extract cited by the ACF, the release of condensate at Varanus Island occurred from a torn subsea hose (that is, underwater and on the seabed). The extracts at p 730 of the 24/9/2024 Version identified by the ACF are based on the fact that the Barossa offtake hose is floating and clearly visible.* *In particular, as set out in the EP, offtake hook-up & condensate offloading will commence during daylight hours (control measure BAO-CM-6.8.6), enabling visual observation at the commencement of offtake operations and visual detection of an unplanned release. The volume and flow rates are also metered at both the FPSO and offtake tanker during offtake operations, providing further means of detection of an unplanned release.*	
[31] – [34] ACF stated Santos needs to explain incongruity in the 23/9/2024 Version of the EP with regard to a Petroleum Safety Zone being used to reduce the potential for vessel interaction and collision. ACF stated the incongruity arises because the EP states that third-party vessels are not permitted to enter the PSZ but, if condensate is to be taken off by third party vessels, they will need to enter the PSZ.	Santos has considered the matters raised by ACF in relation to the Petroleum Safety Zone in the Barossa Production Operations EP and provided a response to ACF. These matters are not relevant to this Activity and not addressed in this OEMP.	*Further to Santos' response above to paragraphs [22]-[24] of the ACF's 23 December letter, whilst the offtake tanker is a third-party vessel, it is permitted access to the PSZ (within OA1), after requirements of the Santos permit to work authorisation process have been met (which are managed via radio communications between the third-party operated offtake tanker and the FPSO). As noted above, Santos has considered the impacts and risks associated with the presence of the offtake tanker within OA1 and the PSZ.*	Not Applicable
[35] – [53] ACF stated there is no detail provided in the 23/9/2024 Version of the EP as to how off-take tankers, as third-party vessels, will be vetted, where and when that will occur and by whom, what the criteria are and who will be the parties to the agreement referred to. ACF stated its assumption is that guidelines referred to are the Oil Companies International Marine Forum Guidelines for Offshore Tanker Operations but it is not clear that the guidelines cover the operation in the way the 23/9/2024 Version of the EP describes. ACF stated it is also concerned that reliance is placed on guidelines written by industry that are not subject to Australian government oversight. ACF stated the movement of offtake activities is a risk of the activity and hence must be detailed, evaluated and control measures specified; at a minimum the offtake tankers when approaching the FPSO and within OA1 should be considered part of the activity and treated accordingly for the purposes of the EP.	Santos has considered the matters raised by ACF in relation to the FPSO and associated offtake tankers and third party vessels in the Barossa Production Operations EP and provided a response to ACF. These matters are not relevant to this Activity and not addressed in this OEMP.	*Santos confirms that the reference on p 939 of the 24/9/2024 Version to 'Guidelines' is a reference to the Oil Companies International Marine Forum Guidelines for Offshore Tanker Operations, referred to immediately above and to the left of the statement extracted by the ACF.* *The relevant detail (that provides for reducing associated risk of unplanned hydrocarbon release) as contained in the Oil Companies International Marine Forum Guidelines (and, by extension, the vessel vetting process) is included in the 24/9/2024 Version of the EP, this being "tankers with double hulls and fully segregated ballast tanks is a requirement of the vetting process as well as a MARPOL requirement that is monitored by way of regular statutory inspections". (refer to Section 2.7.4.1)* *The unplanned hydrocarbon release risk associated with condensate offtake operations, inclusive of the presence of the offtake tanker within OA1, is assessed and considered in the 24/9/2024 Version. (Also see Santos' above response to paragraphs [22]-[24] and [31]-[34] of the ACF's 23 December letter.)* *Santos:* *• has properly considered the impacts, risks and management measures included in the EP to address the risk of a loss of containment; and* *• notes this is properly a matter for NOPSEMA to consider and determine in the exercise of its regulatory functions.*	Not Applicable
[54] ACF stated it is not obvious where the information on support and offtake vessel interactions is in the 23/9/2024 Version of the EP.	Santos has considered the matters raised by ACF in relation to the FPSO and condensate offtakes in the Barossa Production Operations EP and provided a response to ACF. These matters are not relevant to this Activity and not addressed in this OEMP.	*The reference to Section 2.8.6 identified by the ACF is a typographical error. The correct reference is to Section 2.7.4.1 (Offtake Operations), which details the role of support vessels in offtake operations, noting: 'at least one support vessel is on location to provide static tow of the offtake tanker and assisting in berthing and disconnect'.*	Not Applicable
[55] – [57] ACF stated the Barossa Terminal Handbook is referenced in the 23/09/2024 Version of the EP in relation to several control measures intended to reduce the risk of hydrocarbon spill and should form part of the EP and be provided to Relevant Persons.	Santos has considered the matters raised by ACF in relation to the FPSO and condensate offtakes in the Barossa Production Operations EP and provided a response to ACF. These matters are not relevant to this Activity and not addressed in this OEMP.	*The EP is required to describe how the suite of proposed control measures are sufficient to reduce identified impacts and risks of the Activity to ALARP and acceptable levels. On p 768 of the 24/9/2024 version, the 'environmental benefit' of BAO-CM-071 (ie. the Barossa Terminal Handbook) describes the function of the Handbook in reducing the risk of a vessel collision that may lead to an unplanned release of condensate from the FPSO. This is sufficient for the purpose of NOPSEMA's assessment against the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (the Regulations) for an EP.*	Not Applicable

		Santos' obligation is to describe the measure sufficiently in the EP to explain its purpose and function as a control measure for identified impacts and risks. Please note that in addition to information provided on p 768 of the 24/9/2024 Version, the function of the Barossa Terminal Handbook as a control measure (BAO-CM-071) for the EP is further described on p 851 of the EP. Santos considers that the information included in the EP provides sufficient detail in relation to the role of the Handbook in reducing impacts and risks to a level that is ALARP and acceptable. NOPSEMA will have opportunities to assess proper implementation and effectiveness of the Barossa Terminal Handbook as a control measure during compliance inspections of the accepted EP.	
[58] – [67] ACF stated the following in relation to Greenhouse Gas Emission characterisation in the 23/09/2024 Version of the EP: • The categorisation of Scope 3 emissions is assumed by ACF to be based on The Greenhouse Gas Protocol A Corporate Accounting and Reporting Standard Revised Edition but this needs to be clarified. • The definition of scope 1 under the "NGER regime" is inaccurate • The EP should adopt the Australian definition of scope 1, 2 and 3, applying that support vessels emissions are Scope 1 and the same is true of the transport of condensate and business travel. • The EP incorrectly determines emission scope by reference to the concept of "reporting entity", without explanation. • The 23/9/2024 Version also incorrectly determines emission scope by reference to ownership and control. The 23/9/2024 Version requires revision so the GHG emissions figures are accurate.	Santos has considered the matters raised by ACF in relation to the Barossa Production Operations EP and provided a response to ACF. The Activity described in this OEMP has adopted the basis of Scope 1 and Scope 3 GHG emissions definitions as those in the Barossa Production Operations EP.	*Santos has calculated the anticipated Scope 1 emissions of the Activity consistent with the methods it uses to calculate and report its reporting entity emissions under the NGER regime. Under that regime, a corporation is required to report on emissions under its operational control (section 19, NGER Act). A person has operational control over a facility if the person has the authority to introduce and implement operating, health and safety, and environmental policies (section 11).* *Emissions from sources such as "support vessels" and "transport of condensate" are not under the operational control of the Barossa Joint Venture and, therefore, will not be included as Scope 1 (or Scope 2) emissions for NGER reporting purposes.* *The definition of Scope 3 emissions in the GHG Protocol was adopted because there is no "Australian definition" of this concept under the NGER regime (which relates to Scopes 1 and 2 emissions only).*	Not Applicable
[68] – [89] ACF stated the following in relation to evaluation impact of changes in climate: • It has not seen any documentation whereby Santos sufficiently addresses the impacts of its emissions on the climate or how it will address the climate impacts of its scope 1 and 3 emissions. • No detail has been provided on how Santos will address the direct or indirect consequences on the environment, including matters of national environmental significance, from the release of greenhouse gases. • Santos should model the temperature increases that will occur as a result of the GHG emissions from Barossa (scope 1 and 3) and assess the impacts of that temperature increase upon the environment. • Santos refuses to engage meaningfully on the matter and its approach to provision of information during the consultation phase was not consistent with the Regulations. • Santos failed (despite ACF's requests) to provide an assessment of the consequences on Australia of the pollution that the project will generate, specifically the greenhouse gas emissions. • The 23/9/2024 Version of the EP is non-compliant with the Regulations and this needs to be addressed before NOPSEMA makes a decision on the EP under reg 33.	Santos has considered the matters raised by ACF in relation to the Barossa Production Operations EP and provided a response to ACF.	*International frameworks, namely the Paris Agreement, have been developed to facilitate an orderly approach to what is a global problem. This framework recognises, and is premised on, the fact that climate change is a global issue – there is no correlation between where GHG emissions are released and where climate change impacts are felt.* *For this reason, Australia sets and reports against its emissions reduction targets in 'net' terms, not by individual sectors or projects. The Australian Government is aware of planned production in the Barossa gas field and has considered this in its emissions reduction targets outlined in its Nationally Determined Contribution (NDC) under the Paris Agreement. The Offshore Project Proposal was previously approved by NOPSEMA and a production licence conferring rights to extraction of the gas resource on the Barossa joint venture has already been granted.* *Domestically, GHG emissions are regulated through Australia's NDC and the Safeguard Mechanism, and Santos has legal obligations to ensure that the Activity operates in accordance with that framework.* *Physical impacts of climate change on environmental receptors are the result of global GHG emissions from a multitude of sources (minus the GHG sinks) that have accumulated in the atmosphere. The impacts of climate change cannot be attributed to one specific sector or activity.* *In the context of evaluating potential impacts and risks that may be associated with GHG emissions from all sources globally, including from this Activity, Santos has considered the physical impacts of climate change (Section 6.3.2.6 of the 24/9/2024 Version).* *Santos considers the ACF's summary of engagement on this issue outlined in the 23 December letter, reproduced in the 'ACF assertion' column to the left, is incomplete and inaccurate. The summary does not refer to all relevant engagement from Santos.*	Not Applicable

It is possible, and required, to evaluate the impact on Australia of the GHG emissions the Activity will cause.			
[90] – [91] ACF stated the activity is inconsistent with the Paris Agreement and with limiting warming to 1.5 degrees and that Santos' reasoning on this issue is flawed, in that compliance with the Safeguard Mechanism does not necessarily ensure compliance with a 1.5 degree scenario. ACF further stated Santos has not expressed any credible solution to this issue, nor engaged with ACF on potential solutions. ACF stated that potential solutions could include: 1. Ensuring Santos' customers are using products to displace coal and not on-selling to other nations. 2. Limiting sales to customers using on-site abatement (CCS) in their gas-fired power stations. 3. Not selling to customers prior to ensuring that their countries have legitimate and credible policy pathways to meet their NDCs.	Santos has considered the matters raised by ACF in relation to the Barossa Production Operations EP and provided a response to ACF.	*Australia has a well-established legislative framework under which certain GHG emissions from Barossa production operations will be regulated or managed to further Australia's transition to net zero emissions by 2050. This includes:* • *GHG emissions reporting under the NGER Act and the National Greenhouse and Energy Reporting (Measurement) Determination 2008* • *the Emissions Reduction Fund (Australian Carbon Credit Units Scheme)* • *the Safeguard Mechanism to keep net emissions below an established baseline and require net-zero reservoir emissions for new gas fields that feed LNG projects. The Safeguard Mechanism currently applies to facilities that emit more than 0.1 MtCO2-e per annum.* *Compliance with the Safeguard Mechanism is of primary importance in ensuring that GHG emissions associated with the Activity are as low as reasonably practicable and acceptable. GHG emissions at or below the baseline and the Safeguard Mechanism's future decline rates are already anticipated and thus accounted for under Australia's NDCs under the Paris Agreement.* *Unlike Scope 1 emissions, there is no compliance framework for Scope 3 emissions management in Australia. This is because Scope 3 emissions are the Scope 1 and Scope 2 emissions of upstream suppliers and downstream users. The international system for GHG regulation, underpinned by the UNFCCC and Paris Agreement, recognises that responsibility lies with the countries in which those emissions are generated. NDCs, including that of Australia, are consistent with this approach. Accordingly, Scope 3 emissions commitments made by companies are generally voluntary.* *Santos, in its capacity as an independent company, has implemented a multi-faceted corporate plan to address Scope 3 emissions across its operations. The actions to address Scope 3 emissions include:* • *continue engaging our suppliers to deepen our understanding of their emissions* • *provide guidance and education to support our suppliers to improve the accuracy of their emissions calculation* • *work with suppliers to develop mutually beneficial emissions reduction initiatives* • *continue engaging with our industrial customers, LNG customers and regional emitters to provide carbon management solutions, including progressing our current MOUs, and* • *investment in carbon capture and storage, and other technologies to advance the development of low carbon fuels.* *These corporate commitments as an independent company will be applied to suppliers and to Santos' customers in respect of the Barossa Development. This approach ensures that Scope 1 emissions for Barossa will be managed in accordance with legislative compliance obligations (which include consideration of best practice in their formulation) and that a proactive and collaborative voluntary approach is taken to addressing Scope 3 emissions through Santos' broader corporate initiatives as an independent company and not in its capacity as Operator of the Barossa JV.* *Additional control measures addressing Scope 3 emissions have been considered but not adopted for various reasons including that they are the Scope 1 and 2 emissions of other countries, who have their own nationally determined contributions and targets under the Paris Agreement, in accordance with their own national pathways for emissions reduction.*	Not Applicable
[92] – [97] ACF stated there is a lack of adequate (including independent, peer-reviewed) research informing the impact analysis of the operations upon the marine environment, particularly as it relates to marine megafauna and the claims around distribution of migratory species within OA1 and OA2. ACF further stated this undermines the legitimacy of Santos' claims around the consequences of its operations upon the marine environment and	Notwithstanding that this issue was raised in relation to the Barossa Production Operations EP, Santos has considered the matters raised by ACF in the OEMP, given the proximity of OA2 described in the Barossa Production Operations EP and this Activity. Santos disagrees with ACF's comments for the reasons given in response to ACF. Santos considers its evaluation of impacts and risks to marine species, including in respect of the Dusky Sea Snake, Brydes Whale, Omura Whale and Pygmy Blue Whale is appropriate. Santos' evaluation of impacts and risks is informed by a wide array of peer-reviewed scientific papers, extensive baseline field studies, the EPBC protected matters database, conservation management plans, conservation advice and recovery plans where applicable.	*Santos has conducted extensive baseline field studies at the activity location and considered regionally relevant contemporaneous information from a wide array of peer-reviewed scientific papers to inform the impact assessment. The management of potential impacts is aligned with conservation advice, and conservative control measures have been adopted to mitigate any potential impacts. The Barossa FPSO Operational Area is located where there are no known significant feeding, breeding, or aggregation areas for marine mammals, largely attributable to the 250-metre depth.* *Santos' assessment is that the proposed control measures are sufficient having regard to the nature and scale of the activity and existing proposed*	Section 3 (baseline field studies) Section 3.2.13.5 (Biologically important areas and habitats) Section 6.1 Section 6.1.3 Section 6.3

further reinforces the need for further research and more fulsome cumulative impact analysis to be undertaken. The ACF objected to the mitigation measures proposed by Santos in relation to marine species, including specifically in relation to Sea Snakes, the Dusky Sea Snake (which is now endangered), Byrdes & Omura whales, and the Pygmy Blue Whale). ACF stated that no additional control measures have been taken since its last consultation with Santos and submitted the following: • In the absence of adequate data, installation and operation should not happen during peak migration or periods of ecological sensitivity. • Vessel operations should only occur with an observer on board and activities should only be undertaken during daylight hours when marine fauna can be accurately observed and mitigation measures applied.	As previously responded to ACF (refer above to meeting with ACF on 9 July 2024 and Santos' correspondence to ACF on 7 August 2024), Santos reiterates that scientific information available on biologically important areas for protected marine species have been considered in the evaluation of impacts and risks on whales and turtles. BIAs for fish, sharks and rays, marine mammals, marine reptiles, and seabirds and shorebirds are addressed in Section 3.2.13 of the OEMP. Regarding ACF's objection to mitigation measures, Santos maintains that its proposed control measures in relation to marine species, including the Dusky Sea Snake, Brydes Whale, Omura Whale and Pygmy Blue Whale, are sufficient. Santos has evaluated the control measures proposed by ACF (see Section 7.3.3 and also Section 6.1.3) (excluding the control measure regarding installation, which is not an activity authorised under this OEMP).	*control measures, including vessel speed restrictions within 500m of the FPSO and other vessel operations within Operational Areas (BAO-CM-028).* *Section 7 of the EP assesses that potential impacts and risks associated with marine fauna interaction are expected to be limited to individuals and/ or small groups transiting the Operational Areas, without impacts at a population level. The environment performance outcome commits to zero incidents of injury/ mortality of cetaceans/ marine reptiles from collision with project vessels operating within the project area (EPO-03) to ensure impacts are limited to acceptable levels.* *To inform evaluation of impacts and risks to marine species, and appropriateness of proposed control measures, Santos has not relied solely on regional desktop literature and the EPBC protected matters database, as demonstrated through the Barossa marine field studies program for the Barossa Development OPP. The Barossa marine field studies program was an extensive and robust environmental baseline studies program, designed to characterise the marine environment values and sensitivities within the Project area. The results of the marine studies program have been critical in supplementing published literature at a regional scale with information that is specific to the activity location.* *With regard to the specific marine fauna species highlighted by the ACF:* • *The Dusky Sea Snake was identified as potentially occurring within the EMBA (associated with a loss of hydrocarbon event), but not within the Operational Areas where planned activities will occur. Locations where Dusky Sea Snakes may be present are situated several hundred kilometres from the Activity OAs.* • *The Barossa Marine Studies program did identify presence of Brydes whales, Omura whales and Pygmy Blue whales in the vicinity of OA1, albeit in limited numbers. On the basis of these results, it is acknowledged in the EP that impacts from the Activity, such as underwater noise or unplanned vessel interactions, have the potential to impact individuals that may transit OA1. These impacts and risks have been considered in the EP.* *The above information has informed the evaluation of impacts and risks from the Activity and appropriateness of proposed control measures.* *Regarding ACF's request that vessel operations should only occur with an observer on board, proposed control measure BAO-CM-001 provides for vessel crew to act as wildlife observers and record sightings of cetaceans and turtles. The EP evaluates a potential control measure of restricting vessel operations to daylight hours, however this was not adopted due to the disproportionate cost impact relative to the potential environmental benefit when only limited numbers of marine species are expected in OA1 (as evidenced by the number of marine fauna sightings (<10) during drilling and installation activities).* *Note: BAO-CM_028 is now BAO-CM-6.6.6 and BAO CM 001 is now BAO-CM-6.1.1*	Section 7.3.3
[98] – [105] ACF stated it has repeatedly asked about Barossa's compliance with the Safeguard Mechanism and have been repeatedly told that it is not a matter for ACF. ACF stated the 23/9/2024 Version of the EP provides no evidence that the titleholder can meet the requirements of the SGM in terms of the availability and cost of Australian Carbon Credit Units or Safeguard Mechanism Credits and provides no comfort that the necessary volume of offsets will exist through the 25-year design life.	Santos has considered the matters raised by ACF and provided a response to ACF. Notwithstanding that this issue was raised in relation to the Barossa Production Operations EP, the OEMP describes Barossa's compliance with the Safeguard Mechanism within Section 6.3. Santos disagrees with the ACF's comments for the reasons given in response to the ACF. In addition, the responsible Commonwealth minister has communicated to the Barossa joint venture partners on a number of occasions that he anticipates there being ACCUs available for this project Santos considers that the ACF has been provided sufficient information to enable the ACF to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	*Regarding the ACF's concerns about Santos' failure to adequately attempt to demonstrate compliance with the Commonwealth Safeguard Mechanism, Santos notes that the ACF has previously raised similar claims in correspondence to Santos on 9 April 2024 and 9 September 2024 and in the meeting on 9 July 2024.* *Santos' obligation is to demonstrate compliance with the Commonwealth Safeguard Mechanism to the Clean Energy Regulator.* *Santos re-iterates the following points:* • *Barossa Production Operations Scope 1 emissions will be managed in accordance with the applicable baseline under the Safeguard Mechanism, which has been developed by the Australian government with regard to Australia's Paris Agreement targets and associated emissions budget. The NT emissions budget is accounted for in Australia's national emissions budget.* • *The treatment of the Barossa Project under the Safeguard Mechanism is a matter for the Clean Energy Regulator. Santos will abide by the Clean Energy Regulator's final determination.* • *There are various options available to meet legislative requirements under the Safeguard Mechanism rules. Compliance with obligations under the Safeguard Mechanism may be achieved through (among other*	Section 6.3 Appendix C

		things) the purchase or surrender of Australian Carbon Credit Units (ACCUs) or Safeguard Mechanism Credits (SMCs). *The availability of ACCUs over the next decade is supported by analysis of the balance between supply, holdings, and cancellation rates (Reputex, 2024. Market Outlook Australian Carbon Price, Supply & Demand Outlook September 2024). Throughout the decade, ACCU supply is projected to steadily increase, surpassing 30 million annually by 2030, alongside rising cancellation rates to meet Safeguard Mechanism requirements. By 2027, supply is forecasted to fall into deficit due to growing annual cancellations, which will force ACCUs to be withdrawn from inventory until new supply comes into the market. Modelling shows ACCU holding inventory will continue to rise from approximately 36 million in 2024 to around 50 million by 2027, providing sufficient coverage for the deficit. Additionally, growing demand will send price signals to incentivise new ACCU supply.* *The Safeguard Mechanism is administered by the Clean Energy Regulator and any failure to comply would result in the Clean Energy Regulator imposing penalties***.**	
[106] – [115] ACF stated that while the 23/9/2024 Version of the EP says CCS is not part of the Activity for this EP, it is apparent from other public documents released by Santos (note: examples are cited by ACF) that CCS is part of the Barossa project and the EP activity. ACF further stated the EP needs to address this in order to comply with the Regulations, specifically regulations 21(1)(c) and (d) and 21(4)	Santos has provided a response to ACF. CCS is not part of the Activity for the Coastal Waters OEMP.	*Santos notes that the ACF has previously raised similar claims regarding CCS in correspondence on 9 April 2024 and 9 September 2024 and in the meeting on 9 July 2024.* *Santos re-iterates that while it is exploring CCS opportunities at Bayu-Undan and elsewhere, these CCS projects are not owned or controlled by the Barossa joint venture, nor Santos in its sole capacity, are not part of the Barossa development, and are not within the scope of the EP.* *It is subject to a different regulatory regime and pursued by a different proponent. Santos is one of the joint venture parties for the Bayu-Undan CCS and has committed funding to it. Santos hopes that the project proceeds, but this is reliant on approvals from a foreign government (Timor-Leste) and final investment decisions by the proponents of that project. If the Bayu-Undan CCS project proceeds, the Barossa Joint Venture hopes to be a customer of it.* *CCS is not a viable control measure for inclusion in the EP because it is not currently available. Potential CCS developments such as the proposed Bayu-Undan CCS project require regulatory frameworks, policies and approvals (from a different jurisdiction to the Activity) to be in place prior to taking final investment decisions. Therefore, it is not possible to rely on them for GHG emissions abatement.*	Not Applicable
ACF correspondence to Santos on 24 March 2025 ACF claimed Santos' correspondence of 31 January 2025 had not sufficiently addressed the matters ACF had raised in its letter of 23 December 2024, in particular how Santos will comply with the Safeguard Mechanism. ACF claimed the Production Operations EP has numerous deficiencies in the overall approach to risk assessment and lacks sufficient information on environmental features that would be impacted. ACF claimed the (OPGGSR) Regulations and best practice require that Santos should undertake the following actions before the Production Operations EP can be accepted by NOPSEMA:	Santos has considered the matters raised by ACF in the Barossa Production Operations EP and provided a response to ACF. For completeness noting that many (although not all) of the concerns raised by the ACF may be assumed to apply equally to the GEP Coastal Waters OEMP, concerns that apply to the OEMP have been considered in the OEMP. Refer below for assessment of matters raised. Santos has considered the matters raised by the ACF and remains satisfied that its response to the ACF's letter of 23 December 2024 is comprehensive and appropriate. Santos has provided extensive responses to ACF's queries concerning compliance with the Safeguard Mechanism, including in response to the ACF's letter of 23 December 2024. This matter is also addressed in section 6.3 of the OEMP. Santos acknowledges the ACFs objections and claims regarding the content of the Production Operations EP, noting that they are expressed broadly without detailing specifics and that many (although not all) of the concerns raised by the ACF may be assumed to apply equally to the OEMP. The ACF has not identified any specific information in relation to the environment that has been omitted from the OEMP, and Santos remains satisfied that its description of the environment in the OEMP is comprehensive and appropriate. Santos has assessed the specific objections and claims raised by the ACF below.	**Santos correspondence to ACF on 31 March 2025 in response to ACF correspondence of 24 March 2025.** *We refer to your letter of 24 March 2025 (24 March letter), and to all other correspondence to date between Santos and the Australian Conservation Foundation (ACF) in respect of the Barossa Production Operations Environment Plan (EP).* *Santos has considered the 24 March letter and notes each of these matters has been considered and appropriately addressed by Santos previously in correspondence with the ACF or in the content of the EP.* *For the reasons given previously to the ACF, and set out in the EP, Santos remains satisfied that the EP meets the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth), including that its evaluation of impacts and risks is comprehensive and appropriate.*	
1. Conduct a comprehensive long-term and cumulative impact assessment regarding potential effects on marine ecosystems	The OEMP, and associated consultation materials, has assessed the impacts and risks of the full life cycle (25 years) of the proposed Activity. There are no regular operations emissions and discharges from the Activity, with the exception of the potential for fugitive emissions (as detailed in Section 6.3) and . no concurrent planned impacts associated with this Activity.		Not applicable
2. More accurately estimate the likelihood or consequence of environmental impacts in the risk assessment	Santos considers its estimation of risks is appropriate, both in its methodology (section 5) and in how that methodology has been applied to the impacts and risks identified (sections 6 and 7). Santos' evaluation of impacts and risks is informed by a wide array of peer-reviewed scientific papers, extensive baseline field studies, the EPBC protected matters database, conservation management plans, conservation advice and recovery plans where applicable. A number of these data sources are quantitative in nature and are used by Santos wherever possible to inform evaluation of impacts and risks from the proposed Activity.		Sections 5, 6 and 7
3. Evaluate impacts on specific marine species, particularly threatened and migratory species, in greater detail	Santos considers its evaluation of impacts and risks to listed and protected marine species is appropriate. Santos' evaluation of impacts and risks is informed by a wide array of peer-reviewed scientific papers, extensive baseline		Sections 6 and 7

	field studies, the EPBC protected matters database, conservation management plans, conservation advice and recovery plans where applicable.		
4. Create robust long-term plans for monitoring of the project's ecological impacts on the marine environment	Santos has considered the matters raised by ACF in the Barossa Production Operations EP and provided a response to ACF. These matters are not relevant to this Activity and not addressed in this OEMP as there are no regular operations emissions and discharges from this Activity and planned activity impacts are minor to negligible (Section 6).		Section 6
5. Improve the Production Operation EP's proposed control measures,	The proposed control measures, and supporting EPSs and measurement criteria, are considered sufficiently detailed and specific and address all identified impacts and risks from the Activity. For completeness, Santos notes that control measures, EPSs and measurement criteria have been revised since Rev 1 of the Barossa Production Operations EP, on which the ACF's comments are based, including to increase specificity. Relevant revised control measures from the EP have been adopted in this OEMP.		Sections 6, 7 and 8
6. Properly assess long-term and cumulative impacts of greenhouse gas and atmospheric emissions	The OEMP, and associated consultation materials, has assessed the impacts and risks of the full life cycle (25 years) of the proposed Activity. Activity GHG emissions have been considered in the context of cumulative global GHG emissions (see section 6.3). The OEMP considers current published literature regarding climate science, Australian government GHG emissions reporting and projections, and other relevant contemporary literature from government and non-government sources. An acceptability evaluation for each identified impact and risk forms part of the OEMP, which considers consistency of the OEMP with principles of ecological sustainable development, which in turn includes consideration of the precautionary principle. The OEMP contains control measures to keep net emissions at or below the legislated Safeguard Mechanism baseline and additional control measures to monitor and further reduce atmospheric and GHG emissions to as low as reasonably practicable.		Section 6.3
7. Revise the assessments for unplanned releases and improve long-term ecological monitoring plans	The OEMP is supplemented by the GEP NT waters Oil Pollution Emergency Plan (OPEP) which addresses spill response activities for identified credible unplanned release scenarios. The OEMP includes a risk assessment for the worst case, unplanned releases based on spill modelling, and assesses the environment that may be affected, areas of high environmental value and hot spots. The nature and scale of hydrocarbon spills on the environment that may be affected from entrained, dissolved and floating hydrocarbons are also assessed. Santos considers that the ACF's claim that the assessment of unplanned releases is inadequate, has no merit. The OPEP is also accompanied by the Operational and Scientific Monitoring Bridging Implementation Plan, that describes a comprehensive operational and scientific monitoring program to be implemented in the unlikely event of an unplanned hydrocarbon release event. The operational monitoring component provides short term situational awareness of a hydrocarbon spill, enabling a timely assessment of the effectiveness of the spill response. Scientific Monitoring is the principal tool for determining the extent, severity and persistence of environmental impacts from a hydrocarbon spill over the longer term and for informing associated remediation activities (if required). Santos considers its environmental monitoring program is appropriate.		Section 7.6 GEP NT waters OPEP Operational and Scientific Monitoring Bridging Implementation Plan: Northern Australia
8. Conduct more detailed analysis on cumulative impacts on marine fauna from multiple vessels, consider impacts on smaller cetaceans and pinnipeds, and properly consider seasonal variations in migratory bird presence	Santos has considered the matters raised by ACF in the Barossa Production Operations EP and provided a response to ACF. These matters are not relevant to this Activity and not addressed in this OEMP as IMMR vessel presence is infrequent, with vessel presence occurring typically for approximately 7 to 30 days in duration every three to five years, or as needed. There are no planned concurrent activities associated with this Activity.		Not applicable
9. Improve assessment of impacts from operational discharges, providing more specific targets for emissions reductions and more detailed assessment of long-term climate change impact.	All planned and contingency emissions and discharges from the proposed Activity have been assessed in the OEMP. Santos notes that there are no regular operations emissions and discharges in the OEMP, except for the potential for fugitive GHG emission from the pipeline. The OEMP includes for monitoring emissions from the Barossa Gas Project and to evaluate effectiveness of control measures, such as the GHG emissions management plan, to reduce emissions to ALARP over the life of the Activity. For completeness, Santos notes that further detail has been added to the Barossa Production Operations EP on this topic since Rev 1 (on which the ACF's comments are based), which have also been included in the OEMP where relevant. .		Section 6 Section 6.3 Section 8

Australian Marine Conservation Society - NT branch (AMCS NT)

Summary of consultation effort:

- On 9 February 2024 Santos emailed AMCS NT branch to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed AMCS NT branch further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos called AMCS NT regarding consultation for Production Operations activities and reminded AMCS NT of the deadline for providing input. AMCS NT advised that it had forwarded the previous emails to AMCS head office in Brisbane.

- On 8 May 2024, Santos emailed AMCS NT branch further to previous correspondence to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from AMCS NT. [Con-4021]
- On 10 July 2024 Santos emailed AMCS NT branch to advise the consultation period had been completed. Santos advised AMCS NT branch that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Australian Marine Conservation Society.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Australian Marine Conservation Society.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Australian Parents for Climate Action Darwin and NT (APCAD)

Summary of consultation effort:

- On 9 February 2024 Santos emailed APCAD to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed APCAD further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 8 May 2024, Santos emailed APCAD further to previous correspondence, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from APCAD. [Con-4022]
- On 10 July 2024 Santos emailed APCAD to advise the consultation period had been completed. Santos advised APCAD that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from APCAD.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Australian Parents for Climate Action Darwin and NT.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Climate Action Darwin

Summary of consultation effort:

- On 9 February 2024 Santos emailed Climate Action Darwin to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Climate Action Darwin further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos called Climate Action Darwin to remind Climate Action Darwin of the deadline for providing input. Santos was advised the message would be passed to the appropriate personnel.
- On 8 May 2024, Santos emailed Climate Action Darwin further to previous correspondence to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Climate Action Darwin [Con-4023].
- On 10 July 2024 Santos emailed Climate Action Darwin to advise the consultation period had been completed. Santos advised Climate Action Darwin that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]

- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Climate Action Darwin.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Climate Action Darwin.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Conservation Council of WA (CCWA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed CCWA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed CCWA further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos called CCWA and left a message regarding consultation for Production Operations activities with a team member.
- On 8 May 2024, Santos emailed CCWA further to previous correspondence to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from CCWA [Con-4031].
- On 10 July 2024 Santos emailed CCWA to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from CCWA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from CCWA.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Doctors for the Environment Australia

Summary of consultation effort:

- On 9 February 2024 Santos emailed Doctors for the Environment Australia to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed Doctors for the Environment Australia further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 4 April 2024 Santos called Doctors for the Environment Australia and left voice mail message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed Doctors for the Environment Australia further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Doctors for the Environment Australia. [Con-4013]
- On 10 July 2024 Santos emailed Doctors for the Environment Australia to advise the consultation period had been completed. Santos advised Doctors for the Environment Australia that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Doctors for the Environment Australia.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Doctors for the Environment Australia.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Greenpeace Australia Pacific

Summary of consultation effort:

- On 9 February 2024 Santos emailed Greenpeace to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Greenpeace further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos called and spoke to a team member regarding consultation for Production Operations activities who confirmed that previous correspondence had been received.
- On 8 May 2024, Santos emailed Greenpeace further to previous correspondence to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Greenpeace. [Con-4032]
- On 10 July 2024 Santos emailed Greenpeace to advise the consultation period had been completed. Santos advised Greenpeace that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Greenpeace.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Greenpeace.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Jubilee Australia Research Centre (JARC)

Summary of consultation effort:

- On 9 February 2024 Santos emailed JARC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed JARC further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 8 May 2024, Santos emailed JARC further to previous correspondence to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from JARC. [Con-4025]
- On 10 July 2024 Santos emailed JARC to advise the consultation period had been completed. Santos advised JARC that it considered consultation now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 10 September 2024 Jubilee emailed Santos stating a transboundary environmental impact assessment (EIA) for the Barossa Gas Project regarding the Arafura and Timor Seas (ATS), is needed as part of the consultation process for the Productions Operations EP. [Con-5643]
- On 20 September 2024, Santos wrote to Jubilee in response to Jubilee's letter of 10 September 2024. Santos explained the Australian regulatory framework of the Coastal Waters OEMP. and advised Jubilee that the international regulatory framework of the Arafura and Timor Seas is outside the scope of consultation for this activity. [Con-5645]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Jubilee correspondence to Santos on 10 September 2024 Jubilee provided information on regulatory and environmental developments concerning the Arafura and Timor Seas. It stated that the Barossa Gas Project warrants the need for a transboundary environmental impact assessment.	Santos has considered the matters raised by Jubilee in the OEMP and provided a response to Jubilee. The international regulatory framework of the Arafura and Timor Seas is outside the scope of consultation for the GEP Coastal Waters Operations activity.	**Santos correspondence to Jubilee on 20 September 2024** *Thank you for your letter of 10 September 2024 and your organisation's interest in the Barossa Gas Project. Santos has considered the matters you have raised.* *The Barossa Development Offshore Project Proposal was accepted by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in March 2018. Santos complies with all Australian and international laws to the extent that they are applicable to the Barossa Gas Project.* *The Barossa Production Operations Environment Plan will be submitted to NOPSEMA for assessment in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023. The EP will detail the environmental impacts and risks associated with Barossa Production Operations activity and demonstrate how these will be reduced to as low as reasonably practicable and to an acceptable level through implementation of a suite of control measures.* *The international regulatory framework of the Arafura and Timor Seas is outside the scope of consultation for the Barossa Production Operations activity. If Jubilee Australia believes transboundary environmental impact assessment should be introduced, this is a public policy matter to be raised with the relevant sovereign governments.*	Not applicable.

Keep Top End Coasts Healthy

Summary of consultation effort:

- On 9 February 2024 Santos emailed Keep Top End Coasts Healthy to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Keep Top End Coasts Healthy further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos called Keep Top End Coasts Healthy regarding consultation for Production Operations activities and remind it of the 9 April deadline to provide comments.
- On 9 May 2024, Santos emailed Keep Top End Coasts Healthy further to previous correspondence to advise it had extended the consultation period until 23 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Keep Top End Coasts Healthy. [Con-4033]
- On 10 July 2024 Santos emailed Keep Top End Coasts Healthy to advise the consultation period had been completed. Santos advised Keep Top End Coasts Healthy that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]

- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Keep Top End Coasts Healthy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Keep Top End Coasts Healthy.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Sea Turtle Foundation

Summary of consultation effort:

- On 9 February 2024 Santos emailed Sea Turtle Foundation to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Sea Turtle Foundation further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos called the Sea Turtle Foundation regarding consultation for Production Operations activities and reminded it of the 9 April deadline to provide comments
- On 8 May 2024, Santos emailed Sea Turtle Foundation further to previous correspondence to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the Sea Turtle Foundation. [Con-4026]
- On 10 July 2024 Santos emailed Sea Turtle Foundation to advise the consultation period had been completed. Santos advised Sea Turtle Foundation that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Sea Turtle Foundation.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Sea Turtle Foundation.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

West Timor Care Foundation

Summary of consultation effort:

- On 9 February 2024 Santos emailed West Timor Care Foundation to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed West Timor Care Foundation further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 8 May 2024, Santos emailed West Timor Care Foundation further to previous correspondence to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from West Timor Care Foundation. [Con-4028]
- On 10 July 2024 Santos emailed West Timor Care Foundation to advise the consultation period had been completed. Santos advised West Timor Care Foundation that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 14 November 2024 Santos attempted to phone West Timor Care Foundation but was unable to be connected. Santos followed-up with an email seeking final confirmation that the organisation had no comments on the EP and OEMP. Santos included the previously provided information and stated any comments should be provided by 29 November 2024. [Con-5985]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from West Timor Care Foundation.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from West Timor Care Foundation.	The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. There are therefore no impacts from planned GEP operations activities in NT Coastal Waters that may affect the functions, interests or activities of any international persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any international persons. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Wilderness Society

Summary of consultation effort:

- On 9 February 2024 Santos emailed the Wilderness Society to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed the Wilderness Society further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos called the Wilderness Society and left a voicemail message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed Wilderness Society further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Wilderness Society. [Con-4014]
- On 10 May 2024, the Wilderness Society emailed Santos to advise it is a Relevant Person for the purposes of the Offshore Petroleum and Greenhouse Gas Storage Act 2006, however it will not provide feedback on this activity at this time. The Wilderness Society requests to be kept updated as this activity progresses and advised it may seek to provide feedback into the future. [Con-4034] The Wilderness Society was added to the distribution list for the Barossa Quarterly Update.
- On 10 July 2024 Santos emailed Wilderness Society to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no additional comments or input were received on the Coastal Waters OEMP from Wilderness Society.

Summary of response by Relevant Person		Assessment of merits		Santos' Response Statement	OEMP reference
Wilderness Society advised it considered itself a Relevant Person for the purposes of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*, however it will not provide feedback on this activity at this time.		Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.		No response required.	Not applicable.
Wilderness Society requested that Santos keep it updated as the activity progressed as it may wish to provide feedback in the future.	Santos provides quarterly project updates to the Wilderness Society.	No response required.	Quarterly notifications will be sent to organisations (refer to Section 8-12).		

WorldFish Timor-Leste

Summary of consultation effort:

- On 9 February 2024 Santos emailed WorldFish Timor-Leste to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed WorldFish Timor-Leste further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 4 April 2024 Santos called WorldFish Timor-Leste regarding consultation for Production Operations activities but was unable to leave a message.
- On 2 May 2024, Santos emailed WorldFish Timor-Leste further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from WorldFish Timor-Leste. [Con-4011]
- On 10 July 2024 Santos emailed WorldFish Timor-Leste to advise the consultation period had been completed. Santos advised WorldFish Timor-Leste that it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 14 November 2024 Santos phoned WorldFish seeking final confirmation that the organisation had no comments on the EP and OEMP. The representative confirmed they would not be providing any comments [Con-5986]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no additional comments or input were received on the Coastal Waters OEMP from WorldFish Timor-Leste.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from WorldFish Timor-Leste.	The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. There are therefore no impacts from planned GEP operations activities in NT Coastal Waters that may affect the functions, interests or activities of any international persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any international persons. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

World Wildlife Fund (WWF)

Summary of consultation effort:

- On 9 February 2024 Santos emailed WWF to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed WWF further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned WWF regarding consultation for Production Operations activities and spoke to a team member who confirmed that the emails previously sent had been provided to its marine team.

- On 6 May 2024, Santos emailed WWF further to previous correspondence to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from WWF. [Con-4018]
- On 10 July 2024 Santos emailed WWF to advise the consultation period had been completed. Santos advised WWF that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from WWF.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from WWF.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Environment Centre NT (ECNT)

Summary of consultation effort:

- On 9 February 2024 Santos emailed the ECNT to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
- *if you are from a government Department or agency, how the proposed Barossa Production Operations activities may be relevant to your department or agency; and*
- *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Barossa Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 8 March 2024 the ECNT wrote to Santos explaining why it is a Relevant Person for the Coastal Waters OEMP., requesting confirmation that Santos considered the ECNT as a Relevant Person, and requesting a meeting with Santos to discuss information gaps relating to the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4002]
- On 11 March 2024 Santos emailed the ECNT to advise that the formal consultation period had commenced. Santos provided links to the Barossa Production Operations Activity Information Booklet, the Barossa Production Operations section of Santos' website, and NOPSEMA's Brochure: 'Consultation on offshore petroleum environment plans – Information for the Community'. Santos advised that consultation period closes on 9 April 2024. [Con-3793]
- On 25 March 2024 the ECNT wrote to Santos requesting further information on a range of topics related to the Barossa Production Operations EP. The ECNT also raised concerns regarding the consultation period timeline being too short for it to make an informed assessment of the Activity on its functions, interests or activities. [Con-4003]
- On 28 March 2024 Santos wrote to the ECNT in response to the ECNT's letter of 8 March 2024. Santos provided links to the consultation materials and further details regarding the purpose and process of consultation, including the type of information being sought from the ECNT. Santos confirmed that it is willing to meet with the ECNT, and that it is willing to accommodate reasonable requests from the ECNT to consult in an alternative manner. [Con-4004]
- On 9 April 2024 the ECNT wrote to Santos and raised concerns about the consultation process to date, including that it had not been provided with sufficient information to make an informed assessment of the possible consequences of the Activity on its functions, interests, or activities. The ECNT also raised concerns about a range of risks and impacts associated with the OEMP and EP. The ECNT advised that it had commissioned expert reports to assist in identifying the impacts of the Activity on the ECNT's functions, interests or activities, and stated that it would detail a timeline for the provision of these expert reports once it receives the information it requires from Santos. [Con-4008]
- On 30 April 2024 Santos wrote to the ECNT in response to the ECNT's letter of 25 March 2024. Santos responded to each of the ECNT's information requests, as well as its concerns regarding the consultation process. Santos also provided the ECNT with notice of an update to the information booklet and factsheet. Santos requested ECNT provide its availability for a meeting. [Con-4009]
- On 2 May 2024, the ECNT emailed Santos in relation to its availability for a meeting. [Con-4010]
- On 3 May 2024, Santos emailed the ECNT confirming Santos was available to meet in Darwin on 20 May 2024. Santos requested the ECNT circulate an agenda by 13 May 2024 setting out the issues which the ECNT would like to discuss at the meeting. [Con-4017]
- On 7 May 2024, the ECNT emailed Santos to confirm the ECNT were available to meet at 2pm on 20 May 2024, and that it would circulate a meeting agenda by 13 May 2024. [Con-4020]
- On 13 May 2024, the ECNT provided Santos with a list of meeting attendees and an agenda with two items: ECNT's concerns regarding consultation process to date; an outline of the relevance of key information gaps to ECNT's functions, interests, and activities. The ECNT also noted that Santos has not responded to some of the ECNT's correspondence, and the ECNT advised that it proposes to engage technical experts to assist in its consideration of the how the Activity impacts its functions, interests and activities once it receives a substantive reply to its letter of 9 April 2024. [Con-4036]
- On 14 May 2024 Santos emailed ECNT to thank it for the agenda and list of attendees and advised that it will meet ECNT on Monday, 20 May 2024. In the email Santos also responded to ECNT's letter of 9 April 2024, responding to each of the ECNT's concerns, as well as its concerns regarding the consultation process. [Con-4030]
- On 20 May 2024 Santos and the ECNT met at Santos' Darwin Office located at Charles Darwin Centre. The meeting ran for approximately 15 minutes. The ECNT advised that it was still considering responses from Santos' letter dated 14 May 2024. Santos answered the ECNT's questions and provided the ECNT with another opportunity to ask any further questions about the Barossa Production Operations EP. No further questions were asked. [Con-5213]
- On 28 May 2024 the ECNT wrote to Santos advising that it is still preparing a response to Santos's letter dated 14 May 2024, including engaging experts to assist in its assessment of the Barossa Production Operations activity's impact on its functions, interests or activities. The ECNT also noted that no further information was received at the meeting held on Monday 20 May 2024, and raised concerns regarding the consultation process. [Con-4214]
- On 12 June 2024 Santos wrote to the ECNT to acknowledge its letter of 28 May 2024 and requested that if the ECNT wishes to provide any additional input for the OEMP and EP (including, if it considers that there are additional measures to be included) Santos requires this by no later than Thursday, 20 June 2024. [Con-5033]
- On 20 June 2024 the ECNT wrote to Santos to provide further input on the OEMP and EP, which primarily focused on GHG emissions related to the Barossa Production Operations EP. In its letter, the ECNT asserted that Santos has not consulted with the ECNT in a meaningful way and has not discharged its regulatory consultation obligations. The ECNT raised concerns that Santos has not answered all its questions and is withholding information from the ECNT. [Con-5035]
- On 7 August 2024, Santos wrote to ECNT in response to ECNT's letter of 20 June 2024. Santos responded to the matters raised by ECNT. Santos thanked ECNT for its comments and submissions in respect of the risks, impacts, and potential controls in relation to the activity. Santos advised ECNT that Santos was finalising the EP for submission in coming weeks. [Con- 5282]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 25 November 2024 ECNT wrote to Santos to again express concerns over the consultation process undertaken by Santos and to raise concerns about inconsistencies in emissions estimates provided and Santos' compliance with the Safeguard Mechanism [Con-6013]
- On 27 November 2024 NOPSEMA provided Santos with a letter that ECNT had provided separately to NOPSEMA on 22 October 2024 concerning the Barossa Production Operations EP.
- On 20 December 2024 Santos wrote to ECNT in response to ECNT's correspondence of 25 November 2024. In the letter Santos also addressed comments and assertions made by ECNT in the letter it had separately sent to NOPSEMA on 22 October 2024. [Con-6032]

- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- On 24 January 2025 the ECNT wrote to Santos in response to Santos' letter of 20 December 2024. The ECNT rejected the matters raised in Santos' letter of 20 December 2024, reiterated its concerns regarding consultation to date, GHG emissions and compliance with the Safeguard Mechanism, and requested information regarding the DLNG facility. The ECNT enclosed a letter dated 4 December 2024 sent from ECNT to NOPSEMA raising ECNT's concerns about the DLNG facility (to which Santos was not copied), as well as a bundle of documents received under FOI relating to that facility. [Con-6037]
- On 6 March 2025 Santos wrote to ECNT in response to the matters raised by ECNT in its correspondence of 24 January 2025. [Con-6039]

In NOPSEMA's Request for Further Written Information (RFFWI) dated 24 March 2025 on the Production Operations EP, NOPSEMA enclosed a letter sent from ECNT to NOPSEMA dated 13 March 2025 regarding the EP and noted that the correspondence was provided to Santos in keeping with procedural fairness 'as it may contain information that is relevant to the EP'. Santos has considered this letter, including aspects which may be assumed to relate to the OEMP, and is satisfied with the content of the OEMP, including Santos' assessments of the merits of the issues which have been previously raised by the ECNT with Santos during consultation. The ECNT's letter to NOPSEMA is not addressed in this consultation report because it does not fall within s 25 or 24(b) of the Regulations.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
ECNT correspondence to Santos on 8 March 2024			
ECNT identified itself as a Relevant Person and requested a meeting with Santos to discuss information gaps in the documentation provided by Santos.	Santos has considered the matters raised by ECNT in the OEMP, where relevant. Santos met with the ECNT on 20 May 2024.	**Santos' correspondence to ECNT on 28 March 2024 in response to ECNT's letter of 8 March 2024** *Thank you for your correspondence of 8 March 2024 and 25 March 2024 and your organisation's interest in the Barossa Project. We set out below our response to your letter of 8 March 2024. Santos will respond separately to your correspondence of 25 March 2024.* ***Consultation materials*** *We confirm that we provided links to the following in our emails dated 9 February 2024 and 13 March 2024:* *1. a booklet containing information about the activities proposed under the Production Operations Environment Plan (**EP**) (Commonwealth waters) and the Operations Environmental Management Plan (**EMP**) (Northern Territory waters) (**Information Booklet**); and* *2. an information booklet published by National Offshore Petroleum Safety and Environmental Management Authority (**NOPSEMA**) titled 'Consultation on offshore petroleum environment plans' (NOPSEMA information booklet) that provides information regarding the purpose of consultation and contains guidance for potential relevant persons in respect of consultation on offshore petroleum activities.* *The Information Booklet provides a comprehensive overview of the proposed activities to allow the reader to make an informed assessment of the possible consequences (if any) of the proposed activities on their functions, interests or activities.* *Each of these documents is also available on Santos' website, together with additional information about the Barossa Gas Project and the proposed activities: https://www.santos.com/barossa/production-operations/* *We understand from your correspondence that the ECNT is aware of this webpage and has reviewed the Information Booklet.* *For convenience, we reattach a link to the NOPSEMA information booklet.*[43] ***Santos' consultation process*** *Santos has been consulting on the EP and EMP since 11 March 2024.* *The commencement of Santos' formal consultation period followed:* *1. correspondence on 9 February 2024 to identified potentially relevant persons, including the ECNT:* *a. outlining the upcoming consultation on the EP and EMP;* *b. requesting that they contact Santos at the earliest opportunity if they considered they may be a relevant person;* *c. inviting them to direct Santos to any additional persons with whom they considered Santos should consult; and* *2. extensive consultation on previous environmental approvals for the Barossa Gas Project since 2016, concerning construction and installation activities associated with the same project, including with the ECNT.* *Santos will consult with the ECNT as part of its comprehensive consultation campaign in respect of the EP and EMP. That consultation campaign will run until 9 April 2024, as previously advised in our email to ECNT dated 9 February 2024. This consultation timeframe is fair and reasonable having regard to Santos' regulatory obligations and scheduling in respect of the broader Barossa Gas Project.* *To ensure that consultation is meaningful and transparent, Santos has included below a summary of the purpose of consultation and the information sought during consultation.* ***Purpose of consultation*** *As is set out in the NOPSEMA information booklet, the purpose of consultation includes to further ascertain, understand and assess:* *1. the values and sensitivities of the environment that may be affected by the proposed activities;* *2. the potential environmental impacts and risks of the proposed activities; and* *3. any control measures proposed to reduce the environmental impacts and risks of the proposed activities to as low as reasonably practicable and an acceptable level.*	Not Applicable

[43] https://www.nopsema.gov.au/sites/default/files/documents/Consultation%20in%20the%20course%20of%20preparing%20an%20Environment%20Plan%20guideline_1.pdf

		Consultation provides an opportunity to communicate to Santos any knowledge of the environment, or risks or impacts to it, including information that Santos would otherwise not be aware of. Information received will be considered by Santos in the preparation of the EP and EMP, and by the regulator in its assessment of the EP and EMP. If you consider that you have information which should inform the preparation of the EP and EMP, please communicate this to Santos as soon as possible so that Santos has an opportunity to consider this information and ensure that any information you may have that is not already known to, or addressed by Santos, is reflected in the EP and/or EMP. ***Information sought*** *Having regard to the purpose of consultation and consistent with the requirements of s 25 of the Regulations, Santos is seeking information through consultation as to any:* 1. *values or sensitivities of the environment that may be affected by the proposed activities (noting that 'environment' includes social, economic and cultural features);* 2. *potential impacts to the environment;* 3. *potential risks to the environment;* 4. *particular measures that the ECNT thinks Santos should consider adopting because of the ECNT's consultation input; and* 5. *other persons or organisations with whom the ECNT considers Santos should consult.* *The information you provide will be used for the development of the following documents:* 1. *an Environment Plan for the activity in Commonwealth waters, which will be assessed by NOPSEMA; and* 2. *an Operations Environmental Management Plan for the activity in Northern Territory coastal waters, which will be assessed by the Energy Division within the Northern Territory Department of Industry, Tourism and Trade (**DITT**).* *The information you provide will be included in documentation submitted to NOPSEMA and DITT for assessment. This will include Santos' assessment of, and response to, the information you provide.* *Santos will handle your information in accordance with our Offshore Western Australia and Northern Territory Consultation Privacy Policy. You may request that particular information you provide not be published in the EP. If requested, Santos will include your information in a separate report which will not be published on NOPSEMA's website.* ***Next steps*** *Santos will separately respond to your letter of 25 March 2024.* *Following that response, Santos' consultation team will make themselves available to meet with the ECNT in person in Darwin or via Microsoft Teams.* *In the meantime, to the extent that the ECNT has any information of the type sought by Santos (as outlined above), Santos requests that the ECNT provide this information to Santos as soon as possible.* *As identified above, the consultation period in respect of the EP and the EMP will end on 9 April 2024. Santos will endeavour to respond to your letter of 25 March 2024 as expeditiously as possible in order to facilitate further consultation during this period. Santos requests that the ECNT provide the information sought and make itself available to meet with Santos' consultation team within this consultation period.* *This approach to, including the period for consultation is appropriate and reasonable having regard to Santos' regulatory obligations, Santos' previous consultation in respect of the Barossa Project with the ECNT and to the ECNT's understanding of the Barossa Gas Project, including through its involvement in the Stop Barossa Gas campaign.*[44] *Santos will accommodate reasonable requests by the ECNT to consult in an alternative manner.*	

[44] https://stopbarossagas.org/about-us/

ECNT's correspondence to Santos of 25 March 2024			

A number of concerns were raised in relation to Santos' consultation process, including that:
• the consultation deadline of 9 April 2024 set by Santos would not provide a reasonable period for consultation for the ECNT and other Relevant Persons;
• the Information Booklet does not provide sufficient information for the ECNT to make an informed assessment of the possible consequences of the Production Operations activity on its functions, interests or activities; and
• the consultation timeframe is inconsistent with the principles set out in NOPSEMA's Guideline "Consultation in the course of preparing an environment plan".
• The ECNT sought confirmation that the 9 April 2024 deadline will not be imposed, and that Santos will engage with ECNT to discuss a reasonable process and timeline to occur with the ECNT
	Santos has provided a response to ECNT and considered the matters raised by ECNT in the OEMP where relevant.
	Santos has provided the ECNT with sufficient information and a reasonable period to assess any possible impacts of the Activity for this OEMP on the ECNT's functions, interests and activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.
		Santos' correspondence to ECNT on 30 April 2024 in response to ECNT's letter of 25 March 2024
		We note your comments regarding Santos' consultation process and timeframe for consultation on the Production Operations Environment Plan (EP).
		As you are aware, Santos commenced its preliminary consultation process with the ECNT in respect of the EP on 9 February 2024 and has been formally consulting on the EP since 11 March 2024. As previously set out in our letter of 28 March 2024, this consultation process has included:
		• *correspondence on 9 February 2024 to identify potentially relevant persons (including the ECNT), and:*
		  • *a. outlining the then-upcoming consultation on the EP;*
		  • *b. providing links to all relevant information booklets;*
		  • *c. requesting that potentially relevant persons contact Santos at the earliest opportunity if they considered they may indeed be a relevant person; and*
		  • *d. inviting them to direct Santos to any additional persons with whom they considered Santos should consult; and*
		• *further correspondence on 13 March 2024:*
		  • *a. again explaining the consultation (including the consultation period);*
		  • *b. expressly inviting relevant input for the EP; and*
		  • *c. again providing links to all relevant information booklets, together with a link to NOPSEMA's brochure entitled 'Consultation on offshore petroleum environment plans: Information for the community.'*
		We note that the above has followed extensive consultation (including with the ECNT) commencing in 2016 in respect of previous environmental approvals for activities associated with the Barossa Gas Project. We also note that the information contained in the Production Operations Information Booklet addresses the same activity scope, as relevant to the operations phase of the Barossa Gas Project, that was presented and assessed in the Barossa Development Offshore Project Proposal (OPP). Consultation with stakeholders on the OPP occurred during 2017 and included an eight-week public comment period prior to submission of the OPP to NOPSEMA for assessment. As such, information about the Production Operations activity has been publicly available for over six years.
		Santos' consultation timeframe for the EP is fair and reasonable having regard to matters including the extended period of time information about the Production Operations activity has been publicly available in the OPP, Santos' regulatory obligations, Santos' previous consultation in respect of the Barossa Project with the ECNT and the ECNT's understanding of the Barossa Gas Project (including through its involvement in the Stop Barossa Gas campaign).
		As noted in our letter of 28 March, Santos considers that the information provided to date is sufficient for the ECNT to make an informed assessment of any potential consequences of the activity on its functions, interests or activities, and encourages the ECNT to meet with Santos to consult constructively in line with the purpose of s 25 consultation.
			Not Applicable

• In light of the concerns that the ECNT raised regarding the lack of detail in the Information Booklet, the ECNT requested drafts of the EP or any of its addenda, including specific plans, methodologies, underlying modelling, or raw data that may assist in its assessment of how the Activity relates to its functions, interests, and activities.	Santos has provided a response to ECNT and considered the matters raised by ECNT in the OEMP. Notwithstanding this, Santos' assessment is that the information booklet is sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	*… we note your request at paragraph 21 for:* > *any drafts of the EP or any of its addenda, including specific plans, methodologies, underlying modelling, or raw data that may assist in our assessment of how the Activity relates to our functions, interests, and activities.* *Consultation is undertaken 'in the course of preparing an environment plan' (s 25 of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Regulations)). As we advised in our letter of 28 March 2024, the purpose of consultation is to inform the preparation of the EP. Provision of a draft of the EP is not necessary in order for the ECNT to make an informed assessment of the possible consequences of activities the subject of the proposed EP on its functions, interests, or activities.* *Once preparation of the EP has been completed, including completion of the consultation process, Santos will submit the EP to NOPSEMA for its assessment. Once NOPSEMA has undertaken its completeness check the EP is published on its website, should the ECNT wish to view it then.*	Not Applicable
The ECNT raised concerns in relation to the information provided in the Information Booklet and requested further information regarding: • how the control measures originally proposed in the OPP relating to FPSO processes have been adopted or not adopted for	Operations at the FPSO are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	**[22(a)]** *The Environmental Performance Outcomes (EPOs) in respect of FPSO processes are set out in Table 7.1 of the OPP at this link [pp. 454, 457, 458]. In accepting the OPP, NOPSEMA was satisfied that the EPOs are consistent with the principles of ecologically sustainable development (see reg 5D(6)(c)(i) of the Regulations then in force).* *These EPOs will be carried through to the Production Operations EP, with EP-specific control measures and performance standards also developed and incorporated. Santos has developed the specific control measures presented in a summary format in the Production Operations information booklet which has been provided to the ECNT (see in particular the sections titled 'How will Santos manage impacts' in respect of each identified risk and impact).*	Environmental performance outcomes and control measures are listed in Section 8.1.2

the EP (para 22(a) of letter); and • the flow processes and technology of the FPSO (22(b)).		*These control measures have been developed in order to achieve the EPOs set out in the OPP and Santos considers that they are fit for purpose. Consistent with our 28 March 2024 letter to the ECNT, Santos encourages the ECNT to raise any control measures that it considers may be appropriate to adopt for Santos' consideration when preparing the EP for submission to NOPSEMA.* *The EP will contain an assessment of all potentially viable control measures relevant to identified impacts and risks, including which measures were not adopted/adopted, for assessment by the Regulator/s.* [**22(b)**] *The Environmental Performance Outcomes (EPOs) in respect of FPSO processes are set out in Table 7.1 of the OPP at this link [pp. 454, 457, 458]. In accepting the OPP, NOPSEMA was satisfied that the EPOs are consistent with the principles of ecologically sustainable development (see reg 5D(6)(c)(i) of the Regulations then in force).* *These EPOs will be carried through to the Production Operations EP, with EP-specific control measures and performance standards also developed and incorporated. Santos has developed the specific control measures presented in a summary format in the Production Operations information booklet which has been provided to the ECNT (see in particular the sections titled 'How will Santos manage impacts' in respect of each identified risk and impact).* *These control measures have been developed in order to achieve the EPOs set out in the OPP and Santos considers that they are fit for purpose. Consistent with our 28 March 2024 letter to the ECNT, Santos encourages the ECNT to raise any control measures that it considers may be appropriate to adopt for Santos' consideration when preparing the EP for submission to NOPSEMA.* *The EP will contain an assessment of all potentially viable control measures relevant to identified impacts and risks, including which measures were not adopted/adopted, for assessment by the Regulator/s.*	
The ECNT raised concerns in relation to the GHG emission information provided in the Information Booklet and requested further information regarding: • Santos' GHG Management Plan (22(c)); • the breakdown of emissions by source (22(d)); • clarification of emissions calculations, including for each year of operation (22(e)); • confirmation the emissions estimates have been updated since OPP was accepted (22(f)); • discrepancies in emission estimates between Barossa approval documentation (22(g)); • details of the improvements made to the FPSO (22(h)); • how CO_2 will be removed from Barossa gas and emissions (22(i)); • how much CH_4 will leak, be vented, and be combusted at the FPSO and the total associated GHG emissions (22(j)); • details of the marine fuels used for FPSO processes (22(k)); • details of FPSO design to enable CCS (22(l)); • GHG control measures (22(m)).	Santos has provided a response to ECNT and considered the matters raised by ECNT are in relation to the FPSO operations. Operations at the FPSO are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP. However, this Activity does have Scope 1 and 3 GHG emissions, which are described in Section 6.3 along with the proposed control measures. The Barossa Production Operations EP includes a description of the GHGEMP, and relevant components to this OEMP are presented in Section 8.3.2.12 of this OEMP. Santos considers that the ECNT does not require a breakdown of emissions by source in order to make an informed assessment of the potential consequences of the activity on any of its functions, interests or activities. The Barossa Production Operations EP and this OEMP do include a breakdown of estimated Scope 1 emissions for the purpose of Regulator Assessment. CCS matters are not part of this Activity and have been excluded from the Barossa Production Operations EP and this OEMP as the Bayu Undan CCS project is subject to separate framework & approvals by a different joint venture. Santos considers that the further information requests by ECNT are not required for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/ or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	**[22(c)]** *The Production Operations information booklet provides a description of the purpose of the Greenhouse Gas (GHG) Management Plan. Santos notes ECNT's request for a copy of the GHG Management Plan but does not consider the ECNT requires a copy in order to make an informed assessment of the potential consequences of the activity on any of its functions, interests or activities (FIAs).* *The Production Operations information booklet details the potential risks and impacts related to GHG. Santos understands from previous consultation that the ECNT is familiar with these potential risks and impacts.* *Please refer to Santos' letter to ECNT of 28 March 2024 for information about the purpose of consultation and information sought from ECNT during consultation. Santos encourages the ECNT to raise any control measures that it considers may be appropriate to adopt for Santos' consideration when preparing the EP for submission to NOPSEMA, including in relation to GHG emissions.* [**22(d)**] As you have identified, the *Production Operations information booklet contains a breakdown of emissions estimates similar to that provided for the DPD SER as relevant to Production Operations emissions. Please note that the DPD SER provided emissions estimates for both construction and operations sources, while the Production Operations EP does not provide emissions estimates for construction activities as these activities are not the subject of this EP and are authorised under other Barossa EPs which have previously considered these emissions.* *In any event, Santos considers that the ECNT does not require a breakdown of emissions by source in order to make an informed assessment of the potential consequences of the activity on any of its FIAs. To the extent that the there is any potential impact on the ECNT's FIAs as a result of GHG emissions, the ECNT is able to make an informed assessment of that impact on the basis of the total annual estimates associated with the project.* **[22(e)]** Santos response to the ECNT in relation to this request is reproduced as follows: *i. The Production Operations information booklet provides estimates for annual Scope 1 and 3 emissions. Scope 2 emissions are not applicable to the Production Operations activity.* *ii. FPSO flaring represents approximately 5% of total estimated Scope 1 emissions. The EP will contain a breakdown of estimated Scope 1 emissions (fuel, flare, vent) sources, for assessment by the Regulator/s.* *In any event, Santos considers that the ECNT does not require a further breakdown of emissions on an annual basis for each year of operation or confirmation of the proportion of scope 1 emissions that will be from flaring from the FPSO, in order to make an informed assessment of the potential consequences of the activity on any of its FIAs.* *To the extent that the there is any potential impact on the ECNT's FIAs as a result of GHG emissions, the ECNT is able to make an informed assessment of that impact on the basis of the total annual estimates associated with the Barossa project which are set out in the information booklet.*	Section 6.3 assesses the impact of GHG emissions Section 8.3.2.12 Control measure to manage GHG emissions include: BAO-CM-6.3.1 BAO-CM-6.3.9 BAO-CM-6.3.11 BAO-CM-6.3.12 BAO-CM-6.3.16 BAO-CM-6.3.17 BAO-CM-6.3.18 BAO-CM-6.3.21 BAO-CM-6.3.22

		[22(f)] *i. The annual emissions estimate from the OPP, as it relates to Production Operations activities, has been updated for the preparation of the EP and is provided in Production Operations information booklet.* *ii. Please see response to 22f(i)* **[22(g)]** *Please see response to 22d and 22f(i).* **[22(h)]** *A number of FPSO design features have been adopted that have resulted in >50% reduction in Scope 1 operational emissions than were estimated in the accepted Barossa OPP. These include:* • *Pilotless low pressure (**LP**) flare and nitrogen (gas-free) purge;* • *Vapour recovery units to prevent planned flaring of low pressure vented gas;* • *Full electrification of the facility, with highly efficient combined cycle power generation;* • *Supply of process heating via waste heat recovery;* • *Destruction of methane emissions in the CO_2 permeate stream by a thermal oxidiser.* *In any event, the adoption of these design features has been factored into the assessment of environmental impact and risk, as presented in the in the Production Operations information booklet.* **[22(i)]** *i. The gas export stream sent to DLNG will contain 6% CO_2 and be vented at DLNG. The remainder of the CO_2 in the extracted gas (12%) will be removed from the gas and vented at the FPSO.* *ii. The FPSO has adopted two stage membrane CO2 removal technology. All emissions associated with CO_2 removal and processing are accounted for in the Scope 1 emissions estimate provided for in the Production Operations information booklet.* *Although CCS operations will be the subject of a separate environmental approvals process, and is not part of the Barossa gas project approvals process, Santos is working towards having CCS operational as soon as possible.* *The Bayu-Undan CCS development will reduce Scope 1 emissions from the Barossa field, making it a low emissions intensity project and a net-zero reservoir emissions project from 2028. The Barossa joint venture is in negotiations with the Bayu Undan CCS joint venture, with a view to being a foundation customer of the project.* **[22(j)]** *The Scope 1 emissions estimate provided under the heading "GHG Emissions" in the Production Operations information booklet is informed by an analysis of all potential sources of CH4 and includes consideration of combustion sources (planned and unplanned), vented (planned and unplanned) and fugitive leaks (unplanned only). Therefore, ECNT requests 22j(i) and 22j(ii) are addressed in the Scope 1 emissions estimate provided in the Production Operations Information Booklet.* *As outlined above in response to 22(d), Santos considers that the ECNT is able to make an informed assessment of any potential consequence on its FIAs by reference to the total estimates set out in the information booklet.* **[22(k)]** *Fuel gas will be used for normal operations. Marine gas oil (or equivalent fuels e.g. marine diesel oil) will be used for startup operations and as backup fuel for FPSO operations when fuel gas is unavailable.* *The Scope 1 emissions estimate provided in the Production Operations information booklet accounts for emissions from all fuel sources.* **[22(l)]** *Justification of the future feasibility of exporting CO2 for CCS is outside the scope of and not required for the Production Operations EP.* *Nevertheless, Santos confirms that the FPSO is designed with sufficient gas treatment and compression capacity for export (high pressure liquid transfer) of 6% CO2 to DLNG from start of operations. Future export of additional CO_2 (up to 20%) to a CCS facility is within FPSO design limits.* **[22(m)]** *i. Equivalency of Paris Agreement Policies refers to a net zero commitment.* *ii. Reporting against all Barossa EP commitments will be addressed in Annual Environmental Performance reports submitted to the Regulator.*	

The ECNT raised concerns in relation to how Santos would comply with the Safeguard Mechanism and requested further information regarding: • how the scope 1 emissions from the Activity fit within in carbon budgets (22(n)); • whether the Barossa project is a 'new facility' (22(o)); • how Santos will calculate Barossa's baseline (22(p)); • production variables applicable to Barossa (22(q)); • modelling of baseline emissions estimates (22(r)); • how Santos intends to avoid exceed emission situations (22(s)) • how it intends to source ACCUs (22(t); • the percentage Barossa emissions that are expected to be reduced by CCS (22(u)); • the percentage of Barossa's estimated excess emissions expected to be reduced by CCS each year (22(v)).	Santos has provided a response to ECNT. Santos understands the ECNT to have been referring to emissions from the Activity under the Production Operations EP, which is addressed in that EP. These information requests relate to Santos' compliance with the Safeguard Mechanism. Consistent with Santos' obligations, the Production Operations EP and this OEMP demonstrate how Santos will comply with the requirements of the Safeguard Mechanism, as regulated by the Clean Energy Regulator. This OEMP also includes information for Scope 1 and Scope 3 emissions as relevant to this Activity. The OEMP describes and includes the information below in relation to GHG emissions: • Scope 1 emissions will be managed in accordance with the applicable baseline under the Safeguard Mechanism in accordance with Australia's Paris agreement targets and associated emissions budget. • the Activity will comply with the Safeguard Mechanism, noting that treatment of Barossa GHG emissions is still to be finalised by the CER. Implementation and enforcement of the Safeguard Mechanism is the responsibility of the CER. • Santos will be required to comply with the applicable baseline each year, and the JVs determine how to achieve compliance. Santos confirmed to the ECNT that CCS is not part of the Activity under the EP. Accordingly, ECNT queries about CCS are outside the scope of this EP and therefore have not been considered further. Santos views that ECNT has been provided sufficient information to enable the ECNT to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities	**[22(n)]** *Barossa Production Operations Scope 1 emissions will be managed in accordance with the applicable baseline under the Safeguard Mechanism in accordance with Australia's Paris agreement targets and associated emissions budget. The NT emissions budget is accounted for in Australia's national emissions budget.* **[22(o)]** *The treatment of the Barossa project under the Safeguard Mechanism is a matter for the Clean Energy Regulator. Santos will abide by the Clean Energy Regulator's final determination.* **[22(p)]** *There are various options available to meet a baseline (including direct abatement and acquiring offsets, in addition to mechanisms available under the Safeguard Rules such as borrowing adjustments and multi-year monitoring periods). Santos is not in a position to indicate now whether in any given year or years (which may be decades in the future) it may apply for a borrowing adjustment, trade-exposed baseline-adjusted facility determination or multi-year monitoring period.* *Santos will be required to comply with the applicable baseline for the Barossa project in each compliance year. It is a matter for Santos to determine how it will achieve this compliance. This information is not necessary for the ECNT to make an informed assessment of the possible consequences of the activity on any of its FIAs.* **[22(q)]** *Please see response to 22o. Santos will comply with its Safeguard compliance obligations. Management of Santos' Safeguard compliance obligations, including identification of applicable production variables under the Safeguard Rule, will be addressed between Santos and the CER.* **[22(r)]** *Please see response to 22o. Santos will comply with its Safeguard compliance obligations.* *Management of Santos' Safeguard compliance obligations will be addressed between Santos and the Clean Energy Regulator.* *This information is not necessary for the ECNT to make an informed assessment of the possible consequences of the activity on any of its FIAs and Santos considers that it is outside the scope of consultation for this EP.* **[22(s)]** *Please see response to 22p.* *Santos is not required to provide details of how it intends to meet its baseline under the Safeguard Mechanism. Santos is required to comply and there are various mechanisms available to achieve compliance.* **[22(t)]** *Please see response to 22s.* **[22(u)]** *Whilst Santos has committed to explore CCS opportunities at Bayu-Undan and elsewhere, CCS is not part of the Barossa development. Barossa will continue to engage with the Bayu-Undan CCS development and other potentially viable CCS developments, as a potential option for sequestration of Barossa's reservoir CO2, shall any of them achieve the necessary regulatory approvals and final investment decision.* *Regardless of the above, and as outlined in our response to 22p, Santos is not required to provide details of how it intends to meet its baseline under the safeguard mechanism. Santos is required to comply and there are various mechanisms available to achieve compliance.* **[22(v)]** *Please see response to 22p.*	Section 6.3 EPO 11 BAO-CM-6.3.11
The ECNT raised concerns in relation to how Santos would manage produced water at the FPSO and requested further information regarding: • the standards Santos used for assessing the risks of produced water, including impacts on marine species (22(w)); • concentrations of hazards within the produced water and processes for treatment (22(x)); • the 6 kilometre mixing zone (22(y)); • concentration discharge limits (22(z)); • chemicals used for dehydration of gas, hydrogen-sulphide removal, and chemicals to inhibit hydrates (22(aa)); • how produced water volumes may grow (22(bb));	Santos has provided a response to ECNT. Concerns related to produced water are not relevant to the Activities covered by the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	**[22(w)]** *The Production Operations information booklet provides a summary of assessment of the impacts of produced water discharges.* *In assessing impacts and risks of produced water discharge, as presented in the Production Operations information booklet, Santos has considered relevant standards including relevant species:* • *protection and environmental value protection thresholds per Australia and New Zealand Water Quality Guidelines; and* • *recovery plans, conservation advice, wildlife conservation plans and management actions such as the Recovery Plan for Marine Turtles in Australia 2017–2027.* *The adequacy of the impact assessment will be assessed by the Regulator when assessing the EP.* **[22(x)]** *Please see the response to 22w.* **[22(y)]** *As discussed in the Production Operations information booklet, the 6-kilometre mixing zone is based on conservative modelling inputs of up to 20,000 barrels per day of produced water throughput. In contrast, produced water throughput during normal operations will be in the order of 3500 to 5000 barrels per day.* *As explained in the Production Operations information booklet, due to water depths, the absence of marine turtle biologically important areas within OA1 (the location of produced water discharge), and no significant seabed habitat in the mixing zone, marine turtles would be expected to traverse OA1 very infrequently. As a result, even if individual marine turtles did traverse the mixing zone under*	Not applicable.

• the standard used to process and treat produced water (22(cc)); • the impact of produced water to the Arafura Shelf and other biologically important areas (22(dd)); • ongoing testing of marine discharges (22(ee)); • the potential ecotoxicological impact of produced water (22(dd)); • the potential dispersion and dilution of produced water (22(gg)); • the impacts of produced water to marine turtles (22(hh)).		*these worst case mixing conditions, they will not be exposed to the produced water for enough time for contaminants to accumulate within their body.* **[22(z)]** *As outlined in the Production Operations Information booklet, the adopted concentration discharge limit is 30 mg/l over any 24-hour period.* **[22(aa)]** *The impacts and risks of chemicals used in the production process are addressed in the 'Produced Water' section of the Production Operations Information booklet.* *Implementation of Santos' chemical selection process requires that all operational chemicals used on the FPSO (including those that may end up in the produced water discharge) are risk-assessed under the UK based Offshore Chemical Notification Scheme (OCNS). Chemicals are ranked according to their calculated hazard quotients by the chemical hazard assessment and risk management (CHARM) mathematical model, which uses aquatic toxicity, biodegradation and bioaccumulation data. Chemical selection in accordance with Santos' process ensures only environmentally acceptable chemicals are used on the FPSO and discharged with the produced water.* *The ECNT is able to make an informed assessment of any potential consequences of the activity on its FIAs by reference to the information on impacts and risks already provided. Consistent with our 28 March 2024 letter, Santos invites the ECNT to suggest any particular control measures that may be appropriate to adopt in respect of these risks and impacts.* **[22(bb)]** *Best available technology in the form of produced water tertiary treatment has been adopted for the FPSO, which is leading practice for Santos and other comparable industry facilities.* [**22(dd)]** *Although OA1 occurs within the bounds of the 'Shelf break and slope of the Arafura Shelf' KEF, the ecological values associated with this unique seafloor feature (i.e., patch reefs and hard substrate pinnacles) were not observed during the Barossa marine studies program, nor are these topographically distinct features evident from the data derived from multiple surveys undertaken across this area.* *As per the response to 22y, the predicted mixing zone based on dispersion modelling is conservatively set at 6km. This zone does not overlap any biologically important areas, and the features of the Shelf Break and slope of the Arafura Shelf KEF are not present in the mixing zone.* **[22(ee)]** *As noted in the Production Operations Information booklet, a water quality monitoring regime, which will include ongoing testing of produced water discharges, will be implemented under a Produced Water Adaptive Management Plan.* *This will be managed through a combination of discharge sampling and monitoring, and receiving environment sampling and monitoring, to inform effectiveness of existing mitigations and if any further mitigations are required.* **[22(ff)]** *As noted in the response for 22aa, chemicals considered for use (that may form part of the produced water discharge stream) are ranked according to their calculated hazard quotients by the chemical hazard assessment and risk management (CHARM) mathematical model, which uses aquatic toxicity, biodegradation and bioaccumulation data, to limit potential for ecotoxicological impacts.* *Based on the absence of significant marine fauna habitat or activity within the predicted produced water mixing zone, and the combination of best available produced water treatment technology and Santos' chemical selection process to select chemicals with the least aquatic toxicity, ecotoxicological impacts from produced water are not expected (as presented in the Production Operations information booklet).* *Notwithstanding the above, the potential for longer term ecotoxicological impacts from produced water discharge at OA1 will be assessed through a combination of discharge sampling and monitoring,and receiving environment sampling and monitoring. The results of this assessment will inform if additional mitigations are required to limit potential ecotoxicological impacts to acceptable levels.* **[22(gg)]** *Please see the response to 22w, 22aa and 22ff.* **[22(hh)]** *Please see response to 22w and 22y.*	
The ECNT requested further information regarding marine impacts of the Activity, including: • environmental objectives and values for the marine environment (22(ii)); • compliance with the North Marine Bioregional Plan (22(jj)); • vessel impacts to marine fauna (22(kk)); • cumulative impacts of FPSO discharges (22(ll));	Santos has provided a response to ECNT and considered the matters raised by ECNT where relevant to the Activity in the OEMP The Barossa Production Operations EP and this OEMP describe and include the information below in relation, as relevant, to marine environment: • Relevant requirements of the Marine Bioregional Plan for the Northern Marine Plan • Water and sediment quality monitoring • Impacts from FPSO discharges (in the Production Operations EP only) • Potential impacts to listed species associated with light, including light spill modelling from the Barossa FPSO for flaring and non flaring scenarios (Worley, 2025) • Proposed control measures to protect listed species associated with planned events.	**[22(ii)]** *The Production Operations information booklet provides a summary of the existing environment (Regional Existing Environment Summary) against which impacts were assessed.* **[22(jj)]** *Where relevant to activity impacts and risks, relevant requirements of the Marine Bioregional Plan for the North Marine Region will be considered and addressed in the EP, to ensure management of the Activity and associated impacts and risks are consistent with requirements of the Marine Bioregional Plan for the North Marine Region.* *In relation to how the Minister has considered this plan, this consultation does not relate to any decision of a Minister. For clarity, the EP will be assessed by NOPSEMA. There is no ministerial decision in respect of the EP***.** **[22(kk)]** *Operational area speed restrictions refer to limits on vessel speeds within the operational area/s to maintain safe operations.*	Sections 3.2, 6.3, 6.2 and 7 GEP NT Waters Oil Pollution Emergency Plan

• potential impacts and controls measures to protect flatback turtles (22(mm)); • light emission impacts on marine turtles and hatchings (22(nn)); • potential impacts and controls measures to protect migratory and threatened species (22(oo)); • potential impacts and proposed control measures to protect all species with BIAs (22(pp)); • an underwater acoustic assessment (22(qq)); • details regarding noise pollution (22(rr)); • ballast water management and anti-fouling systems (22(ss)).	Concerns related to Production Operations activities in the Barossa Field and related with FPSO activities are outside the scope of the GEP Coastal Waters OEMP and are addressed in the Barossa Production Operations EP. Santos views that ECNT has been provided sufficient information to enable the ECNT to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	*More generally, as noted in the Production Operations information booklet, requirements of the Environment Protection and Biodiversity Conservation Regulations 2000 are to be complied with in regard to marine fauna approach distances and vessel speeds, reducing the likelihood of unplanned marine fauna interactions.* **[22(ll)]** *As noted in the Production Operations information booklet, all planned discharges will be managed in accordance with maritime industry standards and MARPOL requirements to reduce the potential for significant cumulative impacts.* *Potential for longer term cumulative impacts will be assessed through water and sediment quality monitoring during production operations and need for any additional mitigations assessed.* **[22(mm)]** *The Production Operations information booklet considers potential impacts to marine turtles, and more specifically where the BIA flatback turtle overlaps OA2.* *Please refer to Noise Sources and Light Sources sections within the Production Operations information booklet, which identifies proposed control measures for managing impacts from noise and light sources.* *The potential impacts to marine turtle BIAs that overlap OA2 are greatly reduced by the infrequent (3 yearly) IMMR vessel activity in OA2.* **[22(nn)]** *See response to 22mm.* *The Production Operations information booklet considers potential impacts from light emissions to marine turtles in OA2. Impacts and risks to marine turtles from light emissions in OA2 are considered low risk due to infrequent IMMR vessel activity ie. approximate duration of 2-3 weeks once every three years. It is also worth noting that IMMR vessels are smaller than construction vessels and have smaller light emissions, further reducing the risk to marine turtles.* *All considered control measures (adopted and not adopted) will be presented in the EP for assessment by the Regulator/s.* **[22(oo)]** *The Production Operations information booklet contains proposed (adopted) control measures as relevant to potential impacts to migratory and threatened species. All considered control measures (adopted and not adopted) will be presented in the EP for assessment by the Regulator/s.* **[22(pp)]** *The Production Operations information booklet contains proposed (adopted) control measures as relevant to potential impacts where BIAs overlap OA2 (no BIA overlap with OA1). To the extent that BIAs overlap parts of the EMBA and/or MEVA, this is considered in the proposed control measures for unplanned events in the Production Operations information booklet and will also be addressed in the Production Operations Oil Pollution Emergency Plan to be submitted to NOPSEMA.* *In any event, potential risks and impacts in respect of the EMBA and MEVA (as distinct from the OAs) arise predominately by virtue of the remote risk of a hydrocarbon spill during the activity. The ECNT has sufficient information to identify BIAs within the EMBA by reference to the graphics of the EMBA provided in the Production Operations information booklet and publicly available information on BIAs, and Santos considers that the ECNT has sufficient information to understand the potential risks and impacts within the EMBA, to the extent that these risks or impacts are relevant to the ECNT's functions, interest or activities.* **[22(qq)]** *The Production Operations information booklet presents a summary of the results of underwater acoustic assessments for noise sources relevant to the scope of this EP.* *Further details about the underwater acoustic assessments for production operations activities will be provided in the EP for assessment by the Regulator.* **[22(rr)]** *The FPSO will be a 'continuous' or 'non-impulsive' noise source, but at lower levels than impulsive noise sources. FPSO noise sources are predominantly from machinery and equipment on the deck and in the hull, therefore not a source of underwater noise.* *The potential for 'short term' behaviour change is associated with impulsive noise sources e.g. safety flaring, support vessels, helicopters.* **[22(ss)]** *All ballast water management and anti-fouling systems for the FPSO and other vessels, will be managed in accordance with maritime industry standards and MARPOL requirements.* *All marine vessels will be compliant with maritime law. Consistent with regulatory requirements, the EP will set out the requirements applicable to the activity and how Santos will comply with these requirements*	
The ECNT requested further information regarding spill impacts of the Activity, including: • stochastic modelling for hydrocarbon and condensate spill scenarios (22(tt));	Santos has provided a response to ECNT and considered the matters raised by ECNT where relevant to the Activity in the OEMP. The Coastal Waters OEMP describes and includes the information below on spill impacts: • Details of spill toxicity. • Details on the spill EMBA. • OPEP spill response strategies. Concerns raised by ECNT in relation to the Production Operations activities in the Barossa Field and related with FPSO activities, are outside the scope of the GEP Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	**[22(tt)]** *The EMBA and MEVA as presented in the Production Operations information booklet is informed by scholastic modelling.* *As the Production Operations information booklet explains (in detail under section "Environment that may be affected (EMBA)"), the EMBA represents a conservative depiction of the greatest geographical extent of an unplanned spill event.* *Santos welcomes input from ECNT about any information regarding values and sensitivities within the EMBA or MEVA that may be affected by the Activity, and associated impacts or risks.*	Section 3 and 7.6 GEP NT Waters Oil Pollution Emergency Plan

• impacts on particular marine areas (22(uu)); • whether there is risk of a severe oil spill in the area of the Arafura Shelf (22(vv)); • impacts on traditional fishing practices (22(ww)); • details of the ecotoxicity of the various substances for which a spill scenario was modelled (22(xx)).	Santos considers this provides sufficient detail for ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration in the course of preparing the OEMP.	**[22(uu)]** *The Production Operations information booklet presents information about values and sensitivities that may be affected by unplanned spill events relevant to the proposed Activity, that fall within the EMBA or MEVA.* *In preparing this EP, Santos has identified the presence of Ashmore Reef and Cartier Island within the EMBA, the Oceanic Shoals Marine Park in the MEVA, the Continental Slop Demersal Fish Communities within the EMBA and NT coastline communities within the MEVA.* *Santos welcomes input from ECNT about any information about values and sensitivities within the EMBA or MEVA that may be affected by the Activity, and associated impacts or risks.* **[22(vv)]** *In preparing the EP, Santos has identified the presence of the Arafura Shelf within the MEVA that could be affected by an unplanned spill event. This receptor, along with other relevant receptors, will be considered when identifying areas that require particular protection when developing appropriate spill response strategies for the OPEP, which will be assessed by the regulator.* **[22(ww)]** *In preparing the EP, Santos has identified commercial marine fisheries and traditional fishing practices that overlap with the EMBA and MEVA. Fishing interests within the MEVA are considered when identifying potential priorities for protection when developing appropriate spill response strategies for the OPEP, which will be assessed by the Regulator.* *In any event, having regard to the ECNT's FIAs, as described by the ECNT in its letter and on the ECNT's website, these impacts do not appear to be relevant to any potential consequence of the activity on the ECNT's FIAs.* **[22(xx)]** *The impacts and risks presented in the Production Operations information booklet have taken into account the relevant properties of the various substances for which a spill scenario has been modelled, including ecotox data where available for Barossa-condensate and industry fuels. These properties were considered when assessing potential impacts to values and sensitivities of the environment that may be affected, as presented in the Production Operations information booklet.* *The ECNT is able to make an informed assessment of any potential consequences of the activity on its FIAs by reference to the information on impacts and risks already provided. As noted previously, Santos invites the ECNT to suggest any particular control measures that may be appropriate to adopt in respect of these risks and impacts.* *Further, the OPEP spill response strategies as relevant to credible unplanned spill scenarios consider the impacts and risks from use of dispersant, where proposed as an appropriate response strategy for specific unplanned spill scenarios. The information contained in the OPEP will be assessed by the Regulator against the requirements of the Regulations.*	
ECNT correspondence to Santos on 9 April 2024			
Reiterated concerns in relation to Santos' consultation process, including the adequacy of information provided, and manner in which the ECNT is being consulted with compared to other relevant stakeholders (paragraphs 1-6 of letter).	Santos has provided a response to ECNT. Santos has provided the ECNT with sufficient information and a reasonable period to assess any possible impacts of the Activity for the Coastal Waters OEMP on the ECNT's functions, interests and activities, and to provide any feedback it may have.	**Santos' correspondence to ECNT on 14 May 2024 in response to ECNT's letter of 9 April 2024** *Noting that we have already responded to your first and second letters, Santos has provided responses to your concerns and requests for further information in your third letter (dated 9 April 2024), where possible and reasonable, in the attached Annexure.* *More broadly, and as was set out in our letters of 28 March and 30 April 2024:* • *The purpose of the consultation is to understand:* • *the values and sensitives of the environment that may be affected;* • *the potential environmental risks and impacts of the proposed activities; and* • *any control measures proposed to reduce the environmental impacts and risks of the proposed activities to as low as reasonably practicable and an acceptable level.* • *Santos has provided the ECNT with sufficient information to provide this type of feedback in accordance with regulation 25 of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Regulations);* • *Santos has been consulting, and will continue to consult, with the ECNT so that Santos can obtain feedback as to any potential consequences which the proposed activity on the ECNT's functions, interests and activities.* *Santos considers that the information provided in this letter and the Annexure hereto, as well as our letter dated 30 April 2024, together with the previously shared information booklet and factsheet, are sufficient to inform an adequate assessment of the impacts of the activity of the EP on the ECNT's functions, interests and activities.* *Santos notes the ECNT has expressed concerns that it is being treated in a manner that is distinct from other stakeholders. However, the legislative framework and regulatory guidance makes it clear that the consultation process should be undertaken in a manner appropriate for the person or organisation having regard to their functions, interests and activities that may be affected by our proposed activity. With respect to the ECNT specifically, Santos has:* *a) provided ECNT with links to the relevant information booklet and factsheet on 9 February 2024 as part of the preliminary consultation process;* *b) been formally consulting with the ECNT about this EP and OEMP since 11 March 2024;*	Not Applicable.

		c) responded to ECNT correspondence on 28 March and 30 April 2024; and *d) responded to the ECNT's request for a meeting, now confirmed for 20 May 2024.* *Santos considers that it has been consulting with the ECNT in a manner which is consistent with the regulatory guidance, including giving the ECNT reasonable time to consider the consultation materials and to provide input for the EP.* *Santos looks forward to meeting with the ECNT in Darwin on Monday, 20 May 2024. The meeting is an opportunity for the ECNT to provide further input (if any) for Santos to consider in preparing the EP.*	
Reiterated concerns in relation to Santos' discrepancies in GHG emission estimates provided in three separate Barossa approval documents (paras 7-9).	Santos has considered the matters raised by ECNT in the EP and this OEMP and provided a response to ECNT including clarification in relation to their reiterated concerns about apparent discrepancies in emissions estimates in separate approval documents in its letter of 14 May 2024. The Barossa Production Operations EP includes for the GHG emissions forecast including the underpinning assumptions for the Barossa Project. Section 6.3 of this OEMP describes the Scope 1 and Scope 3 emissions pertaining to activities in the Coastal Waters section of the Barossa GEP. Santos considers the information provided in the information booklet sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	*The scope 1 emissions estimate presented in the Barossa Offshore Project Proposal (OPP) is higher than the estimate provided in the Production Operations Information Booklet (Booklet).* *This is as a result of reductions in the operational emissions achieved during detailed engineering design undertaken since the OPP was accepted. This is explained in Santos' letter dated 30 April 2024 - refer response to #22g and #22h.* *The annual emissions estimates included in the Booklet are applicable to the Production Operations Activity (Activity). The annual emissions estimates provided in the Booklet are conservative (when extrapolated for 25 years of production operations) given annual emissions are expected to reduce over the life of the Activity as production rates decline.* *As explained above, discrepancies between emissions estimates can be a product of improved engineering definition over the course of project development, the different metrics that can be used to present emissions estimates, and/or the fact that emissions vary from year to year as production changes over the life of a production facility.* *For the purpose of the Activity, the ECNT should focus its review on the information provided in the Booklet.* *As previously advised in Santos' letter dated 30 April 2024, to the extent that there is any potential impact on the ECNT's function, interests or activities (FIAs) as a result of GHG emissions, the ECNT is able to make an informed assessment of that impact with the information set out in the Booklet.*	Section 6.3
Asserted that Santos has not adopted an OPP control measure of using fuel gas instead of marine diesel and marine gas oil (para 10).	Santos provided a response to ECNT that the ECNT has incorrectly interpreted the content in the information booklet, which was clarified by Santos in its response to the ECNT.	*The reference from pp. 339 of the OPP refers to fuel gas as the preferred fuel for FPSO hydrocarbon processing and utilities operations. This control measure has not been rejected and is consistent with the basis for the EP.* *The references in the Booklet to marine diesel oil (MDO) or marine gas oil (MGO) are not to be confused with the reference from pp. 339 of the OPP and refer to:* • *use of MDO as a fuel source for support vessels and IMMR vessels; and* • *MGO as a backup or emergency fuel if the FPSO fuel gas system is offline/unavailable.*	Not Applicable
Asserted that Santos has not provided sufficient detail regarding emissions profile of the project (para 11).	Santos has considered the matters raised by ECNT. Santos' assessment is that the information booklet is sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	*Santos has addressed the request for additional emissions estimate detail previously in our letter dated 30 April 2024.* *Regarding the differences with the DPD SER emissions estimate, see response to #8, which refers to an explanation for this.*	Section 6.3
Asserted that Santos should provide the ECNT (and other Relevant Persons) with the details of the full range of GHG emission assessments it has undertaken for the project (para 12).	Santos has considered the matters raised by ECNT. The Barossa Production Operations EP and this OEMP include GHG emissions forecast associated with the Barossa Project and specifically in this OEMP for this Activity, including the underpinning assumptions. Santos' assessment is that the information booklet is sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	*Santos has assessed and defined the full range of potential GHG emissions sources relevant to the activity for this EP, taking account of detailed engineering design undertaken since the OPP, and this is accurately reflected in the Booklet as relevant to the EP.*	Section 6.3
Asserted that Santos has failed to identify the impacts of the activity over the lifecycle of the project, relying on a limited period of 5 years of impacts (paras 13-21).	Santos has considered the matters raised by ECNT. The OEMP identifies the impacts of the activity over the lifecycle of the Activity fit for purpose given the OEMP is for the first 5 years of the Activity.	*The EP will assess the risks and impacts of the Activity for the lifecycle of the project. Correspondingly, the Booklet sets out the risks and impacts of the Activity that are anticipated to arise for the lifecycle of the project.*	The impact and risks of the activity over the life cycle of the project are assessed in Sections 6 and 7 of the OEMP.
Asserted that the ECNT is unable to assess the impacts to the environment from the Activity due to lack of clarity regarding GHG emissions of the project (paras 22-23).	Santos has considered the matters raised by ECNT. The Barossa Production Operations EP and this OEMP includes GHG emissions forecast as relevant to the Activity, including the underpinning assumptions. Santos' assessment is that the information booklet along with the many responses described and provided within this section are sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	*Further to the responses provided to ECNT items #7-21, Santos has clarified the actual extent of greenhouse gas emissions from the Activity and rejects this claim.*	Section 6.3

Asserted that Santos has failed to appropriately contextualise and evaluate the GHG emissions of the project (para 24).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The contribution of GHG emissions from the Activity have been contextualised against Australian and global carbon budgets. International agreements, namely the Paris Agreement, have been developed to facilitate an orderly approach to what is a global problem. The nature, quantity and timeframe of each country's contribution and the pathways to achieve UNFCCC obligations vary widely, including having regard to the particular circumstances of each country. This framework recognises, and is premised on, the fact that climate change is a global issue – there is no correlation between where GHG emissions are released and where climate change impacts are felt. Santos' assessment is that the information booklet is sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	*ECNTs claim is noted, as advised in Santos' letter dated 30 April 2024, to the extent that there is any potential impact on the ECNT's FIAs as a result of GHG emissions, the ECNT is able to make an informed assessment of that impact with the information set out in the Booklet.* *Santos will provide further definition of the acceptable levels of impact from GHG emissions in the EP, with consideration for Australia's legislated emissions reduction targets, for assessment by the Regulator against the requirements of the Regulations.*	Section 6.3
Reiterated concerns regarding Santos' approach of assessing environmental impacts from the project's emissions, including in the national and international context, as well as cumulative impacts (paras 25-28 and 30-31).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The Barossa Production Operations EP and this OEMP acknowledge the linear relationship between GHG emissions and global warming and reference the latest commentary from the IPCC on the causes and impacts of climate change. It is not possible to draw a link between GHG emissions from the Activity and any specific climate related impact on any specific element of the Australian environment which may result from any net increase to cumulative GHG emissions globally. By keeping the Barossa Gas Project emissions under the Safeguard Mechanism baseline, the Project's incremental contribution to global warming is within acceptable limits as determined by reference to Australia's NDC under the UNFCCC. Santos' assessment is that the information booklet is sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	*Environmental impacts of GHG emissions from the Activity will be evaluated against acceptable levels of acceptable impact defined in the EP, for assessment by the Regulator against the requirements of the Regulations.* *As outlined in the Booklet, as a result of the complex nature of the global emissions system, climate change impacts cannot be meaningfully linked to any one activity or emissions source.* *As previously advised in Santos' letter dated 30 April 2024, to the extent that there is any potential impact on the ECNT's FIAs as a result of GHG emissions, the ECNT is able to make an informed assessment of that impact with the information set out in the Booklet. Santos understands from previous consultation that the ECNT is familiar with these potential risks and impacts related to GHG emissions. Santos reiterates its invitation to the ECNT to raise any control measures that it considers may be appropriate to adopt for Santos' consideration when preparing the EP for submission to NOPSEMA, including in relation to GHG emissions.* *Refer the covering letter and Santos' letter dated 30 April 2024. Santos welcomes the ECNT's input in accordance with the legislative purpose of s 25 consultation and is meeting with the ECNT. As highlighted in our letter of 30 April 2024, Santos considers that the information about GHG emissions provided in the consultation materials sent to ECNT on 9 February 2024 is sufficient in order for ECNT to make an informed assessment of the potential consequences of the Activity on any of its FIAs.*	Section 6.3
Concerns were raised in relation to the impacts to listed threatened species from climate change (para 29-30).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The Barossa Production Operations EP and this OEMP acknowledge the linear relationship between GHG emissions and global warming and reference the latest commentary from the IPCC on the causes and impacts of climate change. It is not possible to draw a link between GHG emissions from the Activity and any specific climate related impact on any specific element of the Australian environment which may result from any net increase to cumulative GHG emissions globally. By keeping the Project emissions under the Safeguard Mechanism baseline, the Project's incremental contribution to global warming is within acceptable limits as determined by reference to Australia's NDC under the UNFCCC. The predicted GHG emissions associated with the Activity comprise a nominal amount in the overall scheme of the national and international carbon budgets and will not materially or substantially contribute to existing and future predicted Australian and global GHG emissions. Conservatively the associated potential environmental impacts to Threatened, Migratory or local fauna (e.g. seabirds) is assessed as I – Negligible. Santos' assessment is that the information booklet is sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	*The EP will consider all relevant conservation advice, and threatened species recovery and management plans, in defining acceptable levels of impact and evaluation of activity GHG emissions related impacts and risks, for assessment by the Regulator against the requirements of the Regulations.*	Section 6.3 Section 3
Reiterated concerns that Santos has not demonstrated how it will meet its legislative requirements under the Safeguard Mechanism (paras 32-39).	Santos has considered these concerns in the preparation of the Barossa Production Operations EP and this OEMP. Santos can confirm that it will comply with the Safeguard Mechanism, noting that treatment of Barossa GHG emissions is still to be finalised by the CER. Implementation and enforcement of the Safeguard Mechanism is the responsibility of the CER.	*Santos will be required to comply with the applicable baseline for the Barossa project in each compliance year, including net-zero reservoir emissions from first gas. It is a matter for Santos to determine how it will achieve this compliance. The EP will demonstrate how requirements applicable to the Activity will be met, which will be considered by NOPSEMA in the exercise of its functions as Regulator. This information is not necessary for the ECNT to make an informed assessment of the possible consequences of the Activity on any of its FIAs.*	Section 6.3 EPO 11
Reiterated concerns that Santos has not demonstrated that the GHG emissions of the project have been reduced to ALARP and are acceptable (paras 40-45 and to 58).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos describes the control measures for the Scope 1 & Scope 3 emissions associated with this Activity, including associated ALARP demonstration. Santos has considered the concerns raised. Santos considers that GHG emissions have been reduced to ALARP and are acceptable for the reasons set out in Section 6.3.5 and Section 6.3.6.	*The extent to which the EP demonstrates that the impacts and risks from Activity GHG emissions have been reduced to ALARP and acceptable levels, is a matter for the Regulator to assess against the requirements of the Regulations.*	Section 6.3
Concerns raised regarding whether a future CCS project constitutes a component of the	Santos has considered the matters raised by ECNT. ECNT queries about CCS are not considered further as CCS opportunities at Bayu Undan are outside the scope of the Coastal Waters OEMP.	*As previously advised in our letter dated 30 April 2024, while Santos has committed to explore CCS opportunities at Bayu-Undan and elsewhere, CCS is not part of the Barossa development, and not within the scope of the Production Operations EP.*	Not applicable

Activity, including whether CCS will be a mitigation and control measure for GHG emissions of the project at some point over its lifecycle (paras 46-56).			
Asserted that Santos has no viable control measures capable of meaningfully mitigating its scope 1 GHG emissions for the Activity, without CCS being a component of the Barossa project (para 57).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The Barossa Production Operations EP and this OEMP describe the control measures to reduce Scope 1 GHG emissions for the Activity. Santos considers that GHG emissions have been reduced to ALARP and are acceptable. ECNT's claim about CCS is not considered further as CCS opportunities at Bayu Undan are outside the scope of the Coastal Waters OEMP.	*As previously advised in the response to #46, CCS is not part of the Barossa development.* *As explained in Santos' letter dated 30 April 2024 (refer response to #22h), Santos has achieved significant reductions in Scope 1 operational emissions since the Barossa Development OPP. Santos will comply with the requirements of the Safeguard Mechanism.* *In any event, the extent to which the EP demonstrates that the impacts and risks from Activity GHG emissions have been reduced to ALARP and acceptable levels, is a matter for the Regulator to assess against the requirements of the Regulations.*	Control measures relating to managing GHG emissions are outlined in Section 6.3.3
Asserted that Santos has made no attempt to properly define the impacts of indirect emissions from the project (para 59).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The Barossa Production Operations EP and this OEMP acknowledge the linear relationship between GHG emissions and global warming and references the latest commentary from the IPCC on the causes and impacts of climate change. The Activity's projected emissions are contextualised against established emissions budgets (national and global). Climate change is a global problem with the solution being led at the international level. Domestically, GHG emissions are regulated through Australia's NDC and the SGM and the Barossa JV has legal obligations to ensure that the Activity operates in accordance with that framework. Assuming the emissions from the Barossa Gas Project will cause an equivalent net increase in cumulative Australian and global emissions, this increase is de minimis in the context of Australian and global carbon budgets; and there is no correlation between where GHG emissions are released and where climate change impacts are felt. The Barossa JV has adopted environmental performance outcomes and control measures directed to minimising the GHG emissions from the Activity. A range of controls have been considered for both direct (Scope 1) and indirect (Scope 3) emissions. Santos' considers GHG emissions have been reduced to ALARP and are acceptable.	*Santos rejects ECNT's claim that Santos has made no attempt to properly define the impacts of these indirect emissions nor to account for the ways these impacts could be reduced or mitigated. Page 14 of the Booklet identifies:* • *the indirect impacts of climate change on the Australian environment, associated with GHG emissions (Scope 1 and 3) from the Activity; and* • *a proposed control measure to mitigate impacts from indirect (Scope 3) emissions from the Activity.* *In any event, the extent to which the EP demonstrates that the impacts and risks from Activity indirect (Scope 3) GHG emissions have been reduced to ALARP and acceptable levels, is a matter for the Regulator to assess against the requirements of the Regulations.* *See also Santos' response to #8 above.*	Section 6.3
Asserted that Santos has not described how scope 3 GHG emissions will be reduced to ALARP and acceptable levels, and that the Activity poses an unacceptable risk to the environment (paras 60-61 and 64).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The Barossa Production Operations EP and this OEMP acknowledge the linear relationship between GHG emissions and global warming and references the latest commentary from the IPCC on the causes and impacts of climate change. The Activity's projected emissions are contextualised against established emissions budgets (national and global). Climate change is a global problem with the solution being led at the international level. Assuming the emissions from the Barossa Gas Project will cause an equivalent net increase in cumulative Australian and global emissions, this increase is de minimis in the context of Australian and global carbon budgets; and there is no correlation between where GHG emissions are released and where climate change impacts are felt. The Barossa JV has adopted environmental performance outcomes and control measures directed to minimising the GHG emissions from the Activity. A range of controls have been considered for both direct (Scope 1) and indirect (Scope 3) emissions. Santos' considers that GHG emissions have been reduced to ALARP and are acceptable.	*The extent to which the EP demonstrates that the impacts and risks from Activity indirect (Scope 3) GHG emissions have been reduced to ALARP and acceptable levels, is a matter for the Regulator to assess against the requirements of the Regulations.* *The EP demonstration that the impacts and risks from Activity GHG emissions (direct and indirect) have been reduced to ALARP and acceptable levels is performed in the context of the Australian Government's interim (2030) and longer term (2050) emissions reduction targets, and associated regulations such as the Safeguard Mechanism. Ultimately, it is a matter for the Regulator to assess the acceptability of Santos' demonstration against the requirements of the Regulations.*	Section 6.3
Asserted that neither Japan nor South Korea are on track to meet Paris Agreement commitments in the period to 2030 (para 63).	Santos notes ECNT's comment.	*Noted*.	Not applicable
Asserted that Santos has made no attempt to define the impact of methane emissions (para 65).	Santos has considered the matters raised by ECNT. Methane emissions are accounted for in the Barossa Project GHG emissions estimate.	*Although methane emissions represent a minor contribution to Activity Scope 1 GHG emissions, they are accounted for in the Scope 1 GHG emissions estimate provided in the Booklet.* *The EP demonstration that the impacts and risks from Activity GHG emissions (direct and indirect) have been reduced to ALARP and acceptable levels is performed in the context of the Australian Government's interim (2030) and longer term (2050) emissions reduction targets, and associated regulations such as the Safeguard Mechanism. Ultimately, it is a matter for the Regulator to assess the acceptability of Santos' demonstration against the requirements of the Regulations.*	Not applicable
Asserted that the Activity is inconsistent with Commonwealth Recovery Plan for Marine Turtles (para 66).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos has assessed the Activity impacts and risks and does not consider the Activity to be inconsistent with the Recovery Plan for Marine Turtles. Consistency with the recovery plan for marine turtles is demonstrated in the following Sections: 6.1 to 6.6 and 7.1 to 7.7.	*Santos notes and refutes ECNT's claim, which we address below.*	Sections 6.1, 6.2, 6.3, 6.4, 6.5, 6.6 and Sections 7.1, 7.2, 7.3, 7.4, 7.5, 7.6 and 7.7
Asserted Santos' spill response plans are not finalised and do	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP.	*Page 9 of the Booklet acknowledges the various conservation management plans and advice, including recovery plans, that have been considered in development of the EP (including the Oil Pollution Emergency Plan (OPEP)). In assessing the potential impacts from an unplanned spill event,*	Sections 7.4 and 7.6

not provide sufficient details regarding harm to turtles (para 68).	Santos has a number of accepted spill response (thereby finalised) plans for Barossa related activities which include for response strategies to reduce harm to turtles. Santos has considered the requirements of the Recovery Plan for Marine Turtles (2017) to ensure the Coastal Waters OEMP Oil Pollution Emergency Plan is consistent with the requirements of the recovery plan.	*Santos has considered the requirements of the Recovery Plan for Marine Turtles (2017) to ensure the proposed control measures are consistent with the requirements of the recovery plan.* *The OPEP includes an objective to identify environmental sensitivities at risk and conduct operational Net Environmental Benefit Analysis (**NEBA**). The NEBA process is used by the Incident Management Team during an oil spill response operation so the most effective response strategies with the least detrimental environmental impacts can be identified. As a component of the incident action planning process, in the event of a spill, a NEBA is applied to achieve the following:* • *Identify sensitivities within the area potentially affected by a spill at that time of the year (noting that the sensitivity of some key receptors, such as birdlife and turtles, varies seasonally).* • *Assist in prioritising and allocating resources to sensitivities with a higher protection and response priority.* • *Assist in determining appropriate response strategies with support of real-time metocean conditions, oil spill tracking and fate modelling.* *Consistent with the requirements of the Regulations, Santos plans are not finalised at the time of consultation and won't be finalised until plans are submitted to the Regulator for assessment.* *The extent to which Santos has demonstrated Activity impacts and risks are consistent with the Recovery Plan for Marine Turtles (2017) is a matter for the Regulator to assess against the requirements of the Regulations.*	GEP NT Waters Oil Pollution Emergency Plan
Further information requested to ensure that Barossa operations are not inconsistent with artificial lighting requirements for marine turtles (para 71).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos notes that impacts to marine turtles from Activity lighting are not expected to occur, primarily due to the infrequent and short duration of vessel planned inspection activities within the Operational Area. Santos considers that Barossa operations are consistent with artificial lighting requirements for marine turtles. Santos views that ECNT has been provided sufficient information to enable them to make an informed assessment of any potential consequences of the Activity on its functions, interests or activities.	*Planned vessel inspection and maintenance activities along the Barossa GEP in OA2 would occur at a frequency of approximately once every 3 years, for a duration of approximately several weeks across the full extent of the pipeline. Vessel presence at any one location (during vessel inspection and maintenance activity periods) would be approximately 2-3 days in any one specific location.* *As stated in the Booklet, impacts to nesting females or hatchlings are not expected to occur, primarily due to the infrequent and short duration of vessel inspection activities, as explained above.*	Section 6.2 BAO-CM-6.1.2 BAO-CM-6.2.1 BAO-CM-6.2.2
Asserted that Santos has failed to identify cumulative water quality impacts on marine turtles (para 72).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Routine vessel discharges (deck drainage/run-off, sewage and greywater, cooling water, bilge water, brine and ballast water) in the OA associated with infrequent (IMMR activities nominally every 3 years) vessel activities will occur in the internesting BIA for flatback turtles. Santos has assessed the potential impacts to marine turtles according to the nature and scale of activities, and the locations of planned activities in the OA, relative to the presence and extent of the flatback turtle BIA. Santos considers the potential water quality impacts to marine turtles from the Activity to have been reduced to ALARP and acceptable levels.	*Santos has identified the Recovery Plan for Marine Turtles (2017) as a relevant consideration during preparation of the EP. The chemicals that may be present in the discharged water have properties that are non-bioaccumulative, are biodegradable and breakdown quickly.* *Given the potential exposure times for turtles that may transit through the area, they are not there long enough to experience acute toxic effects.* *The adequacy of Santos' evaluation of the impacts and risks to marine turtles from the Activity, is a matter for the Regulator to assess against the requirements of the Regulations.*	Section 6.6
Asserted that Santos needs to further assess impacts to important marine turtle foraging grounds, migratory corridors, mating areas and habitat for hatchling dispersal (para 73).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos has considered all reasonably ascertainable information of relevance to the assessment of potential impacts to marine turtles from the Activity.	*The evaluation of impacts and risks to marine turtles as presented in the Booklet has considered Department of Climate Change, Energy, the Environment and Water published biologically important areas (BIAs) as relevant to foraging, mating, nesting, interesting, and has also considered best available information on migration pathways. As noted in the Booklet, OA2 overlaps a portion of the flatback turtle inter-nesting BIA.* *Santos reiterates that the information provided in the Booklet is sufficient in order for ECNT to make an informed assessment of the potential consequences of the Activity on any of its FIAs.*	Section 6
Asserted that Santos has failed to consider compliance with the Threat Abatement Plan for the impacts of marine debris on vertebrate marine life (para 74).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The Barossa Production Operations EP and this OEMP consider the Threat Abatement Plan for Impacts of Marine Debris on Vertebrate wildlife of Australia's coasts and oceans (CoA, 2018) when evaluating potential threats to marine turtles from the Activity.	*Santos has considered the Threat Abatement Plan for Impacts of Marine Debris on Vertebrate wildlife of Australia's coasts and oceans (CoA, 2018) when evaluating potential threats to marine turtles from the Activity, and this has informed the Booklet.* *The EP assesses the scale of impact associated with dropped objects. Santos will comply with legislation for the prevention of garbage disposal from vessels. Given the limited quantities and likely objects, as well as the control measures proposed, the potential impacts from the Activity to species identified in relevant species recovery plans, conservation advice, wildlife conservation plans and management actions will be minimised. Ultimately, the adequacy of Santos' proposed control measures is a matter for the Regulator to assess against the requirements of the Regulations.*	Section 7.1 BAO-CM-7.1.1 BAO-CM-7.1.2
Asserted that Santos has not sufficiently assessed the potential impacts to marine species (para 75).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos has considered and assessed potential impacts to marine species, as appropriate to the nature and scale of planned activities in the OA and associated impacts and risks.	*ECNT's observations about the difference between the level of marine species information provided between OA1 and OA2 is reflective of the difference in nature and scale of activities between the different operational areas. OA1 will comprise infrastructure with an ongoing presence both below and above the waterline and includes continuous support vessel activities. In contrast, OA2 comprises a subsea pipeline located on the seabed, with non-continuous infrequent inspections (approximately every 3 years) and maintenance activity via a vessel.* *The EMBA and MEVA described in the EP are associated with potential impacts from an unplanned event – namely a hydrocarbon spill. The likelihood of a hydrocarbon release is unlikely.*	Sections 6 & 7
Asserted that Santos failed to provide sufficient information on	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP.	a. *The EP describes the noise emissions associated with the Activity and commissioned a Noise Impacts on Marine Fauna to support the noise emissions impact assessment presented.*	Section 6.1 BAO-CM-6.1.1

potential noise impacts on marine mammals (paras 76-78).	The OEMP describes the noise emissions associated with the Activity and considers potential impacts on marine mammals. The information contained in the information booklet about potential noise impacts on marine mammals is sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	*b. Support vessels will transit from OA1 and OA2 to Darwin. Given OA2 extends along the Barossa GEP from the FPSO to Darwin, Santos considers noise impacts in the wider area have been considered.* *Santos' evaluation of impacts and risks to marine mammals from noise emissions will be a matter for the Regulator to assess against the requirements of the Regulations.*	BAO-CM-6.1.2
Asserted that Santos failed to provide sufficient information on potential Vessel collisions and other interactions on marine mammals (para 79).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos' assessment is that the information presented in the information booklet about unplanned marine fauna interactions is sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	*Santos has considered relevant management actions, policy advice and legislation when evaluating potential threats to marine mammals from the Activity, and this has informed the information presented in the EP and the information Booklet (including as to control measures proposed to be implemented). The OA does not overlap the migration route of the pygmy blue whale.* *Santos confirm that vessels will be required to comply with its Protected Marine Fauna Interaction and Sighting Procedure, which ensures compliance with Part 8 of Environment Protection and Biodiversity Regulations 2000 which includes controls for minimising the risk of collision with marine fauna.* *Ultimately, the adequacy of Santos' proposed control measures is a matter for the Regulator to assess against the requirements of the Regulations.*	Section 7.3 BAO-CM-6.1.1 BAO-CM-6.1.2 BAO-CM-6.6.6 BAO-CM-6.4.5
Asserted that Santos has dismissed the potential impacts to migratory seabirds and shorebirds (para 80).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos has assessed potential impacts to migratory seabirds and shorebirds appropriate to the nature and scale of activities, and the locations of planned activities in the GEP Coastal Waters OEMP, relative to the presence and extent of seabird or shorebird BIAs.	*There are no seabird or shorebird BIAs that overlap with either OA1 or OA2, which has informed the presentation of environmental impacts and risks in the Booklet.* *EPBC Act listed seabird or shorebird species that could occur in the EMBA (associated with potential impacts from an unplanned event – namely a hydrocarbon spill) will be considered in the EP but represent lower environmental risk due to the low likelihood (unlikely) of an unplanned event.*	Sections 6 & 7
Asserted that the Information Booklet failed to provide sufficient information on the project's risks and impacts on bird species, including flaring and venting excess gas and light pollution (para 81).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. [Santos has assessed potential impacts to migratory seabirds and shorebirds appropriate to the nature and scale of activities, and the locations of planned activities in the OA, relative to the presence and extent of seabird or shorebird BIAs. Santos considers the information presented in the information booklet is sufficient for the ECNT to assess impacts of the Activity on its functions, interests or activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP. Flaring and venting activities on the FPSO are out of scope for the Coastal Waters OEMP, and these are addressed in the Barossa Production Operations EP.	*See response to para #80.* *The EP will assess all potential impacts to seabirds and migratory birds associated with flaring activity.* *There are no seabird or shorebird BIAs that overlap with either OA1 or OA2, which has informed the presentation of environmental impacts and risks in the Booklet.* *The EP will assess the potential attraction of birds to the gas flare.*	Sections 6.2
Asserted that Santos missed potential impacts on fish and other marine species with habitats beyond the boundaries of OA1 and OA2, including impacts from support vessels travelling to and from Darwin (para 82).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos has assessed potential impacts to fish and other marine species from planned activities within the Coastal Waters OEMP Operational Area and from unplanned events in the broader environment that may be affected.	*The EP assesses the potential noise emission impacts on fish and other marine species associated with support vessels.* *Support vessels will transit from OA1 and OA2 to Darwin. Given OA2 extends along the Barossa GEP from the FPSO to Darwin, Santos considers noise impacts in the wider area have been considered in the EP.*	Sections 6 and 7
Asserted that Santos' has failed to adequately assess the potential risks and impacts to fish and other marine life resulting from discharges (para 83).	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos has assessed potential impacts to fish and other marine species from planned activities within the Operational Area and from unplanned events in the broader environment that may be affected.	*The chemicals (process) that may be present in the discharged water have properties that are non-bioaccumulative, biodegradable and breakdown quickly. Santos will undertake a full suite of WET testing of the produced water discharges in accordance with ANZECC & ARMCANZ (2000) guidelines once production commences.* *Given the potential exposure times for plankton, fish, invertebrates and sharks that may transit through the area, they are not there long enough to experience acute toxic effects.* *The adequacy of Santos' evaluation of impacts and risks to fish and other marine life and any related control measures will be a matter for the Regulator to assess against the requirements of the Regulations.*	Section 6.6 BAO-CM-6.7.5
Asserted that the Information Booklet does not provide sufficient information on the chemical composition of produced water (para 85).	Produced water is associated with the FPSO activities and is not an impact of activities under the OEMP Concerns related to the FPSO and Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	*Page 20 of the Booklet does provide a general description of the composition of produced water, and Santos refers ECNT to its response in its letter dated 30 April 2024 (request 22aa).*	Not applicable.
Asserted that the Information Booklet does not provide a sufficient explanation for the: • forecast produced water rate (para 86); and • produced water treatment stages (para 87).	Produced water is not an impact of activities under the OEMP, and associated with the FPSO activities. Concerns related to the FPSO and Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	**[86]** *The forecast produced water rate over time is merely a reflection of the Barossa reservoir properties and is included to emphasise the conservatism in the design capacity of the FPSO to process produced water volumes of up to 20,000 bbl/day.* *In any event, a further explanation is not required in order for ECNT to make an informed assessment of any potential consequences of the Activity on its FIAs by reference to the impacts and risks already provided.* *The produced water treatment system is a multi-stage treatment process that progressively removes hydrocarbons and other contaminants to reduce oil in water concentrations that are acceptable for discharge.*	Not applicable.

		[87] *The produced water treatment and discharge system consists of multiple stages of de-oiling, solids removal and pumping equipment. The system consists of a:* • *produced water surge drum* • *hydrocyclone* • *floatation vessel (induced gas flotation unit)* *tertiary produced water treatment unit – macro-porous polymer extraction (MPPE).*	
Asserted that there is insufficient information provided regarding the chemical selection process, or details of the chemical compounds used as additives in produced water discharges (para 88).	Produced water is not an impact of activities under the OEMP and associated with the FPSO activities. Concerns related to the FPSO and Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	*Santos refers ECNT to our letter dated 30 April 2024 (request 22aa).*	Not applicable.
Asserted that there is insufficient information provided regarding produced water monitoring (para 89).	Produced water is not an impact of activities under the OEMP and associated with the FPSO activities. Concerns related to the FPSO and Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	*As stated in the Booklet, if the produced water stream does not meet the specifications for discharge it is routed to a dedicated storage tank, for subsequent re-processing in the produced water treatment system until the concentrations meet the acceptable limit of 30mg/L over 24-hours. See also Santos' letter dated 30 April 2024 (request 22z).*	Not applicable.
Concerns raised regarding the cumulative impacts of produced water in light of the '30 mg/l over any 24- hour period limit' (para 90).	Produced water is not an impact of activities under the OEMP and associated with the FPSO activities. Concerns related to the FPSO and Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	*Santos refers ECNT to our letter dated 30 April 2024 (request 22gg).*	Not applicable.
Concern raised that the produced water adaptive management plan has not been made available (para 92).	Produced water is not an impact of activities under the OEMP and associated with the FPSO activities. Concerns related to the FPSO and Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	*The produced water adaptive management plan will be described in the EP and will be a matter for the Regulator to assess against the requirements of the Regulations.* *Santos considers the ECNT is able to make an informed assessment of any potential consequences of the Activity on its FIAs by reference to the information on impacts and risks already provided.*	Not applicable.
Concern raised that no lists or tables of chemical species being tested for has been provided (para 93).	Produced water is not an impact of activities under the OEMP and associated with the FPSO activities. Concerns related to the FPSO and Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	*Santos refers ECNT to our letter dated 30 April 2024 (request 22aa).*	Not applicable.
Concern raised that no information has been provided about the specific composition of the drilling fluids that will feed into produced water discharges (para 94).	Drilling activity is outside the scope of the Coastal Waters OEMP. and regulated through a separate EP. Produced water is not an impact of activities under the OEMP and associated with the FPSO activities.	*Drilling fluids associated with drilling operations will not form part of the produced water stream and were addressed in the accepted Drilling and Completions Environment Plan.*	Not applicable.
Concerns raised about certain produced water matters in the OPP, which the ECNT asserts should be addressed in the EP, including chemical concentration levels and cumulative impact issues (para 95(a)-(f)).	Produced water is not an impact of activities under the OEMP and associated with the FPSO activities. Concerns related to the FPSO and Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	*Responding to each of the ECNT's numbered paragraphs:* *a. Further detail will be provided in the EP as required for the Regulator to assess the Activity impacts and risks against the requirements of the Regulations.* *b. The produced water treatment system is designed to remove low levels of mercury. This impact/risk will be addressed in the EP for assessment by the Regulator against the requirements of the Regulations.* *c. Santos refers ECNT to our letter dated 30 April 2024 (request 22aa).* *d. Drilling fluids associated with drilling operations will not form part of the produced water stream and were addressed in the accepted Drilling and Completions Environment Plan.* *e. Drilling fluids associated with drilling operations will not form part of the produced water stream and were addressed in the accepted Drilling and Completions Environment Plan.* *f. The OPP was accepted by NOPSEMA in March 2018. The EP will be subject to a separate NOPSEMA assessment process and the EP will consider applicable cumulative impacts.* *Cumulative impacts are unlikely due to the non-bioaccumulative and rapid biodegradation properties of the chemicals typically used in production. In addition, any hydrocarbons from produced water would begin to breakdown as soon as they enter the water through a complex mix of processes such as evaporation, oxidation, and biodegradation.*	Not applicable.
Meeting with ECNT on 20 May 2024			
The ECNT asserted that the information Santos has provided to date is not adequate to understand the impacts of the Activity on its functions, interests or activities.	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos has provided the ECNT with sufficient information and a reasonable period to assess any possible impacts of the Activity for the Coastal Waters OEMP on the ECNT's functions, interests and activities, and to provide any feedback it may have.	Santos noted this concern.	No additional measures adopted.

The ECNT queried whether Santos's compliance measures to meet the Safeguard Mechanism requirements will be included in the Environment Plan.	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos agrees that the OEMP and Barossa Production Operations EP must demonstrate compliance with the Safeguard Mechanism.	Santos explained that the assessment of Safeguard Mechanism is under the remit of the Clean Energy Regulator. However, it agreed that the Environment Plan must demonstrate compliance with the Safeguard Mechanism.	Section 6.3 EPO 11
The ECNT sought confirmation that CCS is not included in the Barossa Production Operations Environment Plan.	Santos has considered the matters raised by ECNT and provided a response to ECNT. Santos confirmed that CCS was not part of the Activity under the EP.	Santos confirmed CCS is not included in the Barossa Production Operations Environment Plan.	Not applicable.

ECNT correspondence to Santos on 28 May 2024			
The ECNT: • reiterated concerns regarding adequacy of information ECNT have received in relation GHG emissions; • asserted that Santos has indicated it will only provide detailed information to NOPSEMA in the draft EP, but not to the ECNT, which the ECNT claims is inconsistent with the consultation requirements under the Regulations; • inferred that that Santos is referring the ECNT to information in the OPP, which the ECNT claims does not fulfil Santos' consultation obligations under the Regulations. • stated that it was engaging experts to assist in its assessment of how the activity may impact its functions, interests or activities.	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos has provided the ECNT with sufficient information and a reasonable period to assess any possible impacts of the Activity for this OEMP on the ECNT's functions, interests and activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	**Santos' correspondence to ECNT on 12 June 2024 in response to ECNT's letter of 28 May 2024** *Santos acknowledges that the ECNT is still preparing a response to its letter dated 14 May 2024.* *Santos understands the ECNT is seeking information about the GHG Management Plan. That plan includes management controls for Scope 1 GHG emissions at the FPSO including but not limited to flaring management, fugitive emissions management, emissions monitoring and adaptive management, emissions and reduction opportunity identification processes.* *There has been extensive correspondence exchanged over the course of consultation for the EP and EMP which commenced in February 2024. Santos has responded to requests for information from the ECNT on 28 March and 14 May. Since that time, Santos has also met with the ECNT on 20 May 2024. At that meeting, Santos answered the ECNT's questions and provided the ECNT with another opportunity to ask any further questions about the EP. No further questions were asked.* *In those circumstances, if the ECNT wishes to provide any additional input for this EP (including, if it considers that there are additional measures to be included), Santos requires this by no later than Thursday, 20 June 2024, noting this is 30 days following the meeting with Santos on 20 May 2024.* *If and when you provide any further input, please let us know if you request particular information you provide during consultation not be published. If you make this request, the information will not be published as part of the plan, in accordance with relevant legislation. Sensitive information we need to give to the regulator to assess our plan will be provided in a separate report, rather than in the published plan. Santos will handle your information in accordance with our Barossa Gas Project Consultation Privacy Policy.*	The operations GHGEMP is described in Section 8.3.2.12 Section 6.3 control measures to manage GHG emissions BAO-CM-6.3.1 BAO-CM-6.3.9 BAO-CM-6.3.11 BAO-CM--6.3.12 BAO-CM-6.3.16 BAO-CM-6.3.17 BAO-CM-6.3.18 BAO-CM-6.3.21 BAO-CM-6.3.22
ECNT correspondence to Santos on 20 June 2024			
The ECNT reiterated concerns that it has been prevented from providing necessary input on the EP because Santos has not consulted in a meaningful way and has not discharged its regulatory consultation obligations. For example, the ECNT alleged that Santos has not provided the ECNT with sufficient: 1. time to effectively engage in consultation; and 2. information to fully understand the potential consequences of the Activity on its functions, interests or activities. The ECNT's specific concerns included: • alleging Santos is withholding information from ECNT in a way that is inconsistent with consultation requirements; • alleging Santos has not engaged in the substance of the ECNT's concerns, and the majority of the ECNT's questions remain unanswered;	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The Barossa Project's overall GHG emissions and proposed management are addressed in the Barossa Production Operations EP. The OEMP includes for impact assessment with regards GHG emissions and noise impacts on marine fauna associated with the Activity. Concerns related to Production Operations activities in the Barossa Field, including operation of the FPSO, are outside the scope of the GEP Coastal Waters OEMP and are addressed in the Barossa Production Operations EP. Santos has provided the ECNT with sufficient information and a reasonable period to assess any possible impacts of the Activity for this OEMP on the ECNT's functions, interests and activities, and to provide any feedback it may have	**Santos correspondence to ECNT on 7 August 2024** [**Cover letter**] *Thank you for your letter of 20 June 2024.* *For convenience, in the **attached** Annexure, we set out a response to the matters raised, including where and when Santos has previously provided information addressing the concerns and requests set out in your most recent letter. Santos is of the view that sufficient information has been provided to ECNT to allow ECNT to make an informed assessment of the possible consequences of the activity to be carried out under the proposed Production EP on any of ECNT's functions, interests or activities.* *Santos thanks ECNT for its comments and submissions in your letter of 20 June 2024, and in previous correspondence and our meeting, in respect of the risks, impacts, and potential controls in relation to the activity. The matters raised by ECNT demonstrate that it has been able to engage comprehensively in the consultation process on the basis of the information provided by Santos. ECNT's complaints in respect of Santos' compliance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 are properly matters that will be before NOPSEMA for its consideration as expert Regulator.* *Santos is finalising the Production EP for submission in the coming weeks.* [**Annexure**] • **[Paras [4]-[15]]** *Santos considers that sufficient information has been provided to ECNT to date to allow ECNT to make an informed assessment of the possible consequences of the proposed activity to be carried out under the Production EP on any of ECNT's functions, interests or activities.* *As you would expect, Santos has carefully considered relevant decisions of the Federal Court of Australia and the Consultation Guideline. Santos disagrees with your apparent position that all information intended to be provided to NOPSEMA is required to be provided to ECNT in order to discharge the consultation requirement. Santos also disagrees with your contentions that ECNT has had insufficient time to consider the information provided, or that the process of consultation has otherwise been deficient.* • **[Para [16]]** *The information set out in those paragraphs of the Annexure to Santos' 30 April 2024 correspondence identified in paragraph 16 of the ECNT Correspondence is information about the estimated annual Scope 1 and Scope 3 emissions associated with the proposed activity, and*	Sections 6.1 and 6.3

• alleging Santos' letters of 30 April and 14 May 2024 did not provide sufficient information in response to a number matters relevant to the ECNT's functions, interests or activities – those matters include: ○ risks, impacts and control measures related to GHG emissions; ○ risks and impacts related to produced water; and ○ noise impacts on marine fauna. (Paras 6 - 38)		*their management, in particular the information provided in the Production Operations information booklet on that topic. Contrary to paragraph 16, the reasoning is quite clear, which is that the ECNT can, using its specialist knowledge and the information provided about GHG emission estimates, make an informed assessment of the potential consequences with information at the level of detail already provided.* • **[Paras [17-20]]** *Thank you for this description of ECNT's functions, interests and activities. As the description makes clear, the central concern of ECNT in the present context is the identification of sources of GHG emissions, advocacy so as to avoid or reduce those emissions, and advocacy to describe and address any consequential climate change. ECNT evidently has specialist knowledge in the areas of GHG emissions and climate change. It is certainly the position that Santos has provided sufficient information about GHG emissions estimated to be associated with the activities to be carried out under the Production EP, so as to allow ECNT to make an informed assessment of the possible consequences of those activities.* *Santos will be required to comply with the applicable baseline under the Safeguard Mechanism for the Barossa project set by the Australian Government in furtherance of Australia's Paris Agreement targets and associated emissions budget. The acceptability of environmental impacts of GHG emissions from the Activity will be evaluated in the EP, for assessment by the Regulator against the requirements of the Regulations. Santos' methodology for this evaluation of acceptability will be broadly consistent with the methodology adopted for previous Barossa EPs, as an example refer section 5.1 of the Barossa Subsea Infrastructure Installation Environment Plan.* *Further, Santos appreciates that your correspondence is largely directed to setting out numerous reasons why it advocates that the Production EP is likely to be deficient and that the Barossa Project should not proceed at all (for example, see [47]). Those matters have been considered by Santos. However, contrary to the tenor of ECNT's correspondence, the consultation requirement in ss 25(1)(d) and 25(2) does not require Santos to respond to all the objections raised, or to persuade ECNT of the merits of the proposal.* • **[Para [21]]** *Santos has provided ECNT with information in sufficient detail about each of the eight items identified specifically in paragraph 21. To the extent that additional or more detailed information has been prepared or is in the course of preparation in respect of the matters set out in those paragraphs of the Annexure to Santos' 30 April 2024 correspondence identified in paragraph 21 of the ECNT Correspondence, they are matters that (in Santos' view) are for Santos to present to NOPSEMA and for NOPSEMA to assess.* • **[Para [22](a)]** *Santos refers ECNT to paragraph 22c of the Annexure to Santos' 30 April 2024 correspondence in relation to the matters raised in paragraph 22(a) of the ECNT Correspondence, which refers to the information provided about GHG emissions and associated risks and impacts, and describes the GHG management plan.* • **[Para [22](b)]** *Santos refers ECNT to paragraph 22d of the Annexure to Santos' 30 April 2024 correspondence in relation to the matters raised in paragraph 22(b) of the ECNT Correspondence.* *In respect of ECNT's request for emissions breakdown by emission-type for the FPSO and DLNG facilities, raised in paragraph 22(b) of the ECNT Correspondence, Santos refers ECNT to paragraphs 22d and 22e of the Annexure to Santos' 30 April 2024 correspondence which responds to substantially identical requests for an emissions breakdown.* • **[Para [22](c)]** *Santos refers ECNT to paragraph 22aa of the Annexure to Santos' 30 April 2024 correspondence and Part VIII of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 22(c) of the ECNT Correspondence.* • **[Para [22](d)]** *Santos refers ECNT to paragraph 22ll of the Annexure to Santos' 30 April 2024 correspondence in relation to the matters raised in paragraph 22(d) of the ECNT Correspondence.* *Santos further refers ECNT to paragraph 83 of the Annexure to Santos' 14 May 2024 correspondence.* • **[Para [22](e)]** *Santos refers ECNT to paragraphs 22x and 22w of the Annexure to Santos' 30 April 2024 correspondence and Part VIII of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 22(e) of the ECNT Correspondence.* • **[Para [23](a)]** *Santos refers ECNT to paragraph 22cc of the Annexure to Santos' 30 April 2024 correspondence in relation to the matters raised in paragraph 23(a) of the ECNT Correspondence.* • **[Para [23](b)]** *Santos refers ECNT to paragraphs 22i, 22p, 22u, 22ff and 22gg of the Annexure to Santos' 30 April 2024 correspondence in relation to the matters raised in paragraph 23(b) of the ECNT Correspondence.* • **[Para [23](c)]** *Santos refers ECNT to paragraph 46 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 23(c) of the ECNT Correspondence.*	

		• **[Para [23](d)]** *Santos refers ECNT to paragraph 22p of the Annexure to Santos' 30 April 2024 correspondence and Part C of the Annexure to Santos' 14 May 2024 in relation to the matters raised in paragraph 23(d) of the ECNT Correspondence.* • **[Para [23](e)]** *Santos refers ECNT to paragraph 22u of the Annexure to Santos' 30 April 2024 correspondence in relation to the matters raised in paragraph 23(e) of the ECNT Correspondence.* *Santos further refers ECNT to Part C of the Annexure to Santos' 14 May 2024 correspondence.* • **[Para [25]]** *Santos refers ECNT to paragraph 8 of the Annexure to Santos' 14 May 2024 correspondence and paragraphs 22g and 22h of the Annexure to Santos' 30 April 2024 correspondence in relation to the matters raised in paragraph 25 of the ECNT Correspondence.* • **[Para [26]]** *Santos refers ECNT to paragraph 12 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 26 of the ECNT Correspondence.* • **[Para [27]]** *Santos refers ECNT to paragraphs 13 and 21 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 27 of the ECNT Correspondence.* • **[Para [28](a)]** *Santos refers ECNT to paragraph 12 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 28(a) of the ECNT Correspondence.* *Santos further refers ECNT to Santos' response to paragraph [22](b) above.* • **[Para [28](b)]** *Santos refers ECNT to Santos' response to paragraph [22](a) above.* • **[Para [28](c)]** *Santos refers ECNT to paragraph 32 and Part C of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 28(c) of the ECNT Correspondence.* *Santos further refers ECNT to Santos' response to paragraph [22](d) and (e) above.* • **[Para [28](d)]** *Santos refers ECNT to paragraph 65 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 28(d) of the ECNT Correspondence.* • **[Para [28](e)]** *Santos refers ECNT to Santos' response to paragraph [23](c), (d) and (e) above.* • **[Para [28](f)]** *Santos refers ECNT to paragraphs 32 and 36 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 28(f) of the ECNT Correspondence.* *Compliance with Santos' obligations under the Safeguard Mechanism may be achieved through (among other things) purchase or surrender of ACCUs or SMCs. Santos refers ECNT to page 22 of Santos' 2023 Annual Report, which provides further information on our generation and acquisition of carbon credits as follows:* *In 2023, Santos executed agreements to build a portfolio of projects supporting the development of five nature-based projects across Queensland, Alaska and Papua New Guinea, to generate carbon credits. Further, in 2023 Santos entered into forward contracts for the purchase of 2.5 million ACCUs at fixed prices to be delivered and paid between December 2023 and January 2027.* • **[Para [28](g)]** *Santos refers ECNT to paragraph 22m of the Annexure to Santos' 30 April 2024 correspondence in relation to the matters raised in paragraph 28(g) of the ECNT Correspondence.* • **[Para [28](h)]** *Santos refers ECNT to paragraph 32 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 28(h) of the ECNT Correspondence.* *Santos further refers ECNT to paragraph 22m of the Annexure to Santos' 30 April 2024 correspondence.* • **[Para [28](i)]** *Santos refers ECNT to paragraph 46 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 28(i) of the ECNT Correspondence.* *Santos further refers ECNT to paragraphs 22i and 22u of the Annexure to Santos' 30 April 2024 correspondence.* • **[Para [29]]** *Santos refers ECNT to paragraph 27 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 29 of the ECNT Correspondence.* • **[Para [30]]** *Santos refers ECNT to paragraphs 27 and 31 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 30 of the ECNT Correspondence.* • **[Para [31]]** *Santos refers ECNT to paragraphs 40, 60 and 61 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 31 of the ECNT Correspondence.* • **[Para [32](a)]** *Santos refers ECNT to paragraphs 8, 13-21 and 40 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 32(a) of the ECNT Correspondence.*	

		• **[Para 32](b)]** *Santos refers ECNT to paragraphs 32 and 37 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 32(b) of the ECNT Correspondence.* • **[Para 32](c)]** *Santos refers ECNT to paragraph 65 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 32(c) of the ECNT Correspondence.* *Santos further refers ECNT to Santos' response to paragraph [28](d) above.* • **[Para 32](d)]** *Santos' consultation materials provide details of GHG emissions over the life of the project. The Australian Government via mechanisms such as the Safeguard Mechanism sets the controls on emissions within Australia, which Santos must comply with.* *Santos' international customers' home jurisdictions are signatories to the Paris Agreement. Therefore, Santos' international customers must comply with the requirements their respective governments set to achieve their Paris Agreement commitments.* *Santos has provided the ECNT with sufficient information to allow it to make an informed assessment of the possible consequences of the activity to be carried out under the proposed Production EP on any of ECNT's functions, interests or activities.* • **[Para 32](e)]** *Santos refers ECNT to paragraph 22m of the Annexure to Santos' 30 April 2024 correspondence and our response to [32](d) above in relation to the matters raised in paragraph 32(e) of the ECNT Correspondence.* • **[Para 32](f)]** *Santos refers ECNT to paragraphs 25 and 37 of the Annexure to Santos' 14 May 2024 correspondence and our response to [32](d) above in relation to the matters raised in paragraph 32(f) of the ECNT Correspondence, which respond to substantially identical requests in relation to emissions reduction targets.* • **[Para 32](g)]** *Santos refers ECNT to Santos' response to paragraphs [23](d) and [28](f) above.* • **[Para 32](h)]** *Santos refers ECNT to paragraph 22u of the Annexure to Santos' 30 April 2024 correspondence and paragraph 32 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 32(h) of the ECNT Correspondence in relation to the matters raised in paragraph [32](h) of the ECNT Correspondence.* • **[Para 32](i)]** *Santos refers ECNT to Santos' response to paragraph [29] above.* • **[Para 33]** *The GHG emissions associated with the end use of Barossa products are expected to be managed under the emissions framework each customer country has agreed through their Paris Agreement NDCs and/or net zero commitments.* *Santos has not made and does not make any comment with respect to whether South Korea and Japan are on track to meet Paris Agreement commitments.* • **[Para 34]** *Santos refers ECNT to Santos' response to paragraph [22](d) above.* • **[Para 35]** *Santos refers ECNT to paragraphs 22qq and 22rr of the Annexure to Santos' 30 April 2024 correspondence and paragraph 78 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 35 of the ECNT Correspondence, which responds to similar requests in relation to noise impacts of the activity.* *Santos further refers ECNT to the Santos Dorado Development Offshore Project Proposal, published on NOPSEMA's website in July 2021, which contains at Attachment 11 the Noise Impacts on Marine Fauna document.* • **[Para 36]** *Santos refers ECNT to paragraph 22aa of the Annexure to Santos' 30 April 2024 correspondence and paragraph 85 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 36 of the ECNT Correspondence.* • **[Para 37]** *Santos refers ECNT to Santos' response to paragraph [21] above.* • **[Para 38]** *Santos refers ECNT to Santos' response to paragraph [16] above.* • **[All remaining paragraphs]** *The remaining paragraphs do not raise any requests for information.* *As per the response to paragraphs 17 to 20 above, Santos has considered the remaining matters in your correspondence. The consultation requirement in ss 25(1)(d) and 25(2) does not otherwise require Santos to respond to all of the objections raised, or to persuade ECNT of the merits of the proposal.*	
The ECNT reiterated concerns that, in the ECNT's view, the environmental impacts and risks of the GHG emissions associated with the Activity have not been reduced to ALARP or acceptable levels for the following reasons:	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The Activity's projected emissions are contextualised against established emissions budgets (national and global). Climate change is a global problem with the solution being led at the international level. The impacts on the climate cannot be attributed to one specific sector or activity. The Barossa Project's overall GHG emissions and proposed management are addressed in the Barossa Production Operations EP. Santos' assessment is that it has reduced impacts and risks from Activity GHG emissions to ALARP and acceptable levels.	*Santos has considered* [these] *matters.*	Section 6.3 BAO-CM-6.3.9 BAO-CM-6.3.11 BAO-CM-6.3.12
The Activity is not consistent with warming limit scenarios and carbon budgets - in particular, the goals of the Paris	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos has adopted environmental performance outcomes and control measures directed to minimising the potential of the Activity to contribute to the accumulation of GHG emissions globally. Even assuming that	*Santos has considered* [these] *matters.*	Section 6.3 BAO-CM-6.3.11

Agreement and achievement of net zero by 2050 (paras 41 – 47);	emissions from the Activity will cause an equivalent net increase in cumulative Australian and global emissions, this increase is de minimis in the context of Australian and global carbon budgets; and there is no correlation between where GHG emissions are released and where climate change impacts are felt.		
Santos has not adequately assessed the indirect impacts of GHG emissions to climate change, including cumulative impacts (paras 48 – 55);	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The Barossa JV has adopted environmental performance outcomes and control measures directed to minimising the GHG emissions from the Activity. A range of controls have been considered for both direct (Scope 1) and indirect (Scope 3) emissions. Santos considers that GHG emissions have been reduced to ALARP and are acceptable. This OEMP and the Barossa Production Operations EP both address the concerns raised.	*Santos has considered* [these] *matters.*	Section 6.3 BAO-CM-6.3.9 BAO-CM-6.3.11 BAO-CM-6.3.12
The ECNT asserted that Santos has not considered the physical risks to the project itself from climate change, given physical climate change effects are expected to worsen over the life of the project (para 56);	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. The OEMP includes details on the operational design life of the Barossa GEP, which is 25 years and is designed to withstand 100-year cyclonic metocean conditions.	*Santos has considered* [these] *matters.*	Section 2.3.1
Santos incorrectly interpreted the meaning 'significant impact' in the context of considering the project's GHG emissions impact on the environment (paras 57 – 60);	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos disagrees with this ECNT statement. The contribution of emissions from the Activity in the GEP Coastal Waters OEMP are contextualised against Australian and global net carbon budgets.	*Santos has considered* [these] *matters.*	Section 6.3
It is unclear what FPSO facilities have been optimised and how reduction of GHG emissions has occurred (paras 61 – 62);	Concerns related to Production Operations activities in the Barossa Field (including the FPSO facility) are outside the scope of the GEP Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	• **[Para 62]** *Santos refers ECNT to paragraph 22h of the Annexure to Santos' 30 April 2024 correspondence in relation to the matters raised in paragraph 62 of the ECNT Correspondence, which responds to substantially identical requests in relation to FPSO emissions. Santos confirms that the Production EP Information Booklet is the most up to date information on expected Barossa reservoir emissions (noting that these are required to be net zero from start-up pursuant to the Safeguard mechanism obligations Santos is subject to).* • **[All remaining paragraphs]** *The remaining paragraphs do not raise any requests for information.* *As per the response to paragraphs 17 to 20 above, Santos has considered the remaining matters in your correspondence. The consultation requirement in ss 25(1)(d) and 25(2) does not otherwise require Santos to respond to all of the objections raised, or to persuade ECNT of the merits of the proposal.*	Not applicable.
Santos has not proposed mitigation measures sufficient for the project's expected scope 1 and 3 GHG emissions. (paras 63 – 67);	Santos has considered the matters raised by ECNT in this OEMP and provided a response to ECNT. The Barossa JV has adopted environmental performance outcomes and control measures directed to minimising the GHG emissions from the Barossa Gas Project. A range of controls have been considered for both direct (Scope 1) and indirect (Scope 3) emissions. The OEMP demonstrates that the proposed mitigation measures do reduce the potential impacts associated with GHG emissions to ALARP. Management of the emissions from the Barossa Gas Project and in accordance with the Safeguard Mechanism and customer country NDC targets will ensure that this Activity does not have an unacceptable impact on climate change, as the Activity emissions have been considered as part of Australia's NDC and, therefore, also into the global trajectory to limit global warming in line with the Paris Agreement targets. In any event, since the ECNT's review of the Barossa Production EP, Santos has proposed additional control measures in relation to GHG emissions.	• **[Para 63]** *Santos refers ECNT to paragraph 25 of the Annexure to Santos' 14 May 2024 correspondence in relation to the matters raised in paragraph 63 of the ECNT Correspondence.* • **[All remaining paragraphs]** *The remaining paragraphs do not raise any requests for information.* *As per the response to paragraphs 17 to 20 above, Santos has considered the remaining matters in your correspondence. The consultation requirement in ss 25(1)(d) and 25(2) does not otherwise require Santos to respond to all of the objections raised, or to persuade ECNT of the merits of the proposal.*	Section 6.3 BAO-CM-6.3.1 BAO-CM-6.3.9 BAO-CM-6.3.11 BAO-CM--6.3.12 BAO-CM-6.3.16 BAO-CM-6.3.17 BAO-CM-6.3.18 BAO-CM-6.3.21 BAO-CM-6.3.22
Santos has not clarified how it intends to comply with the Safeguard Mechanism, including but not limited to: • whether the FPSO and DLNG facility will be treated as the same facility or different facilities; • which production variables the best practice emissions intensity number or the defaults emissions intensity number will apply to; • the quantum of ACCUs it has purchased to date and expects to purchase for the project; (paras 68 – 77);	Santos can confirm that it will comply with the Safeguard Mechanism, noting that treatment of Barossa GHG emissions is still to be finalised by the CER. Implementation and enforcement of the Safeguard Mechanism is the responsibility of the CER. Concerns related to the FPSO and DLNG are outside the scope of the GEP Coastal Waters OEMP and are addressed in respective approvals for the FPSO (Barossa Production Operations EP) and DLNG.	*Santos has considered* [these] *matters.*	Section 6.3 BAO-CM-6.3.9 BAO-CM-6.3.11

Santos has not clarified the role of CCS/CCUs with regard to the Activity (paras 78 – 85); and	CCS is outside the scope of the Coastal Waters OEMP.	*Santos has considered* [these] *matters.*	N/A
Santos has not clarified its approach to obtaining offsets under the Safeguard Mechanism, including whether these are removal, abatement or avoidance offsets (paras 86 – 94).	Santos has considered the matters raised by ECNT in this OEMP and provided a response to ECNT. Santos can confirm that it will comply with the Safeguard Mechanism, noting that treatment of Barossa GHG emissions is still to be finalised by the CER. Implementation and enforcement of the Safeguard Mechanism is the responsibility of the CER.	*Santos has considered* [these] *matters.*	Section 6.3 BAO-CM-6.3.9 BAO-CM-6.3.11
The ECNT asserted that compliance with the Safeguard Mechanism should not be considered a control measure (para 96).	Santos has considered the matters raised by ECNT in this OEMP and provided a response to ECNT Santos can confirm that it will comply with the Safeguard Mechanism, noting that treatment of Barossa GHG emissions is still to be finalised by the CER. Implementation and enforcement of the Safeguard Mechanism is the responsibility of the CER.	*Santos has considered* [these] *matters.*	Section 6.3
The ECNT asserted that the EP should not be submitted until Santos: • provides clarity regarding the application of the Safeguard Mechanism on the Barossa project, including: • clarification as to how the Safeguard Mechanism applies to the Barossa facilities and baselines for each facilities; • the means in which it will manage excess emissions requirements under the scheme; • disclosing details regarding the offsets it has already obtained for scope 1 GHG emissions; and • clarifies the role of CCS/CCUS. (para 97).	Santos has considered the matters raised by ECNT in this OEMP and provided a response to ECNT Santos can confirm that it will comply with the Safeguard Mechanism, noting that treatment of Barossa GHG emissions is still to be finalised by the CER. Implementation and enforcement of the Safeguard Mechanism is the responsibility of the CER. CCS is outside the scope of the Coastal Waters OEMP.	*Santos has considered* [these] *matters.*	Section 6.3
ECNT correspondence to Santos on 25 November 2024			
ECNT re-stated it is the peak community sector environment organisation in the Northern Territory. ECNT re-stated it is a Relevant Person for the purposes of reg 11A(1) of the OPGGS(E)R and its function to advocate for the nature, climate and environment of the NT, part of which is geographically covered by the EMBA of the draft EP. Asserted that it has been unable to make an informed assessment of the possible consequences of the activity on its functions, interests or activities.	Santos has considered the matters raised by ECNT in the Coastal Waters OEMP. Santos' does not agree with ECNT's assertion that it has been unable to make an informed assessment of the possible consequences of the activity on its functions, interests or activities. Santos has made genuine attempts to consult constructively with the ECNT on the Barossa Gas Project (including GEP Coastal Waters section) since February 2024, notwithstanding that: • the ECNT's stated objective to 'Stop Barossa Gas' and that its interests and activities appear directed to stopping the activity under the EP and the OEMP from occurring at all which is inconsistent with the purpose of the consultation and the object of the legislation. • ECNT's action in both delaying the 25 November letter to Santos and in withholding information raised in its 22 October letter to NOPSEMA – indicate that ECNT has failed to engage in a meaningful two-way conversation and consult in good faith in line with the purpose of consultation. Santos has repeatedly invited the ECNT to provide to provide input and information relevant to the mitigation of environmental impacts and risks, which Santos may not be aware of, and to provide any comments it may have in relation to potential measures that the ECNT wishes Santos to consider adopting in order to mitigate environmental impacts and risks; the ECNT has largely not engaged. Further, the ECNT has not demonstrated how its functions, interests and activities may be affected by the relevant activities. Santos has, nonetheless, continued its efforts to consult and engage constructively with the ECNT regarding the relevant activities, including now engaging with the information that the ECNT has withheld from Santos. Santos has provided the ECNT with sufficient information and a reasonable period to assess any possible impacts of the Barossa Gas Project (including GEP Coastal Waters section) on the ECNT's functions, interests	**Santos' correspondence to ECNT on 20 December 2024 in response to ECNT's letter of 25 November 2024 as well as correspondence sent by ECNT separately on 22 October 2024 to NOPSEMA.** ***ECNT's letter to NOPSEMA*** *During the course of NOPSEMA's assessment of Revision 1 of the EP, Santos has been provided with a copy of a letter from the ECNT to NOPSEMA dated 22 October 2024 (22 October letter to NOPSEMA).* *We observe as follows:* 1. *Prior to the 25 November letter to Santos, Santos' last correspondence with the ECNT in relation to the EP was on 7 August 2024.* 2. *During the 3.5 months between 7 August 2024 and 25 November 2024, Santos received no response from the ECNT in relation to its letter of 7 August 2024.* 3. *Santos was not copied on the ECNT's 22 October letter to NOPSEMA, nor did the ECNT subsequently provide Santos with a copy.* 4. *More than a month later, the ECNT sent its 25 November letter to Santos.* 5. *The majority of that 25 November letter to Santos contains the same content (with minimal amendments) from the ECNT's 22 October letter to NOPSEMA. That is, there are no substantively new assertions made by ECNT in the 25 November letter to Santos that were not made in the 22 October letter to NOPSEMA.*	Not Applicable

	and activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.	6. *In fact, substantive comments and assertions regarding the EP which were made by the ECNT in the 22 October letter to NOPSEMA were not included by the ECNT in its 25 November letter to Santos.* 7. *Further, the 22 October letter to NOPSEMA contains comments and assertions which have never been made by the ECNT to Santos in any of the consultation across more than 6 months – including five substantive exchanges of letters between the ECNT and Santos regarding the EP. These comments and assertions in the 22 October letter to NOPSEMA include that:* a. *Santos has failed to adequately account for fugitive methane emissions at the DLNG plant in the EP, including that Santos:* i. *has failed to engage with recent research findings regarding the under-reporting of fugitive methane emissions; and* ii. *is required, at a minimum, to commit to both direct (at the offshore facility) and indirect (at DLNG) fugitive emissions monitoring for the activity, as well as become a signatory to the Oil & Gas Methane Partnership 2.0; and* b. *there must be a case made in the EP that the environmental impacts and risks of the activity will not forego the health, diversity and productivity of the environment for future generations, as required by a consideration of ESD principles, and that because Santos has failed to account for climate change impacts which partially result from the GHG emissions generated by the activity, it has failed to do so.* 8. *Additionally, in the 22 October letter to NOPSEMA, the ECNT has referred to various reports and scientific research which it considers relevant to the assessment of GHG emissions associated with the activities the subject of the EP. Such materials were not referred to in previous correspondence with Santos, or raised during consultation, despite Santos previously inviting the ECNT to provide information and raise control measures which it considers would be appropriate to adopt when preparing the EP for submission to NOPSEMA.* 9. *The first time that Santos was made aware of the 22 October letter to NOPSEMA was on 27 November 2024, when Santos was provided with a copy by NOPSEMA.* *Santos is concerned that the matters above – including most notably the ECNT's action in both delaying the 25 November letter to Santos and in withholding information raised in its 22 October letter to NOPSEMA – indicate that ECNT has failed to engage in a meaningful two-way conversation and consult in good faith in line with the purpose of consultation.* *As the ECNT has itself identified, a core purpose of consultation under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) (Regulations) is to ensure that relevant persons have an opportunity to provide input and information relevant to the mitigation of environmental impacts and risks, which titleholders and NOPSEMA may otherwise not be aware of. Santos has repeatedly invited the ECNT to provide any such information, and to provide any comments it may have in relation to potential measures that the ECNT wishes Santos to consider adopting in order to mitigate environmental impacts and risks.* *The ECNT has largely not engaged with this invitation, and asserts in its 25 November letter to Santos that the quality of information provided by Santos during consultation has:* *'prevented ECNT from fully understanding the potential consequences of the Activity on its FIAs and from effectively engaging in the consultation process and allowing us to provide the necessary input, including regarding additional control measures, needed to fulfil the content requirements of Santos' Production EP.'* *More than a month before making this assertion to Santos, the ECNT suggested in the 22 October letter to NOPSEMA that Santos ought to commit to direct (at the offshore facility) and indirect (at DLNG) fugitive emissions monitoring. That is, the ECNT has, in effect, suggested to NOPSEMA that an additional control measure be considered. The ECNT has made no effort to raise this potential control measure with Santos.* *Santos reiterates that throughout the course of consultation with the ECNT on the EP, since February 2024, Santos has made genuine attempts to consult constructively with the ECNT, notwithstanding the ECNT's stated objective to 'Stop Barossa Gas' and that its interests and activities appear directed to stopping the activity under the EP from occurring at all which is inconsistent with the purpose of the consultation and the object of the legislation.* *In particular the object of the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth) is to provide an effective regulatory framework for petroleum exploration and recovery and the object of the Regulations is to ensure that any petroleum activity carried out in an offshore area is:* • *carried out in a manner consistent with the principles of ecologically sustainable development set out in section 3A of the EPBC Act; and* • *carried out in a manner by which the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable; and*	

		• *carried out in a manner by which the environmental impacts and risks of the activity will be of an acceptable level.* *The ECNT's conduct in relation to consultation and its role in the "Stop Barossa Gas" Campaign is indicative of a broader objective to materially either delay or prevent the Barossa Gas Project from proceeding as opposed to reducing the environmental impacts and risks of the relevant activities to as low as reasonably practicable and acceptable. Further, the ECNT has not demonstrated how its functions, interests and activities (FIA) may be affected by the relevant activities.* *Santos has, nonetheless, continued its efforts to consult and engage constructively with the ECNT regarding the relevant activities, including now engaging with the information that the ECNT has withheld from Santos.*	

ECNT provided a summary of its consultation with Santos:
 	
Asserted that publication of the Draft EP on NOPSEMA's website is the first time ECNT has had access to certain information of sufficient particularity informing its ongoing assessment of the possible consequences of the activity and proposed control measures.
 	
Asserted that Santos has repeatedly refused to answer its requests for specific information, instead referring ECNT to its information booklet or the Offshore Project Proposal.
 	
Asserted that Santos previously indicated it would only consult with ECNT between 11 March and 9 April 2024 and had refused to extend this consultation period at ECNT's requests.
 	
Asserted that Santos had, by meeting with ECNT on 20 May 2024 and on 12 June 2024 inviting further feedback by 20 June 2024, unilaterally changed the timeframes in which ECNT could engage in consultation, which was not in line with NOPSEMA's Consultation Guidelines.
 	
Asserted that, because of Santos' approach, ECNT has been prevented from effectively engaging in consultation and been prevented from being able to seek input from experts.
 	
Asserted that the primary information ECNT has had available to it is Santos' 36-page booklet, despite
	Santos has responded to ECNT.
	Santos remains of the view that Santos has properly consulted with the ECNT to the standard required under section 25 of the Regulations.
	Santos has made genuine attempts to consult constructively with the ECNT on the Barossa Gas Project (including for the Coastal Waters OEMP) since February 2024 and has repeatedly invited the ECNT to provide to provide input and information relevant to the mitigation of environmental impacts and risks, which Santos may not be aware of, and to provide any comments it may have in relation to potential measures that the ECNT wishes Santos to consider adopting in order to mitigate environmental impacts and risks; the ECNT has largely not engaged.
	Santos confirms that the ECNT's comments were made in relation to Rev 1 of the Barossa Production Operations EP, and Santos' response was based on Rev 2 of the Barossa Production Operations EP. For completeness, many (although not all) of the concerns raised by the ECNT may be assumed to apply equally to the OEMP.
	The Barossa Production Operations EP has been publicly available to the ECNT since 1 October 2024 when the ECNT, together with all other recipients of the Barossa Quarterly Project Update, received a link to the Barossa Production Operations EP as published on NOPSEMA's website in the October Quarterly Update circulated on 15 October 2024.
	It is evident from the content on ENCT's recent letters to Santos and NOPSEMA that he ECNT had considered the substance of the published Barossa Production Operations EP and even with this additional information, the ECNT did not provide Santos any input regarding additional control measures, but in bad faith chose to raise such matters with NOPSEMA.
	Santos has provided the ECNT with sufficient information and a reasonable period to assess any possible impacts of the Activity for the Barossa Gas Project (which includes for Coastal Waters OEMP) on the ECNT's functions, interests and activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the OEMP.
		Consultation in preparation of EP
		Each of the ECNT's letters conveys the ECNT's views as to the adequacy of consultation to date. Santos has considered the ECNT's views and remains of the view that Santos has properly consulted with the ECNT to the standard required under section 25 of the Regulations.
		In particular:
		• *Santos generally disagrees with the matters alleged at paragraphs 5 and 7-10 of the 25 November 2024 letter to Santos, and notes that many of these matters are plainly incorrect or misleading on the face of consultation to date. For example:*
		  ○ *the record of consultation set out at paragraph 5 of the 25 November letter to Santos is incomplete and fails to mention various other correspondence and the meeting between Santos and the ECNT on 20 May 2024. For a full summary of consultation up until September 2024, please see pages 350-351 of the EP; and*
		  ○ *contrary to paragraph 9 of the 25 November letter to Santos, Santos provided further information in response to queries from the ECNT on numerous occasions, including in letters dated 30 April 2024, 14 May 2024 and 7 August 2024.*
		• *Santos generally disagrees with the allegations at paragraphs 7 and 8-9 of the 25 November letter to Santos. We note that in any event, the EP has been publicly available to the ECNT since on or around 1 October 2024. The ECNT, together with all other recipients of the Barossa Quarterly Project Update, received a link to the EP as published on NOPSEMA's website in the October Quarterly Update circulated on 15 October 2024.*
		• *Further, the comments included in the 25 November letter to Santos indicate that the ECNT has engaged with the contents of the EP. Indeed it is evident from the content replicated between the ECNT's 22 October letter to NOPSEMA and 25 November letter to Santos that by at least 22 October 2024, the ECNT had considered the substance of the published EP. Santos notes that even with this additional information, the ECNT did not provide or foreshadow to Santos any input regarding additional control measures (as is suggested at paragraph 10 of the 25 November letter to Santos), but in bad faith chose to raise such matters with NOPSEMA.*
			Not Applicable

repeated advice to Santos that the booklet did not contain information of sufficient specificity for ECNT to make an informed assessment about the impacts of the Activity and Santos had refused to provide further information. Asserted that information Santos has provided has been vague, evasive and lacking in sufficient detail for ECNT to be adequately informed of the environmental impacts and risks of the Activity and this had prevented it from effectively engaging in the consultation process			
ECNT asserted that the information provided by Santos during consultation was in many cases inconsistent with that provided in the Draft EP. Asserted that information related to the greenhouse gas emissions of the Activity is contradictory, both within the draft EP and from the information provided in the Information Booklet. (Note: ECNT included a table in its letter which is provided in in entirety in the Sensitive Information Report attached to this OEMP.). Asserted that the table provided indicates the EP contains inconsistent estimates of the greenhouse gas GHG emissions of the activity. Asserted that the Scope 3 emissions estimates are so different as to potentially indicate a substantial flaw or uncertainty in emissions figures calculations. Asserted that this discrepancy reflects a broader failure to appropriately consult us on this matter and a failure to meet the requirements of the EP.	Santos has responded to ECNT. This letter and the issues raised in it relate to the Barossa Production Operations EP, and in particular to the version of the EP published on NOPSEMA's website in September 2024. Santos has included this letter, and its response to this letter, for completeness noting that many (although not all) of the concerns raised by the ECNT may be assumed to apply equally to the OEMP. Santos has considered the matters raised by ECNT in the Barossa Production Operations EP and provided a response to ECNT. Santos confirms that the ECNT's comments were made in relation to Rev 1 of the Barossa Production Operations EP, and Santos' response was based on Rev 2 of the Barossa Production Operations EP. For completeness, many (although not all) of the concerns raised by the ECNT may be assumed to apply equally to the OEMP. Santos does not agree with ECNT's claim that information related to the greenhouse gas emissions of the Barossa Gas Project are contradictory, both within the Draft Barossa Production Operations EP itself and from the information booklet. The annual emissions estimates provided in the information booklet are conservative and prepared for the purpose of impact and risk assessment. The Barossa Production Operations EP and this OEMP include greenhouse gas estimates for both Scope 1 and scope 3 emissions as relevant to each Activity including the assumptions that underpin the estimates. In any event, in circumstances where the GHG emissions estimates in the EP are lower than the estimates provided in the information booklet, the ECNT has been able to make an informed assessment of any potential consequences of GHG emissions on its functions, interest or activities because the GHG emissions of the activity are actually less than what ECNT understood them to be. It is not clear what impact any such discrepancy has had on the ECNT's understanding of potential consequences of GHG emissions, and it is notable that the ECNT has not identified the basis of any such impact.	***Information provided during consultation*** *Regarding the ECNT's claim that "information provided during consultation is in many cases inconsistent with that provided in the EP", Santos notes that the ECNT has previously raised similar claims in correspondence to Santos on 25 March 2024 and 9 April 2024 to which Santos responded in letters to the ECNT on 30 April 2024 and 14 May 2024 respectively.* *Further to responses provided in previous correspondence to the ECNT, Santos re-iterates the following points:* • *The annual emissions estimates included in the Production Operations information booklet are applicable to the Production Operations Activity (Activity). The annual emissions estimates provided in the information booklet are conservative (when extrapolated for 25 years of production operations) given annual emissions are expected to reduce over the life of the Activity as production rates decline.* • *Emissions estimates provided in the information booklet and the EP are prepared for the purpose of the impact and risk assessment and control measure evaluation, based on the best available information and assumptions at the time of preparing the EP, but are not a definitive forecast of future actual emissions. Actual emissions during production operations will be reported as per applicable regulatory requirements of the National Greenhouse and Energy Reporting Act 2007 (Cth) (NGER Act).* • *While the ECNT's observations about apparent discrepancies between GHG emissions in the information booklet and the EP are noted and have been considered by Santos, to the extent that there is any potential impact on the ECNT's FIAs as a result of GHG emissions, the ECNT is able to make an informed assessment of that impact with the information set out in the information booklet, which adopted more conservative assumptions.* • *In any event, the simple fact is that the GHG emissions estimates in the EP are lower than the estimates provided in the information booklet, for the 25 year lifecycle of Barossa production operations (commissioning and steady state operations). We assume that the ECNT is not suggesting that it has not been able to make an informed assessment of any potential consequences of GHG emissions on its FIAs because the GHG emissions of the activity are actually less than what ECNT understood them to be. It is not clear what impact any such discrepancy has had on the ECNT's understanding of potential consequences of GHG emissions, and it is notable that the ECNT has not identified the basis of any such impact.* *In any event, the ECNT explicitly notes at paragraph 40 of its 22 October letter to NOPSEMA that its views as to the acceptability of GHG emissions from Barossa are the same 'regardless of which estimate is used', again indicating that the ECNT has no intention of consulting in good faith or for the proper purpose of consultation under the Regulations.*	Section 6.3
ECNT asserted that it had repeatedly requested a copy of an Operations GHG Emissions Management Plan (GHGEMP) during the course of consultation, but Santos refused to provide it. Further asserted that the discrepancies set out (in its supplied table) underscore the importance of Relevant Persons	Santos responded to previous ECNT requests for the GHGEMP and considers sufficient information has been provided in the Production Operations Information Booklet, the NT Waters GEP Operations Overview Factsheet and the Production Operations EP. The Barossa Production Operations EP includes a description of the GHGEMP and relevant components to this OEMP are presented in Section 8.3.2.12 of this OEMP. Santos does not agree with ECNT's claim that information related to the greenhouse gas emissions contains discrepancies. This OEMP includes greenhouse gas estimates for both Scope 1 and scope 3 emissions including the assumptions that underpin the estimates.	*Regarding the ECNT's request for a copy of the GHG Emissions Management Plan (GHGEMP), Santos notes that the ECNT has previously raised similar claims in correspondence to Santos on 25 March 2024 and 9 April 2024 to which Santos responded in letters to the ECNT on 30 April 2024 and 14 May 2024 respectively.* *Further to responses provided in previous correspondence to the ECNT, Santos re-iterates the following points:* • *The Production Operations information booklet (and the EP) provide a description of the purpose of the GHGEMP. The EP also describes the measures that will be adopted in the GHGEMP to keep direct emissions to ALARP and acceptable levels and in accordance with Santos' obligations under the Safeguard Mechanism. Accordingly, Santos does not consider*	Section 6.3 Section 8.3.2.12

having access to the proponent's GHGMP.		*the ECNT requires a copy in order to make an informed assessment of the potential consequences of the activity on any of its FIAs which remain unspecified.* *The Production Operations information booklet (and the EP) detail the potential risks and impacts related to GHG emissions. The ECNT is necessarily familiar with these potential risks and impacts. through previous consultation with Santos on other activities for Barossa.*	
ECNT requested clarity relating to the use of CCS and whether it is expected to be used as an emissions mitigation technology at any point over the lifecycle of the Activity.	Santos re-iterates that CCS projects are not owned or controlled by the Barossa joint venture, and are outside the scope of the Production Operations EP and this GEP Coastal Waters OEMP, and therefore does not describe or include for undertaking CCS activity.	*Regarding the ECNT's requests for further information about use of CCS as a control measure, Santos notes that the ECNT has previously raised similar claims in correspondence to Santos on 25 March 2024, 9 April 2024 and 20 June 2024 to which Santos responded in letters to the ECNT on 30 April 2024, 14 May 2024 and 7 August 2024 respectively; and at a meeting between the ECNT and Santos on 20 May 2024.* *Further to responses provided in previous correspondence to the ECNT, Santos re-iterates that while Santos is exploring CCS opportunities at Bayu-Undan and elsewhere, these CCS projects are not owned or controlled by the Barossa joint venture, are not part of the Barossa development and are not within the scope of the Production Operations EP.*	Not Applicable
ECNT asserted that Santos had failed to demonstrate compliance with relevant legislation, including the Commonwealth Safeguard Mechanism and related rules and regulations. Asserted that the only attempt made by Santos to demonstrate compliance with the Safeguard Mechanism is the claim that DCCEEW has provided an assurance that sufficient ACCUs or SMCs are available until 2035. Asserted that Santos has not demonstrated how many offsets will be required to be purchased, the source of these offsets, nor the integrity of these offsets. If the Proponent proposes to purchase offsets for the duration of the lifecycle of the Activity, information should be provided regarding the source and guarantees as to the integrity of these offsets. Asserted that a representative of Santos had stated before the Middle Arm Industrial Precinct Senate Inquiry that Santos had only secured forward contracts for the purchase of 2.5 million ACCUs at fixed prices to be delivered and paid between December 2023 and January 2027. Asserted that this amount of ACCUs is not sufficient to fully offset reservoir and reduce other Scope 1 emissions for the first two years of the life of the Activity according to Santos' estimates for the lifetime of the Activity. Stated that ECNT wrote to Santos on 25 March 2024 seeking clarity regarding the ability for the Activity to be compliant with the Safeguard Mechanism but Santos had not answered its queries and this, is failure to demonstrate	It is noted that the ECNT has previously raised similar claims regarding concerns about Santos' failure to adequately attempt to demonstrate compliance with the Commonwealth Safeguard Mechanism, which Santos has previously responded to. Santos confirms that it will comply with the Safeguard Mechanism, noting that treatment of Barossa GHG emissions is still to be finalised by the CER. Implementation and enforcement of the Safeguard Mechanism is the responsibility of the CER. Section 6.3.2.3.2 details the manner in which Santos will comply with the Safeguard Mechanism, as relevant to the Activity under the GEP Coastal Waters OEMP. The ECNT's concerns in relation to reservoir emissions are outside the scope of the GEP Coastal Waters OEMP and are addressed in the Production Operations EP.	*Regarding the ECNT's concerns about Santos' failure to adequately attempt to demonstrate compliance with the Commonwealth Safeguard Mechanism, Santos notes that the ECNT has previously raised similar claims in correspondence to Santos on 25 March 2024, 9 April 2024 and 20 June 2024 to which Santos responded in letters to the ECNT on 30 April 2024, 14 May 2024 and 7 August 2024 respectively; and at a meeting between the ECNT and Santos on 20 May 2024. In any case, it is not a requirement of the consultation process for Santos to demonstrate compliance with the Commonwealth Safeguard Mechanism to the ECNT. Santos' obligation is to demonstrate compliance with the Commonwealth Safeguard Mechanism to the Clean Energy Regulator.* *Further to responses provided in previous correspondence to the ECNT, Santos re-iterates the following points:* • *Barossa Production Operations Scope 1 emissions will be managed in accordance with the applicable baseline under the Safeguard Mechanism, which has been developed by the Australian government with regard to Australia's Paris Agreement targets and associated emissions budget. The NT emissions budget is accounted for in Australia's national emissions budget.* • *The treatment of the Barossa project under the Safeguard Mechanism is a matter for the Clean Energy Regulator. Santos will abide by the Clean Energy Regulator's final determination.* • *There are various options available to meet legislative requirements under the Safeguard Mechanism rules. Compliance with obligations under the Safeguard Mechanism may be achieved through (among other things) the purchase or surrender of Australian Carbon Credit Units (ACCUs) or Safeguard Mechanism Credits (SMCs). In 2023, Santos entered into forward contracts for the purchase of 2.5 million ACCUs at fixed prices to be delivered and paid between December 2023 and January 2027.* *Santos is not required by the law to indicate now whether in any given year or years (which may be decades in the future) it may apply for a borrowing adjustment, trade-exposed baseline-adjusted facility determination or multi-year monitoring period. Santos will be required to comply with the applicable baseline for the Barossa project in each compliance year, as determined by the Clean Energy Regulator.*	Section 6.3.2.3.2 EPO 11 BAO-CM-6.3.11

compliance with relevant legislation.			
ECNT requested further consultation with Santos to seek further clarity on the concerns outlined in its letter (of 25 November 2024).	Santos has made genuine attempts to consult constructively with the ECNT on the Barossa Gas Project (including for the GEP Coastal Waters section) since February 2024 and has repeatedly invited the ECNT to provide to provide input and information relevant to the mitigation of environmental impacts and risks, which Santos may not be aware of, and to provide any comments it may have in relation to potential measures that the ECNT wishes Santos to consider adopting in order to mitigate environmental impacts and risks; the ECNT has largely not engaged. Santos has provided the ECNT with sufficient information and a reasonable period to assess any possible impacts of the Activity for the GEP Coastal Waters OEMP on the ECNT's functions, interests and activities, and to provide input to Santos about the environment that may be affected by the Activity and/or additional proposed control measures for consideration by Santos in the course of preparing the GEP Coastal Waters OEMP.	*Santos notes the ECNT's request at paragraph 27 of the 25 November letter to Santos for further consultation in order to seek clarity on the concerns set out in the ECNT's letter. For the reasons set out above, Santos disagrees that there is any uncertainty impacting the ECNT's ability to make an informed assessment of any consequences of the activity under the EP on any of its FIAs. Nor is it clear to Santos what further consultation is sought. Indeed, it is a matter of longstanding and extensive public record that the ECNT has already formed an unequivocal assessment about the Barossa Development and associated activities. As just one of many examples, the website stopbarossagas.org clearly states, among other things, in relation to the Barossa Gas Project, that "our planet can't afford another huge gas development." The website also states that the Stop Barossa Gas campaign is a collaboration between the ECNT, Jubilee Australia Research Centre, Solutions for Our Climate (KO) and Japan Centre for a Sustainable Environment and Society.* *Having regard to the matters outlined above in relation to the ECNT's 22 October letter to NOPSEMA, Santos does not consider that the ECNT's request for further consultation is genuine or required. The ECNT is acutely aware that Santos is targeting commencing operations under the EP in 2025. Santos has been transparent about its (more than reasonable) timeframes for consultation.*	Not Applicable
The following are comments and assertions made in ECNT's correspondence to NOPSEMA on 22 October 2024 that were not included in ECNT's letter to Santos on 25 November 2024.			
[7] The publication of the EP is the first time the ECNT has been provided with information of sufficient particularity to be able to make an informed assessment of the possible consequences of the activity and proposed control measures.	Santos has responded to ECNT. This letter and the issues raised in it relate to the Barossa Production Operations EP, and in particular to the version of the EP published on NOPSEMA's website in September 2024. Santos has included this letter, and its response to this letter, for completeness noting that many (although not all) of the concerns raised by the ECNT may be assumed to apply equally to the OEMP. Santos has considered the matters raised by ECNT in the Barossa Production Operations EP and provided a response to ECNT. Refer below for assessment of matters raised. Santos confirms that the ECNT's comments were made in relation to Rev 1 of the Barossa Production Operations EP, and Santos' response was based on Rev 2 of the Barossa Production Operations EP. Santos does not agree with ECNT's claim that information related the Barossa Gas Project in the information booklet was insufficient.	*Santos notes that in the 22 October letter to NOPSEMA, the ECNT confirms that the ECNT was provided with the information in the EP, and that information is 'of sufficient particularity to be able to make an informed assessment of the possible consequences of the activity and proposed control measures'.* *The equivalent paragraph in the 25 November letter to Santos has been amended such that it no longer contains this confirmation, with the ECNT maintaining (to Santos) that it still does not have sufficient information.* *While Santos maintains that information provided to the ECNT during consultation (before the publication of the EP) met Santos' regulatory obligations, Santos notes that in any event, the ECNT by at least 22 October 2024 considered it had sufficient information to make an informed assessment of the potential consequences of the activity on its FIAs.* *It is a matter of longstanding and extensive public record that the ECNT has already formed an unequivocal assessment about the Barossa Development and associated activities. As just one of many examples, the website stopbarossagas.org clearly states, among other things, that "Our planet can't afford another huge gas development." The website also states that the Stop Barossa Gas campaign is a collaboration between the ECNT, Jubilee Australia Research Centre, Solutions for Our Climate (KO) and Japan Centre for a Sustainable Environment and Society.*	Not Applicable
[19] It would be unlawful for NOPSEMA to accept the EP.	This is raised in regards the Barossa Production Operations EP and therefore not considered relevant to this GEP Coastal Waters OEMP. These concerns have been assessed within the Barossa Production Operations EP.	*It is not a matter for the ECNT to determine or opine on whether or not it would be unlawful for NOPSEMA to accept the EP. Santos considers such a statement to constitute an implied threat to NOPSEMA (and therefore Santos) that the ECNT may litigate if NOPSEMA decides to accept the EP in any circumstances.* *Under the law, NOPSEMA must accept the EP if it is reasonably satisfied that the EP meets the EP acceptance criteria. There is no requirement under the law for the ECNT to be satisfied.*	Not Applicable
[21]-[24] There are a number of inconsistencies, deficiencies and inadequacies in the EP that demonstrate that the EP cannot be accepted by NOPSEMA.	This is raised in regards the Barossa Production Operations EP and therefore not considered relevant to this GEP Coastal Waters OEMP. These concerns have been assessed within the Barossa Production Operations EP.	*It is not a matter for the ECNT to determine or opine on why the EP cannot be accepted by NOPSEMA. Santos considers such a statement to constitute an implied threat to NOPSEMA (and therefore Santos) that the ECNT may litigate if NOPSEMA decides to accept the EP.* *Under the law, NOPSEMA must accept the EP if it is reasonably satisfied that the EP meets the EP acceptance criteria. There is no requirement under the law for the ECNT to be satisfied.* *Consultation under section 25 does not require a titleholder to demonstrate to a relevant person that the acceptance criteria in section 34 have been satisfied. Nor is NOPSEMA required to demonstrate this to a relevant person.*	Not Applicable
[31] As the existence of the GHGEMP is a key control measure, it is unacceptable that it is not included in the EP itself and is not yet finalised or approved. These factors render the plan unsuitable as a control measure.	Santos responded to previous ECNT requests for the GHGEMP and considers sufficient information has been provided in the Production Operations Information Booklet (which includes Coastal Waters), the NT Waters GEP Operations Overview Factsheet and the Production Operations EP. The Barossa Production Operations EP includes a GHGEMP, and relevant components to this OEMP are presented in Section 8.3.2.12 of this OEMP.	*The suitability or otherwise of the GHGEMP is a matter for NOPSEMA to consider in its assessment of the EP. As outlined in the EP at sections 6.3.5.2 and 8.8.9, the GHGEMP governs management of GHGs more broadly than in relation to activities which will be regulated under the EP and accordingly which are within NOPSEMA's jurisdiction.* *In any event, it is common for titleholders to give effect to control measures under EPs through policies or documents which are not themselves included in the EP.* *The fact that the GHGEMP itself is not included in the EP does not render it ineffective as a control measure. BAO-CM-6.3.12 sets out the key measures that the GHGEMP will implement (which are described in considerable detail in Section 8.8.9), which Santos will be bound to comply with as a control measure under the EP.*	Section 8.3.2.12 Section 6.3.3 BAO-CM-6.3.12
[32] Santos has not adequately accounted for fugitive emissions in the EP. Santos has not	Concerns related to the DLNG are outside the scope of the GEP Coastal Waters OEMP and are addressed in the Production Operations EP and respective approvals for the DLNG.	*The EP outlines the sources of fugitive emissions and the basis of estimates in numerous sections of the EP (refer to sections 6.3.1, 6.3.2.1, 6.3.2.1.1, 6.3.2.7.2 and 6.3.2.8). The information provided pertains to the likely sources of fugitive emissions at the FPSO; fugitive emissions as an estimated*	Not Applicable

attempted to account for fugitive emissions at DLNG.		*total of Scope 1 emissions over a 25 year period; as well as the estimated percentage of total emissions (at steady state operating).* *With respect to fugitive emissions at DLNG, these are Scope 3 emissions at a facility owned by a different joint venture. The Barossa JV does not own or control DLNG. The DLNG facility, is outside the scope of the EP). The information included in the EP relating to DLNG is based on information provided by DLNG.*	
[33] As the GHGEMP is not included in the EP, no attempt has been made to reduce risks and impacts of fugitive emissions.	Santos responded to previous ECNT requests for the GHGEMP and considers sufficient information has been provided in the Production Operations Information Booklet (which includes Coastal Waters), the NT Waters GEP Operations Overview Factsheet and the Production Operations EP. The Barossa Production Operations EP includes a GHGEMP, and relevant components to this OEMP are presented in Section 8.3.2.12 of this OEMP.	*Santos refers to its response above.* *Potential fugitive emissions have been factored into the direct emissions of the Activity. It is incorrect to suggest that "no attempt has been made to reduce risks and impacts of fugitive emissions". Numerous control measures have been proposed that relate to the installation, monitoring and maintenance of plant and equipment, each of which will perform a function in the minimisation of fugitive emissions.*	Section 6.3.3 BAO-CM-6.3.12 Section 8.3.2.12
[34] Santos has not engaged with research that industry under-reports fugitive emissions, nor with evidence of uncontrolled methane leakage at its own facilities.	Santos has considered the matters raised by the ECNT in this GEP Coastal Waters OEMP and provided a response to the ECNT. Santos takes into consideration a wide range of research, including the IEEFA research referred to by the ECNT, and to the extent that it is valid and relevant, takes it into account in its management of fugitive emissions. Fugitive emissions from pipeline transmission of dry gas, to the extent those fugitive emissions could occur in the part of the GEP within NT is Coastal Waters, is addressed in Section 6.3.2. Fugitive emissions are reported for all operating assets in accordance with requirements of the NGER Act and the National Greenhouse and Energy Reporting (Measurement) Determination 2008. All emissions (including fugitives) from the Barossa project will also be reported in compliance with these legislative requirements. Loss of containment, such as methane leakage poses a personal safety and facility integrity risk as well as loss of saleable product, as such maintaining equipment and facility integrity, monitoring and repairing any leaks are a top priority for the Barossa JV. See also Santos' consideration of and response to these matters below, in response to ECNT's letter to Santos of 24 January 2025.	*Santos reviews and engages extensively with a wide range of research, including the IEEFA research referred to by the ECNT, and to the extent that it is valid and relevant, takes it into account in its management of fugitive emissions. Where there is evidence of methane leakage (for instance, during an unforeseen loss of containment) Santos always takes steps to learn from such incidents and improve its equipment and/ or procedures as relevant.* *Santos currently reports fugitive emissions from all operated assets in accordance with requirements of the NGER Act and the National Greenhouse and Energy Reporting (Measurement) Determination 2008. All emissions (including fugitives) from the Barossa project will also be reported in compliance with these legislative requirements. Santos notes that the Clean Energy Regulator would also be aware of the IEEFA research referred to by the ECNT.* *Methane leakage, also known as Loss of Containment, at oil and gas facilities pose a risk to personal safety and facility integrity well as the environment and represents a loss of saleable product. Therefore, maintaining equipment and facility integrity, monitoring and repairing any leaks are a top priority for Santos.*	Section 6.3.2 Section 8.3.2.12
[35] At a minimum, the Proponent should be required to commit to direct and indirect fugitive emissions monitoring for the Activity, as well as being a signatory to the Oil & Gas Methane Partnership 2.0.	This is raised in regards the Barossa Production Operations EP and therefore not considered relevant to this GEP Coastal Waters OEMP. These concerns have been assessed within the Barossa Production Operations EP. The Barossa Project has a GHGEMP relevant to both the FPSO and the GEP. This is presented in Section 8.3.2.12 of this OEMP	*Santos refers to its response above in relation to fugitive emissions.* *In any event, signing a corporate initiative is not a control measure and this appears to be inconsistent with other statements the ECNT has made about suitable control measures and performance objectives.*	Section 6.3 Section 8.3.2.12 BAO-CM-6.3.12 Not Applicable
[36]-[38] Santos' reasoning as to why GHG emissions from the Activity will be ALARP and acceptable is flawed, including due to reliance on the WAM scenario.	Santos has considered the matters raised by the ECNT in this GEP Coastal Waters OEMP and demonstrated that GHG emissions from the Activity will be ALARP and acceptable. The reference to the Australian carbon budget to 2050 is based on Australia's Emissions Projections 2024 and the Annual Climate Change Statement 2024, published by the Department of Climate Change, Energy, the Environment, and Water (DCCEEW). These documents provide an emissions trajectory forecast to 2050, which outlines Australia's commitment to achieving net zero by 2050, in line with the Paris Agreement (i.e. net zero). This is a matter for the Regulator to determine, not the ECNT.	*This is a matter for NOPSEMA to determine, not the ECNT.* *Notwithstanding this, the reference to the Australian carbon budget to 2050 is **based** on Australia's **Emissions Projections 2023** and the **Annual Climate Change Statement 2023**, published by the Department of Climate Change, Energy, the Environment, and Water (DCCEEW). These documents provide an emissions trajectory forecast to 2050, which outlines Australia's commitment to achieving net zero by 2050, in line with the Paris Agreement (i.e. net zero). **The 'with additional measures' scenario** corresponds to the modelled emissions trajectory included in the Emissions Projections 2023. This scenario reflects policies such as the 82% renewable energy target by 2030 and Safeguard Mechanism reforms, which are consistent with Australia's net zero commitments. The linear extrapolation from 2030 to 2050 used to develop the net carbon budget (7966 Mt CO_2-e) aligns with the framework outlined in these documents, comprising gross economy-wide emissions (additions) less total carbon sequestration volumes (subtractions).* *Santos considers the 'net' GHG emissions of the Activity to reflect the true contribution of the Activity to Australia's carbon budget, given that reservoir emissions will be required to be net zero in accordance with existing requirements under the NGER Act and the Safeguard Mechanism. Santos has considered both Scope 1 and Scope 3 contributions to this budget.* *Additionally, when calculating a percentage, it's crucial that the numerator and denominator are consistent in scope. If the denominator is expressed in net terms (i.e., it reflects deductions or adjustments), then the numerator must also represent net values to ensure alignment and maintain logical and mathematical consistency This prevents any "double counting" or inaccuracies.*	Not Applicable
[39] It is more appropriate GHG emissions to be put in the context of the relevant sectoral budget. Doing so results in the activity constituting around 4% of the relevant sectoral budget.	Santos has considered the matters raised by the ECNT in this GEP Coastal Waters OEMP and provided a response to ECNT. GHG emissions contribution from the Activity have been contextualised against Australian and global carbon budgets. International frameworks, namely the Paris Agreement, have been developed to facilitate an orderly approach to what is a global problem. This is a matter for he Regulator to determine, not the ECNT.	*This is a matter for NOPSEMA to determine, not the ECNT.* *Santos has sought to contextualise the contribution of emissions from the Activity in the Coastal Waters OEMP. against Australian and global carbon budgets. International frameworks, namely the Paris Agreement, have been developed to facilitate an orderly approach to what is a global problem. The nature, quantity and timeframe of each country's contribution and the pathways to achieve UNFCCC obligations vary widely, including having regard to the particular circumstances of each country. This framework recognises, and is premised on, the fact that climate change is a global issue – there is no correlation between where GHG emissions are released and where climate change impacts are felt.*	Not Applicable

		For this reason, Australia sets and reports against its emissions reduction targets in 'net' terms, not by individual sectors or projects. The Australian Government is aware of planned production in the Barossa gas field and has considered this in its emissions reduction targets outlined in its NDC under the Paris Agreement. *Furthermore, the inclusion of this calculation demonstrates ECNT's ability to engage with the information provided by Santos. Notably, this calculation could have been performed by the ECNT on the basis of the estimates provided in the information booklet in March 2024.*	
[40] Regardless of which estimate is used, it is unacceptable for a single project to compose such a significant amount of Australia's remaining emissions budget.	Santos has considered the matters raised by the ECNT and provided a response to the ECNT. This may be a view of the ECNT, but it is not a fact. The acceptability of GHG emissions related to this Activity is a matter for DME to determine, not the ECNT.	*This may be a view of the ECNT, but it is not a fact. The acceptability of GHG emissions is a matter for NOPSEMA to determine, not the ECNT. Such acceptability must be considered in the context that the Offshore Project Proposal was previously approved by NOPSEMA and a production licence conferring rights to extraction of the gas resource on the Barossa joint venture has already been granted. The GHG emissions from the Activity have already been considered in Australia's NDC under the Paris Agreement.* *The ECNT's response explicitly notes that its view remains the same 'regardless of which estimate is used'. That is, it was open to the ECNT to provide this response on the basis of the original estimates provided in March 2024. This directly contradicts with the ECNT's assertion that it has insufficient information about GHG emissions to make an informed assessment of the consequence of GHG emissions.* *It is a matter of longstanding and extensive public record that the ECNT has already formed an unequivocal assessment about the Barossa Development and associated activities. As just one of many examples, the website stopbarossagas.org clearly states, among other things, that "Our planet can't afford another huge gas development." The website also states that the Stop Barossa Gas campaign is a collaboration between the ECNT, Jubilee Australia Research Centre, Solutions for Our Climate (KO) and Japan Center for a Sustainable Environment and Society.*	Not Applicable
[41] Santos has failed to engage with the Climate Change Authority's 2024 Sector Pathways Review.	Santos has reviewed and engaged with the Sector Pathways Review. However, this review is not relevant to the Activities covered by this GEP Coastal Waters OEMP. Notwithstanding, Santos has considered the matters raised by the ECNT and provided a response.	*Santos has reviewed and engaged with the Sector Pathways Review. However, this Review is not relevant to GHG emissions management for the activities covered by this EP. The purpose of consultation for this EP is to seek feedback and input to assist the proponent in minimising environmental risks and impacts in the course of carrying out the activities covered by the EP.* *In any event, it is acknowledged in the review that "Ultimately, there are many sets of sector pathways that can combine to achieve net zero by 2050. Like nations under the Paris Agreement, sectors can be thought of as having 'common but differentiated responsibilities and respective capabilities' when it comes to meeting Australia's national targets. This report does not recommend specific emissions reduction targets for each sector. Instead, it sets out the abatement potential of each sector on Australia's pathway to net zero emissions by 2050." (page 9).* *The Sector Pathways Review also acknowledges that 'gas will be required for some time for firming and back-up supply' (page 26).*	Not Applicable
[42] Santos has omitted the CCA's scenarios from the EP.	Santos has considered the matters raised by the ECNT in relation to GHG emissions for the Barossa Project and provided a response to the ECNT. The CCA scenarios reflect technology transitions and emission pathways to support Australia's transition to net zero emissions by 2050. Santos confirms that it will comply with the Safeguard Mechanism, noting that treatment of Barossa GHG emissions is still to be finalised by the CER. Implementation and enforcement of the Safeguard Mechanism is the responsibility of the CER. Compliance with the Safeguard Mechanism will ensure that net emissions generated from the Activity are congruent with the targets modelled in the CCA scenarios.	*The CCA scenarios reflect technology transitions and emission pathways to support Australia's transition to net zero emissions by 2050. The modelling, undertaken by the CSIRO, presents two scenarios in the review which set out potential technological and operational changes in each sector that if taken together could potentially deliver Australia's reduction targets.* *Australia has a well-established legislative framework under which certain GHG emissions from Barossa production operations will be regulated or managed to further Australia's transition to net zero emissions by 2050. This includes:* • *GHG emissions reporting under the NGER Act and the National Greenhouse and Energy Reporting (Measurement) Determination 2008* • *the Emissions Reduction Fund (Australian Carbon Credit Units Scheme)* • *the Safeguard Mechanism to keep net emissions below an established baseline and require net-zero reservoir emissions for new gas fields that feed LNG projects. The Safeguard Mechanism currently applies to facilities that emit more than 0.1 MtCO2-e per annum.* *Compliance with the Safeguard Mechanism is of primary importance in ensuring that GHG emissions associated with the Activity are as low as reasonably practicable and acceptable levels. GHG emissions at or below the baseline and the Safeguard Mechanism's future decline rates are already anticipated and thus accounted for under Australia's NDCs under the Paris Agreement. Thus, the net emissions generated from the Activity are congruent with the targets modelled in the CCA scenarios*	Section 6.3 describes the safeguard mechanism and how Santos will comply EPO 11 BAO-CM-6.3.11
[43] The CCA has suggested CCS and electrification as possible emissions reductions control measures, both of which have been rejected by Santos. This is an unacceptable inconsistency with best available	This is raised in regards the Barossa Production Operations EP and therefore not considered relevant to this GEP Coastal Waters OEMP. These concerns have been assessed within the Barossa Production Operations EP.	*As part of facility design aimed to reduce Scope 1 emissions, full electrification of the FPSO processing equipment, with combined cycle gas turbine power generation has been adopted. Details on this adoption, as well as several other design measures, are outlined in table 6-23 of the Barossa EP.* *Carbon capture and storage has been rejected by Santos because it is not an available option for emissions reduction. Santos considered CCS to reroute reservoir emissions as a control measure, as outlined in table 6-22 of the EP, but it could not be adopted on the basis that these projects do not*	Not Applicable

modelling of emissions reductions pathways.		*exist as yet. Potential CCS developments such as the proposed Bayu-Undan CCS project require regulatory frameworks, policies and approvals (from a different jurisdiction to the Activity) to be in place prior to taking final investment decisions. Therefore, it is not possible to rely on them for GHG emissions abatement. Santos is currently exploring CCS opportunities at Bayu-Undan and elsewhere. The Darwin Pipeline Duplication for the Barossa Gas Project was undertaken to facilitate the proposed Bayu-Undan CCS project. Front End Engineering and Design is continuing and the operator of that project is actively engaging with a range of stakeholders to progress the development.*	
[44] Various research and reports support that emissions from the Activity will undermine the Paris Agreement targets and Australia's net zero emissions by 2050 goal.	The acceptability of GHG emissions is a matter for NOPSEMA to determine, not the ECNT. Notwithstanding, Santos has considered the matters raised by the ECNT and provided a response to the ECNT. It must be acknowledged that there are multiple viable pathways to achieve climate goals, depending on technological developments, policy decisions, economic conditions, and societal choices. These scenarios are tools to explore policy options and inform decision-making. They are not definitive or exclusive blueprints for the global climate response. The Paris Agreement under the UNFCCC framework is the most comprehensive global agreement for climate response.	*Santos reviews and engages extensively with a wide range of research, including the IEA Net Zero Roadmap referred to by the ECNT and to the extent that it is valid and relevant, takes it into account in its management of GHG emissions.* *The acceptability of GHG emissions is a matter for NOPSEMA to determine, not the ECNT. Such acceptability must be considered in the context that the Offshore Project Proposal was previously approved by NOPSEMA and a production licence conferring rights to extraction of the gas resource on the Barossa joint venture has already been granted, and in the context that the GHG emissions from the Activity have already been considered in Australia's NDC under the Paris Agreement.* *In any event, the scenarios presented by the International Energy Agency (IEA), Intergovernmental Panel on Climate Change (IPCC), and the Climate Council are not prescriptive pathways. Rather, they illustrate a range of potential strategies to meet global emission reduction targets, such as those set out in the Paris Agreement and they rely on a range of assumptions about technology, human behaviour and other factors that must all be met to achieve the outcome of the pathway.* *There are multiple viable pathways to achieve climate goals, depending on technological developments, policy decisions, economic conditions, and societal choices. These scenarios are tools to explore policy options and inform decision-making. They are not definitive or exclusive blueprints for the global climate response. The Paris Agreement under the UNFCCC framework is the most comprehensive global agreement for climate response.* *As stated by the IEA:* *" These scenarios are not predictions – the IEA does not have a single view on the future of the energy system…Our scenario analysis is designed to inform decision makers as they consider options, not to predict how they will act, and none of the scenarios should be viewed as a forecast."* *Similarly, the IPCC emphasizes:* *"Scientists use computer models to simulate the emissions of greenhouse gases that would be consistent with different levels of warming. The different possibilities are often referred to as 'greenhouse gas emission pathways'. There is no single, definitive pathway to limiting warming to 1.5°C. This perspective underscores the diversity of approaches available to address climate change, allowing for flexibility and adaptation to local contexts."*	Not Applicable
[45]-[48]Santos' assertion that it is neither appropriate nor possible to quantify or attribute any specific impact on climate change to emissions from an individual project is incorrect, including having regard to the definition of environmental impact under the Regulations, outdated and unsound scientific research, and the intergenerational principle.	Santos has considered the matters raised by the ECNT and provided a response to the ECNT. International frameworks, namely the Paris Agreement, have been developed to facilitate an orderly approach to what is a global problem. The nature, quantity and timeframe of each country's contribution (including Australia) and the pathways to achieve UNFCCC obligations vary widely, including having regard to the particular circumstances of each country. This framework recognises, and is premised on, the fact that climate change is a global issue – there is no correlation between where GHG emissions are released and where climate change impacts are felt.	*International frameworks, namely the Paris Agreement, have been developed to facilitate an orderly approach to what is a global problem. The nature, quantity and timeframe of each country's contribution and the pathways to achieve UNFCCC obligations vary widely, including having regard to the particular circumstances of each country. This framework recognises, and is premised on, the fact that climate change is a global issue – there is no correlation between where GHG emissions are released and where climate change impacts are felt.* *For this reason, Australia sets and reports against its emissions reduction targets in 'net' terms, not by individual sectors or projects. The Australian Government is aware of planned production in the Barossa gas field and has considered this in its emissions reduction targets outlined in its NDC under the Paris Agreement. The Offshore Project Proposal was previously approved by NOPSEMA and a production licence conferring rights to extraction of the gas resource on the Barossa joint venture has already been granted.* *Physical impacts of climate change on environmental receptors are the result of global GHG emissions from a multitude of sources (minus the GHG sinks) that have accumulated in the atmosphere. The impacts of climate change cannot be attributed to one specific sector or activity. In the context of evaluating potential impacts and risks that may be associated with GHG emissions from all sources globally, including from this Activity, Santos has considered the physical impacts of climate change, as outlined in section 6.3.2.2 of the OEMP.*	Section 6.3.2.2
[49] There are no appropriate environmental performance outcomes, standards or measurement criteria for BAO-CM-6.3.19 (Barossa products generated from the Activity will only be sold to customers from countries that are signatories to the Paris Agreement, as at the	This is raised in regards the Barossa Production Operations EP and therefore not considered relevant to this GEP Coastal Waters OEMP. These concerns have been assessed within the Barossa Production Operations EP.	*This is a matter for NOPSEMA to consider in its assessment of the EP.*	Not Applicable

date of the relevant contract of sale).			
[50] Santos' rejection of CCS as a control measure contravenes statements made to the ASX and on Santos' website, as well as the information booklet. Santos has not explained this inconsistency.	This is raised in regards the Barossa Production Operations EP and therefore not considered relevant to this GEP Coastal Waters OEMP. These concerns have been assessed within the Barossa Production Operations EP.	*Santos rejects this assertion in its entirety.* *Santos has made clear that Barossa would be a potential customer of the proposed Bayu-Undan CCS project if the project were to proceed. However, the project has not yet taken a final investment decision and, notwithstanding, this is unrelated to the Activity and it would be improper to link the two in the EP. It is subject to a different regulatory regime and pursued by a different proponent. Santos is one of the joint venture parties for Bayu-Undan CCS and has committed funding to it. It hopes that the project proceeds, but this is reliant on approvals from a foreign government (Timor-Leste) and final investment decisions by the proponent of that project. If the Bayu-Undan CCS project proceeds, the Barossa JV hopes to be a customer of it. Again, though, this is beyond the control of Santos or the Barossa JV.* *Linking the delivery of the Activity to an unrelated, potential future project via a control measure is wholly inappropriate, as it would be grossly disproportionate to the benefit gained (see section 3.6.3 of NOPSEMA's Environment Plan Content Requirements Guidance Note) and could unnecessarily result in the Barossa Gas Project not proceeding in circumstances where there are viable alternatives for emissions offsets and reductions*	Not Applicable
[51]-[53] It is insufficient for Santos to rely on the NT EPA's assessment at DLNG to demonstrate atmospheric emissions are ALARP and acceptable. NOPSEMA should not be satisfied that risks and impacts from atmospheric emissions from DLNG are ALARP and acceptable.	Concerns related to the DLNG are outside the scope of the GEP Coastal Waters OEMP and are addressed in the Production Operations EP and respective approvals for the DLNG.	*This is a matter for NOPSEMA to determine, not the ECNT.* *Santos notes that NOPSEMA does not regulate DLNG and, in an orderly regulatory framework, it should be able to rely on the assessment of another Australian regulator to the extent that the issue is relevant to its consideration of the activities covered by this EP*	Not Applicable
[54] Santos does not adequately account for risks of a condensate spill, nor acknowledge its own history of spills resulting in unacceptable impacts to marine life, without which engagement with spill risk is incomplete.	This is raised in regards the Barossa Production Operations EP and therefore not considered relevant to this OEMP. These concerns have been assessed within the Barossa Production Operations EP.	*Santos has covered risks of a condensate spill at section 7.7 of the EP.* *Previous condensate spills at other facilities have been regulated in accordance with the relevant legislation and approvals documents, and, as is always the case, Santos has implemented learnings from previous spills and implements continuous improvement measures to prevent and mitigate future spills. The learnings from previous condensate spills have been used by Santos to inform processes for preventing and mitigating condensate spills relevant to the activities covered by this EP.*	Not Applicable
66] Assertion of future compliance with applicable legislation is not in itself a control measure to mitigate environmental risks, nor is mere assertion sufficient to demonstrate ALARP and acceptability.	Santos has considered the matters raised by the ECNT in this GEP Coastal Waters OEM and provided a response to the issue/s raised by ECNT. Santos does not agree that compliance with applicable legislation is not in itself a control measure to mitigate environmental risk, nor is a mere assertion to demonstrate ALARP and acceptability. Santos has considered the matters raised by the ECNT and provided a response.	*All approvals processes in Australia are given in anticipation of the proponent's compliance with the legislative and common law frameworks of the relevant jurisdiction. Across jurisdictions, there are a range of assessment processes to determine if the proponent is a suitable person to be carrying out an activity and there are also a range of financial and other assurances. In the case of Barossa, financial assurance requirements are in place and suitability assessments were required when the production licence was granted.* *In addition, applicable legislation generally includes reporting, monitoring and enforcement provisions to achieve required outcomes.*	Not Applicable
ECNT correspondence to Santos on 24 January 2025			
The ECNT rejected suggestions that ECNT's consultation has not been in good faith, which it described as 'specious and unfounded'.	Santos disagrees with the ECNT's characterisation of Santos' response. Santos' letter of 20 December 2024 included the foundations of each of Santos' views.	***Santos' correspondence to ECNT on 6 March 2025 in response to ECNT's letter of 24 January 2025*** *Santos has considered the ECNT's response regarding the matters raised in Santos' letter of 20 December 2024. Santos maintains that it has provided sufficient information for the ECNT to make an assessment of the impact of the activities on the ECNT's functions, interests and activities, and to provide input to the development of the Production Operations Environment Plan. Further, Santos has made genuine attempts to address the concerns of the ECNT in the development of the Production Operations EP.*	Not Applicable
In response to Santos' observation that ECNT delayed its 25 November 2024 letter to Santos, and that letter did not contain information raised in its 22 October 2024 letter to NOPSEMA, ECNT said that: • the complaints were unfounded; • ECNT engaged with NOPSEMA because the EP was being considered	Santos has considered the matters raised by the ECNT and responded.		

<table>
<tr><td>by NOPSEMA, which is neither unusual nor unreasonable; and
• the ECNT made new comments to NOPSEMA because it now had the benefit of information in the Draft EP.</td><td></td><td></td><td></td></tr>
<tr><td>ECNT alleged that, contrary to Santos' letter of 20 December 2024, ECNT had described the impact of the EP on its functions, interests and activities in previous correspondence to Santos, and Santos had never previously asserted any failure by ECNT to demonstrate how it was affected.</td><td>Santos has considered the matters raised by the ECNT.
Santos notes that the ECNT has a different view to Santos on the extent to which the ECNT has demonstrated that the Activity has any consequence on any of its functions, interests or activities. In any event, notwithstanding the comments made to ECNT, Santos has consulted with ECNT extensively as a Relevant Person.</td><td></td><td></td></tr>
<tr><td>The ECNT said that its concerns about environmental impacts from GHG emissions are not alleviated by the fact that GHG emissions estimates are lower in the Draft EP than those provided in consultation. In contrast, the ECNT alleged that this raises queries about the veracity of information provided in consultation and how the estimates have been lowered, emphasising the ECNT's concerns about lack of transparency and its calls for the GHGEMP to be published.</td><td>Santos has considered the matters raised by the ECNT.
Santos responded to previous ECNT requests for the GHGEMP and considers sufficient information has been provided in the Production Operations Information Booklet, the NT Waters GEP Operations Overview Factsheet and the EP.
The Barossa Production Operations EP includes a description of the GHGEMP and relevant components to this OEMP are presented in Section 8.3.2.12 of this OEMP
The fact that the ECNT's concerns about environmental impacts have not been alleviated is a separate issue. The point is that the ECNT has been provided with sufficient information in order to form those concerns.
Otherwise, Santos relies on its previous consideration of these issues, which were raised by the ECNT in its letter of 25 November 2024 and are considered above.</td><td rowspan="3">Santos has previously responded to the ECNT's assertions regarding the GHGEMP, the Safeguard Mechanism and consultation and maintains those responses.
We note for completeness that in Revision 3 of the Production Operations EP, Santos has updated its contextual consideration of GHG emissions within national carbon budgets and projections to account for the latest data published by DCCEEW. This analysis has resulted in the following figures:
Australian Carbon Budget
As reflected in Australia's NDC under the Paris Agreement and the Climate Change Act 2022, Australia is committed to a single year target to reduce greenhouse gas emissions to 43% below 2005 levels by 2030 and net-zero by 2050.
Based on a 43% reduction by 2030, the net carbon budget for this period is 4,377 Mt CO2-e (DCCEEW, 2024). Assuming a further linear decline between 2030 and 2050 (the full activity lifecycle for this EP), this creates a net carbon budget of 7,262 Mt CO2-e. The net carbon budget comprises gross economy wide emissions (additions) less total carbon sequestration volumes (subtractions).
For the avoidance of doubt, the updated figures do not result in any change to Santos' environmental impact evaluation.
<table><tr><th>Stage</th><th>Lifecycle gross emissions ($MtCO_2e$)</th><th>Lifecycle net emissions ($MtCO_2e$)</th><th>Barossa Production Operations Net GHG Emissions Contribution (%)
Australian carbon budget (Mt CO_2e)[1]</th></tr><tr><td></td><td colspan="3">Scope 1</td></tr><tr><td>Operations and maintenance[2]</td><td>53.96</td><td>19.17</td><td>0.3%</td></tr><tr><td></td><td colspan="3">Scope 3</td></tr><tr><td>Operations at DLNG and support operations</td><td>32.46</td><td>32.46</td><td>0.4%</td></tr><tr><td>Product transport and end use</td><td>188.52</td><td>188.52</td><td>NA[3]</td></tr><tr><td>Totals</td><td>274.94</td><td>240.15</td><td>0.7%[4]</td></tr></table>[1] Out to 2050
[2] Net-zero reservoir emissions
[3] End-user combustion will occur outside Australia</td><td rowspan="3">Section 6.3
Section 8.3.2.12
Appendix C
BAO-CM-6.3.11</td></tr>
<tr><td>The ECNT alleged that Santos is required under the Regulations to describe the requirements applying to the project and how those requirements will be met, including the Safeguard Mechanism.</td><td>Santos accepts that this is correct and notes that this obligation has been discharged – see section 6.3 and Appendix C. Santos notes that it has previously confirmed to ECNT that the EP and OEMP must demonstrate how Santos will comply with the Safeguard Mechanism – most recently in its letter of 20 December 2024. This is also clear from the Production Operations EP, to which the ECNT has had access since around September 2024.</td></tr>
<tr><td>The ECNT alleged that its interests include:
• seeing the NT and Commonwealth comply with emissions targets; and
• ascertaining whether the Activity poses a threat to the NT and Commonwealth's compliance with these legislated emissions reduction commitments.</td><td>Santos has considered the matters raised by the ECNT in the EP and OEMP and provided a response to the ECNT.
Santos notes that the ECNT considers that it has interests which are affected by the Activity in the manner described. As outlined immediately above, Santos agrees that the EP must describe the requirements of the Safeguard Mechanism and demonstrate how those requirements will be met. Also as outlined above, section 6.3 provides this detail and demonstration in relation to the Safeguard Mechanism. For completeness, Santos confirms that:
• the Safeguard Mechanism is administered by the Clean Energy Regulator; and
• compliance with the Safeguard Mechanism is itself a proposed control measure under this EP (see BAO-CM-6.3.10 and BAO-CM-6.3.11), in respect of which compliance may be monitored by DME.</td></tr>
<tr><td>The ECNT enclosed a bundle of documents it had obtained under Freedom of Information (FOI) regarding the DLNG facility and a letter from ECNT to NOPSEMA dated 4 December 2024</td><td>Although these assertions were made by the ECNT to NOPSEMA (rather than being raised with Santos directly), Santos has considered and evaluated the matters raised by ECNT, to the extent relevant to the Activity under the Production Operations EP. DLNG emissions are out of scope of this GEP Coastal Waters OEMP.
As outlined in section 6.3.2, the DLNG facility is owned by a different joint venture to the Barossa Development and its operation is outside the scope of the Activity and outside the control of the Barossa Joint Venture.</td><td>Santos notes ECNT's request for the disclosure of further details to the regulator regarding 'loss of containment'. The DLNG facility is owned and operated by a separate joint venture to the Barossa Joint Venture and is not regulated by NOPSEMA. All regulatory approvals for the DLNG facility are in place and in line with regulatory requirements, tank emissions are monitored as part of an ongoing program.</td><td>Not Applicable</td></tr>
</table>

regarding the FOI documents. The ECNT's letter to NOPSEMA made various assertions about the FOI documents, the DLNG facility and NOPSEMA's assessment of the Production Operations EP, including that: 1. [5] the FOI documents indicate that there is an ongoing methane leak at the DLNG storage tank, with no apparent intention to repair before processing Barossa gas. The size of the leak is unclear but subsequent surveys indicate different and potentially larger amounts of fugitive methane emissions, and that methane emissions are larger than has been reported or estimated; 2. [6] ECNT's understanding based on publicly available information is that the DLNG tank will continue to leak when used to store Barossa gas; 3. [7]-[11], [23] atmospheric emissions from the processing of Barossa gas at the DLNG facility are indirect consequences of the Activity under the Production Operations EP; 4. [12(a)], [26]-[27] there may be safety risks at DLNG that are not dealt with in the EP. In other jurisdictions leaks have been required to be repaired and communities evacuated in the meantime; 5. [12(c)-(d)] Santos may have misled NOPSEMA through omitting 'critical relevant information' from the Draft EP, and has also failed to provide important information to the public and Relevant Persons; 6. [13]-[15], [31]-[32] NOPSEMA should not accept the EP because as a result of the EP's failure to disclose the information in the FOI documents, the EP does	The framework by which DLNG is regulated is relevant to the evaluation of downstream emissions. That framework includes the reporting and management of fugitive emissions in accordance with requirements of the NGER Act and the National Greenhouse and Energy Reporting (Measurement) Determination 2008. That framework also includes regulation by the NT EPA.	*As outlined in the Production Operations EP, emissions from the DLNG facility are separately managed in accordance with the Safeguard Mechanism, including emissions reporting in accordance with the National Greenhouse and Energy Reporting (NGER) determination. The NGER determination includes a component for fugitive emissions. The Scope 3 emissions estimates included in the Production Operations EP in respect of the operation of the DLNG facility are based on a holistic forecast of DLNG emissions in processing Barossa feed gas, which also includes a component for fugitive emissions.* *Santos maintains that the emissions estimates included in the Production Operations EP are appropriate. The matter is subject of ongoing regulatory engagement with the relevant regulators and being managed in accordance with applicable regulatory requirements and approvals.*	

not meet the EP acceptance criteria; 7. [16] increased methane emissions is an indirect impact and risk that is not disclosed in the EP or demonstrated to be ALARP and acceptable; 8. [12(b)], [17] while the calculation of scope 3 emissions in the EP is unclear, atmospheric emissions from DLNG are likely to exceed the estimates included in the EP and therefore to affect the conclusions regarding Australia's carbon budget and the assessment of negligible consequences; 9. [18], [24] the EP also does not consider localised impacts at DLNG from methane, including potential health impacts from air quality; 10. [19], [25], [31], [32(b)-(c)] the EP addresses various approvals at DLNG but these approvals do not deal with the issue, nor is it clear that appropriate action has been taken under the approvals. NOPSEMA cannot defer to the assessment of an NT regulator and in any event the NT assessment did not consider the leak; 11. [20] it is not sufficient for monitoring of ongoing fugitive emissions to be dealt with in the GHGEMP and not in the EP; 12. [21] the extent of the methane leak is unclear and the emissions estimate must be clarified by Santos; 13. [22] the implementation strategy in the EP does not meet the requirements of the Regulations because it does not provide for sufficient monitoring and recording of fugitive emissions at DLNG; 14. [28]-[30] Santos' failure to consult in relation to the methane leak at DLNG means			

consultation with Relevant Persons is incomplete and unacceptable, and Relevant Persons may not have been identified and consulted by Santos; [33]-[35] ECNT is considering next steps including making reports to relevant NT authorities.			
The ECNT noted its belief as to the seriousness of an uncontained methane leakage, and asked Santos to confirm: • whether the leak discussed in the documents has been fixed; and • what steps were being taken to monitor and prevent future leaks. The ECNT asserted that Santos ought to disclose the matter to NOPSEMA because the matter has consequences for NOPSEMA's assessment of the EP.	Santos has considered the matters raised by the ECNT. Santos refers to and repeats its detailed consideration of the matters raised in the ECNT's letter to NOPSEMA, in the Barossa Production Operations EP. In any event, the ECNT's letter (including the enclosed FOI documents and the letter to NOPSEMA) will be included in the sensitive information part of the EP for NOPSEMA's consideration, to the extent NOPSEMA considers the matters raised by the ECNT are relevant.		
The ECNT alleged that its consultation to date has been genuine and it has engaged with integrity, and it remains committed to consulting.	Santos notes the ECNT's response. Santos disagrees for the reasons expressed above and in Santos' letter of 20 December 2024. In any event, with the exception of the queries about the DLNG facility, the ECNT has not specified what further consultation is sought.	*Santos maintains that the Production Operations EP includes a comprehensive evaluation of impacts and risks from the Activity, and the ECNT has received sufficient information to make an informed assessment of the consequences of the activity on any of its functions, interests or activities.* *For the avoidance of doubt, Santos maintains that it considers consultation with ECNT is complete and that Santos has discharged its obligations under s 25 in respect of ECNT.*	Not applicable.

4.8.7 Commercial Fishing (Commonwealth / NT / WA managed)

Table 4-17: Consultation Summary Table - Commercial Fishing (Commonwealth / NT / WA managed)

Section 25(1)(d) of the OPGGS(E)R: Persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the environment plan			
Commercial Fishing: Commonwealth-managed fisheries			
Northern Prawn Fishery (NPF) Licence Holders			
Licence Holders are consulted via their representative body, Northern Prawn Fishery Industry Pty Ltd. Where an NPF Licence Holder is also an NT Commercial Fishing Licence Holder they are also consulted via the NT Seafood Council. Refer to NPFI, NTSC entries in Table 4-20 (Industry associations) and licence holder entries in Table 4-15 (Commercial fishing) for the summary of consultation effort.			
Southern Bluefin Tuna/ Western Skipjack Tuna and Western Tuna and Billfish Fisheries Licence Holders			
Licence Holders are consulted via their representative body, the ASBTIA. Refer to ABSTIA entry in Table 4-20 (Industry associations) for the summary of consultation effort.			
North-West Slope Trawl Fishery Licence Holders			
Licence Holders are consulted via their representative body, CFA. Refer to CFA entry in Table 4-20 (Industry associations) for the summary of consultation effort.			
Torres Strait Fishery			
Licence Holders are consulted via their representative body, the CFA. Refer to CFA entry in Table 4-20 (Industry associations) for the summary of consultation effort.			
Commercial Fishing: WA-managed fisheries Licence Holders (entitled to fish in the EMBA) - Abalone Fishery, Kimberley Crab Fishery, Kimberley Prawn Fishery, Mackerel Managed Fishery, Marine Aquarium Fishery, Northern Demersal Scalefish Managed Fishery, Pilbara Crab Fishery, South-West Costal Salmon Fishery, Specimen Shell Fishery, West Coast Deep Sea Crustacean Fishery			
Licence Holders are consulted via their representative body, the WAFIC. Refer to WAFIC entry in Table 4-20 (Industry associations) for details.			
Commercial Fishing: NT-managed fisheries Licence Holders (entitled to fish in the EMBA) - Aquarium Fishery, Coastal Line Fishery, Demersal Fishery, Development Fishery (Small Pelagic), Offshore Net and Line Fishery, Pearl Oyster Fishery, Spanish Mackerel Fishery, Timor Reef Fishery			
Licence Holders are consulted via their representative body, NTSC, and directly where a Licence Holder has requested. In addition to the entries below, also refer to the NTSC entry in this table.			
A. Raptis and Sons			
Summary of consultation effort: • On 9 February 2024 Santos emailed A. Raptis & Sons to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 11 March 2024 Santos emailed A. Raptis & Sons further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793] • On 3 April 2024 Santos phoned A. Raptis & Sons which advised that it would not be commenting. • On 6 May 2024, Santos emailed A. Raptis & Sons further to previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from A. Raptis & Sons. [Con-3867] • On 10 July 2024 Santos emailed A. Raptis & Sons to advise the consultation period had been completed. Santos advised A. Raptis & Sons that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130] • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP by A. Raptis & Sons.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP reference**
No response was received from A. Raptis & Sons.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Austfish

Summary of consultation effort:

- On 9 February 2024 Santos emailed Austfish to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Austfish further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Austfish and a representative advised that the message would be passed to the appropriate personnel.
- On 6 May 2024, Santos emailed Austfish further to previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Austfish. [Con-3868]
- On 10 July 2024 Santos emailed Austfish to advise the consultation period had been completed. Santos advised Austfish that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP by Austfish.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Austfish.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Austral Fisheries Pty Ltd

Summary of consultation effort:

- On 9 February 2024 Santos emailed Austral Fisheries to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Austral Fisheries further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 21 March 2024 Santos met with Austral Fisheries to provide further information on the Barossa petroleum safety zones (PSZ). Santos indicated that these are the zones granted for the PSZ application for drilling activities and will be the zones in the PSZ application for subsea installation activities which will be submitted shortly. Austral Fisheries indicated that the zones were acceptable.
- On 22 March 2024 Santos emailed Austral Fisheries and provided presentation slides from the meeting on 21 March 2024, and confirmed that these are the zones granted for our PSZ application for drilling activities and would be the zones in Santos' PSZ application for subsea installation activities. Santos sought re-affirmation that previous feedback that the zones were acceptable to Austral. [Con-3860]
- On 3 April 2024 Austral Fisheries responded via email confirming that the PSZs will not impact its operations. [Con-4993]
- On 3 May 2024, Santos emailed Austral Fisheries further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Austral Fisheries. [Con-3865]
- On 10 July 2024 Santos emailed Austral Fisheries to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence has been received from Austral Fisheries.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Austral Fisheries responded that the establishment of the PSZs would not affect its operations.	Santos notes Austral Fisheries' response.	No response required.	Not applicable.

Australia Bay Seafoods

Summary of consultation effort:

- On 9 February 2024 Santos emailed Australia Bay Seafoods to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Australia Bay Seafoods further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Australia Bay Seafoods which advised it did not have any comments.
- On 8 May 2024, Santos emailed Australia Bay Seafoods further to the phone call on 3 April 2024, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Australia Bay Seafoods. [Con-3928]

On 10 July 2024 Santos emailed Australia Bay Seafoods to advise the consultation period had been completed. Santos advised Australia Bay Seafoods that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]

On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]

- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP by Australia Bay Seafoods.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Australia Bay Seafoods.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Clipper Pearls

Summary of consultation effort:

- On 9 February 2024 Santos emailed Clipper Pearls to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Clipper Pearls further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Clipper Pearls who advised they would not be impacted by the proposed activities.
- On 6 May 2024, Santos emailed Clipper Pearls further to its response on 3 April 2024, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Clipper Pearls. [Con-3866]

On 10 July 2024 Santos emailed Clipper Pearls to advise the consultation period had been completed. Santos advised Clipper Pearls that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]

On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]

- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP by Clipper Pearls.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Clipper Pearls.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Fischer Wholesale Pty Ltd/H & T Investment Pty Ltd/Commercial Catamarans Pty Ltd

Summary of consultation effort:

- On 9 February 2024 Santos emailed Fischer Wholesale/H & T Investment/Commercial Catamarans to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Fischer Wholesale/H & T Investment/Commercial Catamarans further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Fischer Wholesale Pty Ltd/H & T Investment Pty Ltd/Commercial Catamarans Pty Ltd and left a voicemail.
- On 2 May 2024, Santos emailed Fischer Wholesale Pty Ltd/H & T Investment Pty Ltd/Commercial Catamarans Pty Ltd further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Fischer Wholesale Pty Ltd/H & T Investment Pty Ltd/Commercial Catamarans Pty Ltd. [Con-3864]
- On 10 July 2024 Santos emailed Fischer Wholesale Pty Ltd/H & T Investment Pty Ltd/Commercial Catamarans Pty Ltd to advise the consultation period had been completed. Santos advised Fischer Wholesale Pty Ltd/H & T Investment Pty Ltd/Commercial Catamarans Pty Ltd that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP by Fischer Wholesale Pty Ltd/H & T Investment Pty Ltd/Commercial Catamarans Pty Ltd

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Fischer Wholesale Pty Ltd/H & T Investment Pty Ltd/Commercial Catamarans Pty Ltd.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Northern Wildcatch Seafood Australia (NWSA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed NWSA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed NWSA further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned NWSA who advised they would send an email response.
- On 4 April 2024, NWSA emailed Santos and confirmed that NWSA would not be providing feedback. [Con-3863]
- On 8 May 2024, Santos emailed NWSA, further to its response on 4 April 2024, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from NWSA. [Con-4359]
- On 10 July 2024 Santos emailed NWSA to advise the consultation period had been completed. Santos advised NWSA for its input and advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence has been received from NWSA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
NWSA responded that it would not be participating in the consultation process.	Santos noted NWSA's response. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Paspaley Pearling Company

Summary of consultation effort:

- On 9 February 2024 Santos emailed Paspaley Pearling Company to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 16 February 2024 Paspaley Pearling Company emailed Santos to advise that it did not have additional comment in relation to Production Operations activities. In its email, Paspaley Pearling Company reiterated information relevant to Darwin Pipeline Duplication construction activities. Santos has previously provided commitments to Paspaley Pearling Company related to these activities [Con-3840]
- On 8 March 2024 Santos emailed Paspaley Pearling Company to enquire if a meeting in Darwin the following week would be convenient for an update. [Con-3858]
- On 8 March 2024 Santos emailed a further email to Paspaley Pearling Company to provide contact details. [Con-3859]
- On 11 March 2024 Santos emailed Paspaley Pearling Company further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 25 March 2024 Santos emailed Paspaley Pearling Company to enquire whether it would like to meet over Teams. In the email Santos provided updated information relevant to DPD construction activities in NT waters. [Con-3861]
- On 25 March 2024 Paspaley Pearling Company thanked Santos for providing further information and advised that it does not require a meeting at this stage. [Con-3862]
- On 7 May 2024, Santos emailed Paspaley Pearling Company further to previous correspondence to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Paspaley Pearling. [Con-3926]
- On 10 July 2024 Santos emailed Paspaley Pearling Company to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence has been received from Paspaley Pearling Company.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Paspaley Pearling Company responded that it would not be participating in the consultation process.	Santos noted the response. .	No response required.	Not applicable.

	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.		

WA Seafoods

Summary of consultation effort:

- On 9 February 2024 Santos emailed WA Seafoods to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed WA Seafoods further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned WA Seafoods and a representative said the message would be provided to the appropriate person.
- On 6 May 2024, Santos emailed WA Seafoods to advise further to previous correspondence, it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from WA Seafoods. [Con-3869]
- On 10 July 2024 Santos emailed WA Seafoods to advise the consultation period had been completed. Santos advised WA Seafoods that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP by WA Seafoods.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from WA Seafoods.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

4.8.8 First Nations People and Groups

Table 4-18: Consultation Summary Table – First Nations People and Groups

First Nations People and groups: Representative organisations – Northern Territory			
Larrakia Nation Aboriginal Corporation (LNAC)			
Summary of consultation effort: • On 13 February 2024 Santos emailed LNAC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4053]. The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions, links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • In the email Santos asked LNAC if it knew of any other organisations that should be contacted. Santos also advised LNAC that it would be happy to provide consultation sessions for LNAC staff and Board members as well as Larrakia family members. • On 12 March 2024 Santos emailed LNAC further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-4052] • In the email Santos also advised LNAC that it would be happy to provide consultation sessions for LNAC staff and Board members as well as Larrakia family members. Santos also advised that it would be holding Larrakia specific consultation sessions, as previously requested by LNAC, and would send information to the LNAC on these soon. • Between 25 March 2024 and 2 April 2024 Santos liaised with LNAC on arrangements for Larrakia People attending the planned sessions being held in Darwin on 23 April 2024. • On 27 March 2024 Santos emailed LNAC details of the OEMP and EP consultation sessions being held for Larrakia People in Darwin on 23 April and asked for the organisation to share the information with its Larrakia networks and post on notice boards and relevant social media channels. [Con- 6021] • On 2 April 2024 LNAC confirmed via response email that the information had been posted to its Facebook and LinkedIn social media networks [Con-5234] • See entry for Larrakia People in this Table for summaries of the consultation sessions held on 23 April 2024. • On 2 April 2024 Santos emailed LNAC by way of reminder that the consultation is closing on April 9 and asked LNAC to contact Santos as soon as possible if it has any feedback. [Con-4082] • On 2 May 2024 Santos emailed LNAC further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from LNAC. [Con-4994] • On 17 May 2024 Santos emailed LNAC details of the OEMP and EP consultation sessions being held for Larrakia People in Darwin on 12 June 2024 and asked for the organisation to share the information with its Larrakia networks and post on notice boards and relevant social media channels. [Con- 6022] • See entry for Larrakia People in this Table for summaries of the consultation sessions held on 17 May 2024. • LNAC was invited (by Larrakia Development Corporation) to a meeting between Larrakia Development Corporation and Santos on 20 June 2024 but did not attend. See LDC entry in this table for a summary of the meeting. • On 10 July 2024 Santos emailed LNAC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5119] • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP. from the LNAC. • Additional to formal consultation on the Coastal Waters OEMP and Barossa Production Operations EP, Santos has continued to make a range of efforts to engage on an ongoing basis with NT First Nations People, both directly and through their representative organisations. See Section 8.4.9 Post-acceptance Consultation Implementation Strategy.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP reference**
No response was received from LNAC except to confirm posting of consultation information to social media pages, as noted above.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.
Northern Land Council (NLC)			
Summary of consultation effort: • On 13 February 2024 Santos emailed NLC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3971]. The email advised that Santos was seeking information to better understand: • *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* • *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions, links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • In the email Santos asked NLC if it knew of any other organisations that should be contacted. Santos also advised NLC that it would be happy to provide consultation sessions for NLC staff, Board and members.			

- On 12 March 2024 Santos emailed NLC further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3972]
- On 12 March 2024 NLC emailed Santos to advise that it has forwarded the information to its Principal Legal Officer to follow-up. [Con-3973]
- On 2 April 2024 Santos emailed NLC by way of reminder that the consultation is closing on April 9 and asked NLC to contact Santos urgently if it would like a consultation session or had any questions on the information provided. [Con-3974]
- On 2 May 2024 Santos emailed NLC further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from NLC [Con-3978]
- During the consultation period for Production Operations activities, Santos also consulted with First Nations Consultative Committees (FNCCs) and/or Clan Groups representing the interests of First Nations people in coastal areas of the NLC regions of East Arnhem, West Arnhem, Darwin/Daly/Wagait and Victoria River District. See the separate entries in this table for the outcomes of consultation with each FNCC/Clan Group.
- On 10 July 2024 Santos emailed NLC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Santos advised NLC it would appreciate its support in passing on the information to Council Members/Representatives. [Con-5122]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-5982]
- On 14 November 2024 Santos phoned the NLC seeking confirmation that it had no comments on the EP and OEMP. The NLC responded via phone on 15 November 2024 to confirm it had no comments. [Con-5988].
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from NLC

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from NLC	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Tiwi Land Council (TLC)

Summary of consultation effort:

- On 6 February 2024 Santos met with the TLC as part of a regular series of meetings to provide activity updates, share information and discuss any potential concerns. Santos provided updates on a range of topics including the next round of consultation sessions with Tiwi clan groups. [Con-4668]
- On 13 February 2024 Santos emailed TLC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4058]. The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions, links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- In the email Santos also advised TLC that it would be happy to provide consultation sessions for TLC staff, Board and Council members. Santos also attached the notification for the next round of Tiwi Consultation sessions, at which the Coastal Waters OEMP and Barossa Production Operations EP would be discussed and asked the TLC to post the notification on its noticeboard.
- During the consultation period, the TLC and members who were also Clan Trustees were consulted on proposed meeting dates and confirmed dates and/or when any postponements were required. Some elected members of the TLC were often in attendance at the consultation sessions with their respective Clan Groups.
- On 12 March 2024 Santos emailed TLC further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-4059]
- In the email Santos also advised TLC that it would be happy to provide a consultation session for TLC staff and will be holding Tiwi Clan meetings in early April to close-out the consultation on Production Operations activities.
- On 2 April 2024 Santos emailed TLC by way of reminder that the consultation is closing on April 9 and asked TLC to contact Santos as soon as possible if TLC would like a consultation session or has any questions on the below information. [Con-4078]
- On 2 May 2024 Santos emailed TLC further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from TLC. [Con-4110]
- On 10 July 2024 Santos emailed TLC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Santos advised TLC it would appreciate its support in passing on the information to the Land Council (Trustee and Directors) for them to share with their clans. [Con-5120]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from TLC.
- Additional to formal consultation on the Coastal Waters OEMP and Barossa Production Operations EP, Santos has continued to make a range of efforts to engage on an ongoing basis with NT First Nations People, both directly and through their representative organisations. See Section 8.4.9 Post-acceptance Consultation Implementation Strategy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from TLC	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Wickham Point Deed liaison committee (WPDLC)

Summary of consultation effort:

- Barossa production operations activities in both Commonwealth and NT waters have been a regular agenda item at quarterly Wickham Point Deed liaison committee meetings since November 2021. As per the entry in this table for the liaison committee, consultation with respect to activities under the Coastal Waters OEMP and Barossa Production Operations EP was held on 7 March 2024.
- On 7 March 2024 Santos held a consultation session with the Wickham Point Deed liaison committee. The following information related to this OEMP was presented and discussed: [Con-4047]
  - The Commonwealth Government and NT Government regulations and approvals required
  - The activities covered by the OEMP
  - The environmental impacts and risks involved with the planned activities and planned controls to management those risks
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks
- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The information booklet and NOPSEMA consultation brochure were also provided at the consultation session.
- The activities were conducted in person and visual aids, maps, videos and animations were also to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP relates. [Con-6015] Refer below “Summary of response by Relevant Persons” below for further detail of specific questions answered at the meeting and the general topics/themes discussed.
- In addition, a question on underwater cultural heritage management in NT waters was outside the scope of this OEMP. and a response was separately provided. Questions on how to access Santos’ employment and education opportunities or seek funding from Santos for community projects are managed outside the OEMP consultation process.
- On 12 March 2024 Santos emailed Wickham Point Deed liaison committee members thanking them for attending the consultation session. Links to the information that had been provided at the session were included in the email which also advised that consultation is open until Tuesday 9 April 2024. Santos encouraged the committee members to share the information with their Larrakia family and friends. [Con-4995]
- On 27 March 2024 Santos emailed Wickham Point Deed liaison committee members details of the Coastal Waters OEMP and Barossa Production Operations EP consultation sessions being held for Larrakia People in Darwin on 23 April and asked for them to share the information with their Larrakia networks and post on notice boards and relevant social media channels. [Con- 6021]
- On 10 July 2024 Santos emailed Wickham Point Deed liaison committee members to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Santos advised Wickham Point Deed liaison committee members it would appreciate its support in passing on the information to their families. [Con-5123]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos’ contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from the Wickham Point Deed liaison committee on the Coastal Waters OEMP.
- Additional to formal consultation on the Coastal Waters OEMP and Barossa Production Operations EP, Santos has continued to make a range of efforts to engage on an ongoing basis with NT First Nations People, both directly and through their representative organisations. See Section 8.4.9 Post-acceptance Consultation Implementation Strategy.

Summary of response by Relevant Person	Assessment of merits	Santos’ Response Statement	OEMP reference
Following discussion on consultation material, there were questions and comments received in relation to the matters set out below: • Composition of Barossa gas • Assessment of water currents and marine mammal movement • Management of solid waste on vessels. Santos answered those questions and there were no responses raised for consideration, other than those noted below.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met. The answers provided were based on: • Composition of Barossa gas described in Section 7.5.1. • Water current movements described in Sections 3.2.4.1, 3.2.4.2 and 3.4.2.3 • Marine mammal migration paths described in Section 3.2.13 • Management of solid waste on vessels described in Section 6.6	Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP. relates, no further response required.	Not applicable
A committee representative member asked what residual or by-products will be in the gas coming from the Barossa field to the Darwin LNG facility.	Santos has considered the matters raised in the OEMP and provided details on residual by products. The answers provided were based on the activity description in Section 2.	Santos addressed this question at the meeting., Santos explained that by-product condensate is removed and processed offshore on FPSO. There will be very little residual or by-product coming through the pipeline from Barossa as dry gas is required for processing at DLNG facility. A small amount of Liquid Petroleum Gas is produced and transported from the facility via road transport.	Not applicable
A committee representative member asked if the water currents around the FPSO had been considered when writing the assessment of marine mammal movement and preventative measures.	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP. At the meeting Santos explained that it had detailed information on water currents and migration paths that has been used to help determine how Santos can reduce risk of vessel interaction.	Not applicable.	Not applicable

A committee representative member asked if the FPSO would be disposing food scraps into the water. Further, the committee representative member asked about Santos' proposed food waste management plan.	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	No response required.	Not applicable

First Nations People and groups: First Nations Consultative Committees and coastal clan groups – NT

Larrakia people

Summary of consultation effort:

- In order to assist with its efforts to reach out to Larrakia people in a culturally sensitive and appropriate way, consistent with NOPSEMA's consultation guidelines (2023, 2024), Santos has previously requested advice and assistance from LNAC, which speaks on behalf of Larrakia people, in relation to appropriate ways to engage with Larrakia people. This is additional to Santos' consultation with LNAC in its own right (see the separate entry for LNAC in Table 4-18).
- The LNAC Board's recommended approach to consultation with Larrakia people, communicated to Santos in December 2023, involved the following:
  - Santos undertake face-to-face consultation
  - Santos advertise in the NT News the face-to face consultation once venue and time is confirmed
  - Larrakia Nation promote face-to-face consultation on social media including opportunity to provide feedback through Santos' toll-free number on 1800 267 600.
  - Larrakia Nation email all LNAC staff to ensure they are aware of the consultation session to be conducted.
- On 23 April 2024 Santos held two consultation sessions in Darwin on the Barossa Production Operations EP and Coastal Waters OEMP with Larrakia people. [Con-4249], [Con-4230]
- On 12 June 2024 Santos held two further consultation sessions in Darwin on this OEMP with Larrakia people. [Con-4264], [Con-4263]
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP relates. Refer below "Summary of response by Relevant Persons" below for further detail of general topics/themes discussed.
- In addition, questions on how to access Santos' employment and education opportunities or seek funding from Santos for community projects are managed outside the EP consultation process.
- In addition to the consultation efforts described above, Larrakia families are also represented on the Wickham Point Deed liaison committee, which has been separately consulted in relation to this OEMP – see the separate entry for the liaison committee in this Table. Barossa Production Operations activities have been a regular agenda item at quarterly Wickham Point Deed liaison committee meetings since November 2021. As per the entry in this table for the liaison committee, consultation with respect to activities within this OEMP and the OEMP was held on 7 March 2024.
- On 23 September 2024, as part of Santos' ongoing engagement efforts with NT First National people and organisations, Santos hosted representatives of Larrakia Family Groups for a tour of the Darwin LNG Facility during which they were provided with an update on all aspects of the Barossa Project.
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received on the Coastal Waters OEMP from Larrakia People.

Additional to formal consultation on the Coastal Waters OEMP and Barossa Production Operations EP, Santos has continued to make a range of efforts to engage on an ongoing basis with NT First Nations People, both directly and through their representative organisations. See Section 8.4.9 Post-acceptance Consultation Implementation Strategy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Following discussion on consultation material, there were questions and comments received in relation to the matters set out below: Activity • pipeline route • pipeline and FPSO maintenance • monitoring and alarm process for leaks in pipeline • Consultation & communication • Santos' communication with Larrakia people and the general community • consultation process and flow of information to Larrakia People • notification to other marine users, such as fishers, of activities occurring Existing Environment • assessment of water currents and marine life movement • nature of currents and tides & influence of infrastructure presence on marine fauna movement • potential for currents to bring environmental hazards & debris that could impact infrastructure	Committee members did not raise objections or claims about the adverse impact of each activity to which this OEMP relates. Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP. The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP: • The activity described in Section 2, including for the design parameters. • Consultation and communication described in Section 4 and required notifications in Sections 8.4.7 and 8.4.9.3. • The existing environment described in Section 3. • The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include: - Atmospheric and greenhouse emissions – Section 6.3 - Physical presence – Section 6.5 - Waste management – Section 6.6 • Potential impacts to marine life is addressed within a number of subsections in Section 6 and 7, and also in Section 7.3 • Loss of hydrocarbon management including gas release and spills in Sections 7.4; 7.5 and 7.6 • The relevant legislative requirements described in Appendix B	Noting that no objection or claims were raised about the adverse impact of each activity to which this OEMP relates, no further response required.	Not applicable

• cyclones and other weather events Environment impacts & risks • physical presence of infrastructure & vessels – how will these be detected/identified? • effects of activities on marine life • effects of activities on the Tiwi Islands • ghost nets management • incidence of major spills in the EMBA • impact of GHG emissions, other emissions including chemicals • gas emissions from the pipeline • gas supply customers • waste management on vessels • prevention of gas leaks • Other • the approval processes • the AAPA process for identification of sacred sites • drilling campaign details including depths of drilling and timeframe Santos answered those questions and there were no responses raised for consideration, other than those noted below.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.		
An attendee stated that there were other groups of people around Daly River mouth, including Bungal, Dundee and Crab Claw, and on small islands who should also be consulted.	Santos has considered the matters raised in the OEMP and provided a response at the meeting. Santos notes the advice provided by the attendee and has consulted people in these areas via First Nations consultative committees.	At the meeting Santos explained that people in the areas named by the individual have been consulted for this OEMP.	Not applicable
Some attendees stated they and other family members were not aware of the sessions and suggested there be better communication by both Santos and Larrakia representative organisations.	Santos has considered the matters raised in the OEMP and provided a response at the meeting. The answers provided were based on: • Consultation approach for Larrakia people described in Section 4.7.5.1.2. • Public promotion of Larrakia consultation sessions described in Table 4-10. • Examples of advertising and public notices in Appendix D. Santos notes the advice provided by the attendees and considers it has made reasonable attempts to engage Larrakia people directly and via their representative organisations. Santos provided opportunities for Larrakia people to be involved in the consultation process through a range of ways for this OEMP as outlined in Section 4.7.5.1.2 and in the entries in this Table for the Northern Land Council (NLC), Larrakia Nation Aboriginal Corporation (LNAC), Gwalwa Daraniki Association (GDA) and Wickham Point Deed liaison committee (WPDlC).	At the meeting Santos explained the activities that had been undertaken to provide consultation opportunities for Larrakia people, including through participation in the Wickham Point Deed liaison committee.	Not applicable
An attendee stated that clan groups were getting confused because of what was in the media, noting differing statements about the environmental impacts of the Barossa Project.	Santos has considered the matters raised in the OEMP and provided a response at the meeting. The answers provided were based on the consultation approach for Larrakia people described in Section 4.7.5.1.2. Santos has provided opportunities for Larrakia people to be involved in the consultation process and provide direct input into EP development.	At the meeting Santos explained that the Barossa Project is heavily regulated by government to ensure that what Santos proposes to do will be acceptable and the risks are appropriately managed.	Not applicable
Cobourg Peninsula Consultative Committee			
Summary of consultation effort: • On 29 April 2024 Santos held a consultation session in the morning with Agalda clan #1 in Jabiru. [Con-4250] • On 29 April 2024 Santos held a consultation session in the afternoon with Agalda clan #2 in Jabiru. [Con-4243] • On 1 May 2024 Santos held a consultation session in the afternoon with the Murran, Ngaindjagar, Madjunbalmi clan groups in Darwin [Con-4252] • On 2 May 2024 Santos held a consultation session in the morning with Agalda clan #3 in Wurrumiyanga. [Con-4254]			

- The following information related to this OEMP was presented and discussed at each consultation session:\
  - The Commonwealth Government and NT Government regulations and approvals required
  - The activities covered by this OEMP
    The environmental impacts and risks involved with the planned activities and planned controls to management those risk
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks
  - The regulatory consultation processes and privacy provisions
- The presentation also provided an overview of Santos the company and the Barossa Project overall, including a Project status update as per previous Barossa EPs
- The Production Operations information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The sessions were conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos and images, PowerPoint presentation and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP. relates. Refer below “Summary of response by Relevant Persons” below for further detail of general topics/themes discussed.
- Questions on how to access Santos’ employment and education opportunities or seek funding from Santos for community projects are managed outside the OEMP consultation process.
- On 7 June 2024 Santos emailed a member of the Agalda Clan and Cobourg Peninsula Consultative Committee providing additional information in answer to some questions raised during the consultation session. These questions are addressed below. [Con-4997]
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Cobourg Peninsula Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos’ contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from members of the Cobourg Peninsula Consultative Committee.

Summary of response by Relevant Person	Assessment of merits	Santos’ Response Statement	EP reference

Following discussion on consultation material, there were questions and comments received in relation to the matters set out below:
• Activity
  • stability of the FPSO
  • how underwater maintenance is conducted
  • drilling activity
  • FPSO stability
• Consultation & communication
  • Why did it take so long to do consultation with us on our land?
• Existing Environment
  • environmental baseline studies
  • mapping of water currents around the FPSO
  • There needs to be a base line (for the FPSO), so you know what to do if something was to happen.
• Environment impacts & risks
  • sewage disposal
  • impacts of drilling or the pipeline to groundwater
  • how particular areas within the EMBA could be impacted by a spill
  • how is a spill contained and the timeframe involved
  • compensation for environmental impacts due to a spill
  • impacts and regulation of GHG emissions and purchasing of carbon credits
  • how are spills cleaned up and how long does this take
  • Where does the gas go? will it go into the ozone? Will it increase the temperature that will impact our turtles etc.
  • What happens if the gas escapes (from the FPSO)?
	Committee members did not raise objections or claims about the adverse impact of each activity to which this OEMP relates.
	
	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.
	
	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP:
	• The activity described in Section 2, including for the design parameters.
	• Consultation and communication described in Section 4 and required notifications in Sections 8.4.7 and 8.4.9.3.
	• The existing environment described in Section 3 including for the baseline studies undertaken.
	• The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include:
	- Atmospheric and greenhouse gas emissions – Section 6.3
	- Waste management – Section 7.1• Potential impacts to marine life within a number of subsections in Section 6 and 7, and also in Section 7.3
	• Loss of hydrocarbon management including gas release and spills in Sections 7.4; 7.5 and 7.6
	• The Barossa Development Drilling and Completions EP – accepted by NOPSEMA in December 2023.
	
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	
	Santos considers Section 25 consultation requirements to have been met.
		Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP relates, no further response required.	Not applicable

• Sewerage. • Where will spills go? Do they impact our area? • Spill response timing • Spill containment • Other • Historic accidents and past incidence of spills in the region • Compensation for those affected • Carbon Capture and Storage process • Access to employment and education opportunities for FN people (including on the FPSO) Santos answered those questions and there were no responses raised for consideration, other than those noted below.			
A committee member asked if Santos benefited financially from purchasing offsets.	Santos has considered the matters raised in the OEMP and provided a response Santos provided further details on the potential benefit of purchasing offsets.	Following the meeting in an email on 7 June 2024 Santos explained that: The benefit to Santos from offsets is the ability to use them to address emissions from our facilities. This is the primary purpose for which Santos acquires offsets. Purchase of offsets by Santos is at Santos' cost. The Clean Energy Regulator oversees the generation and use of Australian Carbon Credit Units to offset emissions in accordance with the Safeguard Mechanism under Australian legislation.	Not applicable
A committee member asked what environmental baseline studies had been undertaken.	Santos has considered the matters raised in the OEMP and provided a response The answers provided were based on environmental studies described in Section 3 and summarised in Table 3-1 and Table 3-2.	Following the meeting in an email on 7 June 2024 Santos explained that: Santos has completed ocean water (wind, wave, current, water quality), sediment quality, marine fauna, benthic habitat, noise, fish communities at shoals and shelf and seafloor (geophysical) studies. Santos has also undertaken desktop assessments, such as for turtle activity. These studies are summarised in the OEMP as part of the assessment by the Regulator. The best sources of information are the Appendices to the Barossa Offshore Project Proposal (OPP) which are publicly available on the NOPSEMA website.	Not applicable
A committee member asked what happens if Santos exceeds the total emissions for the year. As a consequence, would Santos shut down operations.	Santos has considered the matters raised in the OEMP and provided a response. Santos will comply with the Regulatory requirements as defined in control measure BAO-CM-6.3.11 in the OEMP (Table 6-18): – Purchase and/or surrender of ACCUs or SMCs required under the NGER (Safeguard Mechanism) Regulation Rule 2015 for any emissions from the Barossa facility (comprising the Barossa FPSO and GEP, including the Activity) above the annual baseline, as determined by the Clean Energy Regulator.	Following the meeting in an email on 7 June 2024 Santos explained that: The Clean Energy Regulator will set a baseline (Safeguard Mechanism) for Barossa greenhouse gas emissions. Santos will purchase or generate Australian Carbon Credit Units (ACCUs) to offset Barossa's reservoir CO_2 emissions and any emissions above the Safeguard Mechanism baseline. Santos will comply with the Regulator's requirements. Companies which do not comply with the Safeguard Mechanism are subject to significant enforcement penalties from the Clean Energy Regulator.	Not applicable
A committee member asked if there was a limit on how many times Santos can use the flare on the FPSO.	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	Not applicable.	Not applicable
A committee member asked if Santos had a map of the currents around the FPSO.	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	Not applicable.	Not applicable
Kardu Lalangkin (Daly River / Port Keats) Consultative Committee			
Summary of consultation effort: • On 18 April 2024 Santos held a consultation session with the Kardu Lalingkin (Daly River/Port Keats) Consultative Committee in Wadeye. [Con-4253] • The following information related to this OEMP. was presented and discussed: ○ The Commonwealth Government and NT Government regulations and approvals required ○ The activities covered by this OEMP. ○ The environmental impacts and risks involved with the planned activities and planned controls to management those risks			

- The EMBA in the event of an unplanned event, the risks and planned controls to management those risks

- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The Production Operations information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The sessions were conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos and images, PowerPoint presentation and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP. relates. Refer below "Summary of response by Relevant Persons" below for further detail of general topics/themes discussed.
- A question raised during the session relating to fishing licences and how these may interact with sea country was not relevant to this OEMP. Questions on how to access Santos' employment and education opportunities or seek funding from Santos for community projects are managed outside the OEMP consultation process.
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Kardu Lalingkin (Daly River/Port Keats) Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from the Kardu Lalingkin (Daly River/Port Keats) Consultative Committee.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

Following discussion on consultation material, there were questions and comments received in relation to the matters set out below:
• Activity:
  • how the FPSO is moved to the field
  • timeframe for FPSO being in the field
  • depth of the pipeline.
• Consultation & communication
  • notification process in the event of a spill
• Environment impacts & risks
  • spills and spill response
  • planning for the possibility of an accident occurring
Santos answered those questions and there were no responses raised for consideration by Kardu Lalingkin (Daly River/Port Keats) Consultative Committee.
	Committee members did not raise objections or claims about the adverse impact of each activity to which this OEMP relates.
	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.
	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP:
	• The activity described in Section 2, including for the design parameters.
	• Consultation and communication described in Section 4 and required notifications in Sections 8.4.7 and 8.4.9.3.
	• The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	Santos considers Section 25 consultation requirements to have been met.
		Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP relates, no further response required.	Not applicable

Djulidki (Bradshaw) Consultative Committee

Summary of consultation effort:

- On 19 April 2024 Santos held a consultation session with the Djulidki (Bradshaw) Consultative Committee in Darwin. [Con-4248]
- The following information related to this OEMP. was presented and discussed:
  - The Commonwealth Government and NT Government regulations and approvals required
  - The activities covered by this OEMP.
  - The environmental impacts and risks involved with the planned activities and planned controls to management those risks
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks
- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The Production Operation information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The sessions were conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos and images, PowerPoint presentation and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP relates. Refer below "Summary of response by Relevant Persons" below for further detail of general topics/themes discussed.
- A question related to notification in the event of a spill is addressed below. Questions on how to access Santos' employment and education opportunities or seek funding from Santos for community projects are managed outside the OEMP consultation process.
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Djulidki (Bradshaw) Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]

- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from the Djulidki (Bradshaw) Consultative Committee.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

Following discussion on consultation material, there were questions and comments received in relation to the matters set out below:
• Consultation & communication
  • notification process in the event of a spill
• Environment impacts & risks
  • biosecurity risk management
  • oil spill management
Santos answered those questions and there were no responses raised for consideration, other than those noted below
	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP:
	• Consultation and communication described in Section 4 and required notifications in Sections 8.4.7 and 8.4.9.3.
	• The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include:
	  - Loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6 and required notifications in Sections 8.4.7 and 8.4.9.3.
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	Santos considers Section 25 consultation requirements to have been met.
		Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP relates, no further response required	Not applicable

A committee member stated that its major concerns were diesel spills and how Santos would let the committee know.	Santos has considered the matters raised in the OEMP and provided a response at the meeting. Santos provided information on how the Djulidki (Bradshaw) Consultative Committee would be notified in the event of a spill.	At the meeting Santos agreed to notify the Committee Chair of all spills heading towards the Djulidki (Bradshaw) Consultative Committee interests.	Notifications are included in Table 8-13

Ngoy Garmak Consultative Committee

Summary of consultation effort:

- On 28 May 2024 Santos held a consultation session with the Ngoy Garmak Consultative Committee in Galiwin'ku, Elcho Island. [Con-4261]
- The following information related to this OEMP. was presented and discussed:
  - The activities covered by this OEMP.
  - The Commonwealth Government regulations and approvals required
  - The environmental impacts and risks involved with the planned activities and planned controls to management those risks
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks
  - The regulatory consultation processes and privacy provisions
- The presentation also provided an overview of Santos the company and the Barossa Project overall, including a Project status update as per previous Barossa EPs
- The Production Operation information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The sessions were conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos, and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP. relates. Refer below "Summary of response by Relevant Persons" below for further detail of general topics/themes discussed. A request was made by an attendee for a follow up meeting to discuss general matters about whale migration separate to the Coastal Waters OEMP.
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Ngoy Garmak Peninsula Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 17 December 2024 Santos met with two Ngoy Garmak Consultative Committee members to discuss general matters about whale migration separate to the Coastal Waters OEMP. The matters discussed were of a culturally sensitive nature and information unrelated to the Coastal Waters OEMP was provided on a confidential basis. During those meetings, the committee members each confirmed there were no outstanding matters with respect to the Coastal Waters OEMP. [Con-6025]

On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Following discussion on consultation material, there were questions and comments received in relation to the matters set out below:	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP: • The activity described in Section 2, including for the design parameters.	Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP relates, no further response required.	Not applicable

• Activity
  • extent of the geographical areas covered by the OEMP
  • how long the pipeline will be in place
  • Will the currents impact safety?
• Consultation & communication
  • notification process in the event of a spill
• Existing Environment
  • Protect the sea life and the seabed & protect cultural values.
  • Song lines within the EMBA, song lines record everything, rely on these for territorial boundaries and currents.
• Environment impacts & risks
  • risks of a spill to people and the environment
  • how particular areas within the EMBA could be impacted by a spill
  • timeframe for responding to a spill
  • monitoring of impacts to migrating whales.
  • Can condensate harm people or the environment?
  • Is it going to affect the seabed?
  • Whales are important for this community and the spills would need to be monitored to protect them.
• Other
  • OEMP approval process
  • past incidence of spills in the region
Santos answered those questions and there were no responses raised for consideration, other than those noted below.
	• Consultation and communication described in Section 4 and required notifications in Sections 8.4.7 and 8.4.9.3.
	• The existing environment described in Section 3 including for the baseline studies undertaken.
	• The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include:
	• Seabed disturbance - Section 6.4
	• Potential impacts to marine life within a number of subsections in Section 6 and 7, and also in Section 7.3
	• Loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6 and required notifications in Sections 8.4.7 and 8.4.9.3
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	Santos considers Section 25 consultation requirements to have been met.		

An attendee affirmed the cultural importance of song lines and stories related to whales migrating to and from the South Pacific. The attendee requested that Santos return to speak at another time to talk about these matters.	Santos has considered the matters raised and closed out the request, noting the matters did not related to the OEMP. Answers provided in the 28 May meeting generally relating to whales were based on marine mammal migration paths described in Section 3.2.13.1 and marine fauna interaction control measures described in Table 7-4. Santos has considered impacts to whales from planned activities and unplanned events in preparing the Coastal Waters OEMP.	At the meeting Santos explained that Santos would organise a meeting with the attendee to talk about these matters. Santos met with the attendee on 17 December 2024 and issues discussed were not related to the OEMP	Not applicable
Attendees advised of the importance of stories and song lines that run through the area and how information is recorded in the song lines. Song lines are believed to traverse from the bedrock in the land and out to the sea. Queries were raised about protecting the sea life, seabed and cultural values from potential environmental impacts within the EMBA and wanted to understand the timeframe for a spill response.	Santos has considered the matters raised in the OEMP and provided a response at the meeting based on: • Loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6 • Required notifications (including First Nations people and groups) in Sections 8.4.7 and 8.4.9.3. The OPEP outlines timeframes for spill response and includes the arrangements for activating trained Tiwi Rangers to assist with a spill response.	At the meeting Santos explained spill response times and processes.	Not applicable
Miyarrka Consultative Committee			

Summary of consultation effort:
• On 11 June 2024 Santos held a consultation session with the Miyarrka Consultative Committee in Gapuwiyak. [Con-5000].
• The following information related to this OEMP was presented and discussed:
  ○ The Commonwealth Government regulations and approvals required
  ○ The activities covered by this OEMP
  ○ The environmental impacts and risks involved with the planned activities and planned controls to management those risks			

- The EMBA in the event of an unplanned event, the risks and planned controls to management those risks

- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The Production Operation information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The sessions were conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos, PowerPoint presentation, and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which this OEMP relates. Refer below "Summary of response by Relevant Persons" below for further detail of general topics/themes discussed.
- Questions on how to access Santos' employment and education opportunities or seek funding from Santos for community projects are managed outside the OEMP consultation process.
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Miyarrka Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from the Miyarrka Consultative Committee.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

Following discussion on consultation material, there were questions and comments received in relation to the matters set out below:
• Activity
  • risks posed by natural disasters such as earthquakes and cyclones
  • composition of the gas and condensate
• Environment impacts & risks
  • risks of the gas and condensate to people and the environment?
  • management of planned discharges to water
  • climate change, the vacuum that comes up to the air when you are doing the testing, does that affect the atmosphere
Santos answered those questions and there were no responses raised for consideration, by Miyarrka Consultative Committee.
	There is no risk of a condensate spill from activities under this OEMP.
	The answers provided were based on:
	• Activity described in Section 2, including for the design parameters.
	• The environment risks & impacts as well as the management controls for these are described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include:
	• Atmospheric and greenhouse emissions – Section 6.3
	• Planned discharges – section 6.6
	• Loss of hydrocarbon management including gas release and spills in Section 7.4, 7.5 and 7.6
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	Santos considers Section 25 consultation requirements to have been met.
		Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP. relates, no further response required.	Not applicable

Maningrida Regional Consultative Committee

Summary of consultation effort:

- On 6 June 2024 Santos held a consultation session with the Maningrida Regional Consultative Committee in Maningrida. [Con-4262]
- The following information related to this OEMP was presented and discussed:
  - The activities covered by this OEMP.
  - The Commonwealth Government regulations and approvals required
  - The environmental impacts and risks involved with the planned activities and planned controls to management those risks
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks
- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The Production Operation information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The sessions were conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos and images, PowerPoint presentation, and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which this OEMP relates. Refer below "Summary of response by Relevant Persons" below for further detail of general topics/themes discussed.
- On 3 July 2024, Santos held a second consultation session with the Maningrida Regional Consultative Committee in Maningrida. [Con-5052]
- The following information related to this OEMP was presented and discussed:
  - The activities covered by this OEMP.
  - The Commonwealth Government regulations and approvals required
  - The environmental impacts and risks involved with the planned activities and planned controls to management those risks

- The EMBA in the event of an unplanned event, the risks and planned controls to management those risks

- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The Production Operation information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The sessions were conducted in person (with two people attending via teams) with the use of visual aids such as AO poster sized maps, AO posters with photos and images, PowerPoint presentation, and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP relates. Refer below "Summary of response by Relevant Persons" below for further detail of general topics/themes discussed.
- Questions on how to access Santos' employment and education opportunities and seek funding from Santos for community projects are managed outside the OEMP consultation process.
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Maningrida Regional Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from the Maningrida Regional Consultative Committee

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

Following discussion on consultation material, there were questions and comments received in relation to the following matters:
• Activity
  • maintaining stability of the pipeline
• Consultation & communication
  • Santos should talk to the saltwater ranger team and Outback Spirit.
• Existing Environment
  • Marine pests are natural creatures, there are songlines that sing about marine pests. They have the right to live under water.
• Environment impacts & risks
  • regulation of chemical use
  • safety measures for during movement of materials between vessels
  • biosecurity management
  • regulation of GHG emissions
  • process involved in the event of an accident and a spill needing to be cleaned-up
  • modelling of the EMBA
  • how particular areas within the EMBA could be impacted by a spill
  • tidal pattern means communities along the coast will be heavily impacted. It is just nature
  • concerns that fish (their food source) will ingest hydrocarbons and the potential for illness or death when the fish is eaten
• Other
  • safety of CCS
  • concerns from an historic event where a freighter travelling across the north of Australia from Liverpool coincided with event of a lot of dead fish, uncertain if there was a chemical spill or not. We didn't know, no one told us.
	Carbon Capture Storage will not be undertaken as an activity under this OEMP.
	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.
	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP:
	• The activity described in Section 2, including for the design parameters.
	• The existing environment described in Section 3 including for the baseline studies undertaken.
	• Consultation and communication described in Section 4 and required notifications in Sections 8.4.7 and 8.4.9.3
	• The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include:
	  - Atmospheric and greenhouse gas emissions – Section 6.3
	  - Interactions with other marine users – Section 6.5
	  - Seabed disturbance - Section 6.4
	  - Biosecurity management – Section 7.2
	• Potential impacts to marine life within a number of subsections in Section 6 and 7, and also in Section 7.3
	• Potential impacts to fish addressed within a number of subsections in Section 6 and 7
	• Loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6. With required notifications in Sections 8.4.7 and 8.4.9.3.
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	Santos considers Section 25 consultation requirements to have been met.
		Santos discussed items raised at the meeting. No further response required.	Not applicable

Santos answered those questions and there were no responses raised for consideration by the Maningrida Regional Consultative Committee			

Gapu Maringa Consultative Committee

Summary of consultation effort:

- On 5 June 2024 Santos held a consultation session with the Gapu Maringa Consultative Committee in Milingimbi. [Con-5002]
- The following information related to this OEMP was presented and discussed:
  - The Commonwealth Government regulations and approvals required
  - The activities covered by this OEMP.
  - The environmental impacts and risks involved with the planned activities and planned controls to management those risks
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks
- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The Production Operation information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The sessions were conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos and images, and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP. relates. Refer below “Summary of response by Relevant Persons” below for further detail of general topics/themes discussed.
- A question raised during the session relating to the extent of First Nations ownership and control of coastal and inland waters was not relevant to the Coastal Waters OEMP.
- Questions on how to access Santos’ employment and education opportunities or seek funding from Santos for community projects are managed outside the OEMP consultation process.
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Gapu Maringa Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos’ contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from the Gapu Maringa Consultative Committee.

Summary of response by Relevant Person	Assessment of merits	Santos’ Response Statement	OEMP reference

Following discussion on consultation material, there were questions and comments received in relation to the following matters:
• Activity
  • composition of the gas and condensate
  • What are those pipes there, will they come off in the wind?
• Consultation & communication
  • Notification if there was a crash or spill
• Existing Environment
  • extent of the geographical areas covered by the Coastal Waters OEMP.
• Environment impacts & risks
  • wastewater management
  • how particular areas within the EMBA could be impacted by a spill
  • how the risk of vessel collisions is managed
  • oil spill management
  • concerns on gas explosions & potential for gas and rubbish to impact their land
  • Santos to protect the land and sea and activity is safe.
  • Concerns on vessel collision and what if spill travels their way
	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.
	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP:
	• The activity described in Section 2, including for the design parameters.
	• The existing environment described in Section 3 including for the baseline studies undertaken.
	• Consultation and communication described in Section 4 and required notifications in Sections 8.4.7 and 8.4.9.3.
	• The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include:
	  - Physical presence – Section 6.5
	  - Waste management – Section 6.6
	  - Biosecurity management – Section 7.2
	• Loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6 and required notifications in Sections 8.4.7 and 8.4.9.3.
	• The relevant legislative requirements described in Appendix B.
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	Santos considers Section 25 consultation requirements to have been met.
		Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP relates, no further response required.	Not applicable

• Other
  • Can the Traditional Owners say yes or no.
  • Regulator process and penalties for breaches
• FN ownership and control of coastal and inland waters
Santos answered those questions and there were no responses raised for consideration by the Gapu Maringa Consultative Committee.			

Jindiwi Consultative Committee

Summary of consultation effort:

- On 30 April 2024 Santos held a consultation session with the Jindiwi Consultative Committee in Jabiru. Representatives at this meeting were expected to include Wulna clan representatives, however they were not able to attend on the day. [Con-4251]
- The following information related to this OEMP was presented and discussed at both consultation sessions:
  - The Commonwealth Government and NT Government regulations and approvals required
  - The activities covered by this OEMP.
  - The environmental impacts and risks involved with the planned activities and planned controls to management those risks
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks
- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The Production Operations information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The sessions were conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos and images, PowerPoint presentation and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP relates. Refer below “Summary of response by Relevant Persons” below for further detail of general topics/themes discussed.
- A question was raised at the meeting on potential access to community project funding for monitoring of waters .At the meeting Santos advised the committee that it would be happy to have further discussions on this and any requests seeking access to funding for community projects.
- Questions on how to access Santos’ employment and education opportunities or seek funding from Santos for community projects are managed outside the consultation process.
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Jindiwi Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]
- Notwithstanding, the communication on 10 July, the consultation period for the Jindiwi Consultative Committee was subsequently extended to allow an opportunity for the Jindiwi Consultative Committee to share consultation information with and obtain input for the OEMP (if any) from the Wulna clan members who had not been in attendance at the earlier consultation meeting with the Jindiwi Consultative Committee on 30 April 2024. On 28 July 2024 the consultant engaged by Santos to support establishment of the First Nations Consultative Committees confirmed that:
  - The Jindiwi Consultative Committee had previously agreed to Wulna clan participation through the Jindiwi Consultative Committee.
  - On 27 July 2024 the consultant, in his role of providing secretariat support to the Jindiwi Consultative Committee, and one of his cultural advisers met with the Wulna clan members who had not been in attendance at the Jindiwi Consultative Committee meeting on 30 April 2024.
  - During the 27 July 2024 meeting the Wulna clan members formally accepted membership into the Jindiwi Consultative Committee. The meeting also involved the consultant discussing and providing the Barossa Production Operations consultation materials to the Wulna clan consultative committee members on behalf of the JCC and inviting any input for the OEMP to pass onto Santos. No concerns were raised by the Wulna clan consultative committee members on the consultation material or the proposed activities. [Con-5280]
  - The 27 July meeting occurred as a key role of the consultative committee (as stated in their charters) is for the dissemination of consultation information to First Nations community members of relevance, which was undertaken in this instance with this meeting and the addition of Wulna clam members into the Jindiwi CC.
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos’ contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from the Jindiwi Consultative Committee.

Summary of response by Relevant Person	Assessment of merits	Santos’ Response Statement	OEMP reference

Following discussion on consultation material, there were questions and comments received in relation to the following matters:
• Activity
  • Existing risks posed by natural disasters such as earthquakes and cyclones
• Environment impacts & risks
	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP:
	• The activity described in Section 2, including for the design parameters.
	  - The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include biosecurity management in Section 7.2
	• Potential impacts to marine life within a number of subsections in Section 6 and 7, and also in Section 7.3
	• Loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6 and required notifications in Sections 8.4.7 and 8.4.9.3.
		Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP relates, no further response required.	Not applicable

• how particular areas within the EMBA could be impacted by a spill, oil spill management, which area would be affected near Arnhem land? • impact of a spill on marine life -what would happen if the wind changes and will it affect the turtles and dugongs? • biosecurity management – where will the FPSO be checked for marine life in NT waters or Australian waters? Santos answered those questions and there were no responses raised for consideration, by the Jindiwi Consultative Committee.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met		

Wulna Clan (via the Jindiwi Consultative Committee)

- On 30 April 2024 Santos held a consultation session with the Jindiwi Consultative Committee in Jabiru. Wulna representatives were expected at this meeting, however, were not able to attend on the day. [Con-4251]
- On 27 July 2024, the consultant engaged by Santos to support establishment of the First Nations Consultative Committees, in his role of providing secretariat support to the Jindiwi Consultative Committee, met with Wulna clan members who had not been able to attend the 30 April meeting. During the 27 July 2024 meeting the Wulna clan members formally accepted membership into the Jindiwi Consultative Committee. The meeting also involved the consultant discussing and providing the Barossa Production Operations consultation materials to the Wulna clan consultative committee members on behalf of the Jindiwi Consultative Committee and inviting any input for the OEMP and EP to pass onto Santos. No concerns were raised by the Wulna clan consultative committee members on the consultation material or the proposed activities. [Con-5280]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]

See also the entry in this Table for the summary of consultation with the Jindiwi Consultative Committee including Wulna clan representatives.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
There were no responses raised for consideration, by the Wulna Clan	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	Noting that no objection or claims were raised about the adverse impact of each activity to which this OEMP. relates, no further response required.	Not applicable

Mulyurrud Consultative Committee (Croker Island)

Summary of consultation effort:

- On 16 April 2024 Santos held a consultation session with the Mulyurrud Consultative Committee in Darwin. [Con-4234]
- The following information related to the Coastal Waters OEMP was presented and discussed:
  - The Commonwealth Government and NT Government regulations and approvals required
  - The activities covered by this OEMP.
  - The environmental impacts and risks involved with the planned activities and planned controls to management those risks
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks
- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The Production Operations information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The session was conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos and images, PowerPoint presentation and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP relates. Refer below "Summary of response by Relevant Persons" below for further detail of general topics/themes discussed.
- A copy of the presentation was requested and provided to the committee on 25 June 2024 [Con-5003].
- A cultural advisor helping to facilitate the session noted at the beginning of the consultation session that some words were difficult to understand and that pictures would help. During this meeting, three large (A1 size) maps were adhered to the walls, there were multiple A3 size maps and diagrams handed out, and the presentation which followed made strong use of graphics. At least two FN Consultative Committees cultural advisors were present who were able to translate, and who did so on occasion (i.e during this meeting to address the comment made).
- Separate to the consultation for the Coastal Waters OEMP, the committee requested Santos speak to the committee about purchasing carbon credits and providing funding support for ranger groups. Organisation of this meeting is managed separately to the consultation process.
- Separate to the consultation for the Coastal Waters OEMP, an attendee stated that the committee needed time to discuss Santos proposed community investment activities and requested a follow-up discussion. Questions and requests on how to access Santos' employment and education opportunities or seek funding from Santos for community projects are managed outside the OEMP consultation process.
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Mulyurrud Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]

- During a call on 5 December 2024 to follow up matter not relating to the Coastal Waters OEMP, the Mulyurrud Consultative Committee chair confirmed that there were no outstanding matters with respect to the Coastal Waters OEMP. [Con-6016]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from the Mulyurrud Consultative Committee.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

Following discussion on consultation material, there were questions and comments received in relation to the following matters:
• Activity
  • structural integrity of the FPSO during a tsunami, cyclone or natural disaster.
  • what happens to the gas and condensate
• Consultation & communication
  • what is involved in the consultation process
• Existing Environment
  • the environmental studies that have been undertaken by Santos
  • (in the context of marine life in the environment where the FPSO is located) Is it empty? What about migration?
• Environment impacts & risks
  • the environmental impact of the project generally and to marine life
  • how far planned discharges extend from the FPSO
  • impact of exclusion zones on other activities such as fishing or defence patrols - (in the context of the 500m exclusion zone around the FPSO) – affecting fishing. There are a lot of patrols, military exercises/presences, will they be affected?
  • Impacts to marine fauna eg bottlenose dolphins, seen fauna washed up land.
  • Visibility of vessels and physical presence (buoys & lighting safety)
  • Volumes of carbon dioxide released over the lifetime of the Barossa, where does it go and associated climate change impacts
  • Spill EMBA
  • Spill response preparedness and activities & looking after country, the process and timing for responding to a spill
  • Offsetting of emissions through purchase of carbon credits & Carbon Capture and Storage
• Other
  • what is involved in the drilling process, e.g. depth drilled, size of the drill, can earthquakes or tsunamis be caused by drilling?
  • how a permit area for drilling is determined
  • Santos answered those questions and there were no responses raised for consideration, by Mulyurrud Consultative Committee.
	Carbon Capture Storage will not be undertaken as an activity under this OEMP.
	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.
	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP:
	• The Activity described in Section 2, including for the design parameters.
	• The existing environment described in Section 3.
	• Santos Consultation and communication described in Section 4 and required notifications in Sections 8.4.7 and 8.4.9.3.
	  - The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include physical presence described in Section 6.5
	• Potential impacts to marine life within a number of subsections in Section 6 and 7, and also in Section 7.3
	• Loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6 and required notifications in Sections 8.4.7 and 8.4.9.3
	• The Barossa Development Drilling and Completions EP – accepted by NOPSEMA in December 2023.
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	Santos considers Section 25 consultation requirements to have been met
		Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP relates, no further response required.	Not applicable

Rak Badjalarr Consultative Committee

Summary of consultation effort:

- On 17 April 2024 Santos held a consultation session with the Rak Badjalarr Committee at the Rydges Palmerston in Darwin. [Con-4233]

- The following information related to this OEMP. was presented and discussed:
  - The Commonwealth Government and NT Government regulations and approvals required
  - The activities covered by this OEMP.
  - The environmental impacts and risks involved with the planned activities; and planned controls to management those risks and
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks.
- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The information booklet and NOPSEMA consultation brochure were also provided at the consultation session.
- The sessions were conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos and images, PowerPoint presentation and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP. relates. Refer below "Summary of response by Relevant Persons" below for further detail of general topics/themes discussed.
- Santos provided the committee with videos presented at the meeting following a request from a committee member.
- Santos was requested to send through the videos following the meeting. A Santos staff member sent through the link to the videos on 17 April 2024 via SMS via to the contact phone number for the RBCC member [Con-6004]. During the meeting, information was provided by a committee member on a confidential basis related to a Dreamtime story and the protection of a totem species, which was referred to in the minutes as a sacred site. The issue does not relate specifically to the Coastal Waters OEMP and was the subject of separate discussions with the committee member and Santos' third-party cultural advisors, including an anthropological expert who considered this matter as part of their report on other aspects of the Barossa Project (https://www.santos.com/wp-content/uploads/2024/09/First-Nations-spiritual-and-cultural-values-in-relation-to-the-Darwin-Pipeline-Duplication-Project.pdf) and concluded this matter was not relevant to the Coastal Waters OEMP.
- Questions on how to access Santos' employment and education opportunities or seek funding from Santos for community projects are managed outside the OEMP consultation process.
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Rak Badjalarr Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from the Rak Badjalarr Consultative Committee.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

Following discussion on consultation material, there were questions and comments received in relation to the following matters:
• Activity
  • details of the FPSO, e.g. its size, how it gets to the field and anchored
  • What vessels will be coming through the waters
  • structural integrity of the FPSO during a tsunami, cyclone or natural disaster.
  • the pipeline route and nature of the seabed, does the pipeline go through the marine park?
• Consultation & communication
  • how privacy of FN people and information they provide is protected
• Environment impacts & risks
  • how other marine users are notified of facilities and activities
  • presence of vessels and how do TO hunters know where they are?
  • How an EMBA is determined and modelled, is the oil on top on the water
  • GHG emissions management
• Other
  • how carbon capture and storage works
  • previous incidents and how they are recorded
Santos answered those questions and there were no responses raised for consideration, by the Rak Badjalarr Consultative Committee.
	Carbon Capture Storage will not be undertaken as an activity under this OEMP.
	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.
	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP:
	• The activity described in Section 2, including for the design parameters.
	• The existing environment described in Section 3
	• Consultation and communication described in Section 4 and required notifications in Sections 8.4.7 and 8.4.9.3.
	• The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include physical presence described in Section 6.5
	• Loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6 and required notifications in Sections 8.4.7 and 8.4.9.3.
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	Santos considers Section 25 consultation requirements to have been met.
		Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP. relates, no further response required.	Not applicable

Goulburn Island Consultative Committee

Summary of consultation effort:

- On 30 May 2024 Santos held a consultation session with the Goulburn Island Consultative Committee at the Warruwi (South Goulburn Island) Yagbani Aboriginal Corporation Meeting Room. [Con-5005]
- The following information related to this OEMP. was presented and discussed:
  - The Commonwealth Government regulations and approvals required
  - The activities covered by this OEMP.
  - The environmental impacts and risks involved with the planned activities and planned controls to management those risks
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks
- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The Production Operation information booklet, Santos Privacy Statement and NOPSEMA consultation brochure was also provided at the consultation session.
- The sessions were conducted in person with the use of visual aids such as AO poster sized maps, AO posters with photos and images, and videos to present information regarding the Activity and the project more generally.
- The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP. relates. Refer below “Summary of response by Relevant Persons” below for further detail of general topics/themes discussed.
- Questions on how to access Santos’ employment and education opportunities or seek funding from Santos for community projects are managed outside the OEMP consultation process.
- On 10 July 2024 the consultant engaged by Santos to support establishment of the FN Consultative Committees, emailed the Goulburn Island Consultative Committee, on behalf of Santos, to advise the consultation period had been completed. In the email Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Committee members were invited to pass the email on to other people in their network. [Con-5201]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos’ contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from the Goulburn Island Consultative Committee.

Summary of response by Relevant Person	Assessment of merits	Santos’ Response Statement	OEMP reference

Following discussion on consultation material, there were questions and comments received in relation to the following matters:
• Activity
  • pipeline installation process
  • structural integrity of the pipeline during a tsunami, cyclone or natural disaster.
  • how long the FPSO will be located in the field
• Environment impacts & risks
  • dropped objects
  • process and timing for responding to a spill
  • how particular areas within the EMBA could be impacted by a spill
  • interference of pipeline with fishing
  • how are people advised of facility locations.
Santos answered those questions and there were no responses raised for consideration, by the Goulburn Island Consultative Committee.
	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.
	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP:
	• The activity described in Section 2, including for the design parameters.
	• The existing environment described in Section 3 including for the baseline studies undertaken.
	• Consultation and communication described in Section 4 and required notifications in Sections 8.4.7 and 8.4.9.3
	• The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include:
	  - Physical presence – Section 6.5
	  - Dropped objects – Section 7.1
	• Potential impacts to marine life within a number of subsections in Section 6 and 7, and also in Section 7.3
	• Loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6 and required notifications in Sections 8.4.7 and 8.4.9.3.
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	Santos considers Section 25 consultation requirements to have been met.
		Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP relates, no further response required.	Not applicable

First Nations People and groups: Other First Nations organisations – Northern Territory

Aboriginal Sea Company (ASC)

Summary of consultation effort:

- On 12 March 2024 Santos emailed Aboriginal Sea Company advising that it is consulting on the Coastal Waters OEMP and Barossa Production Operations Environment Plan and asks for consideration as to whether their organisation considers itself a Relevant Person. Santos advised that the consultation is open until Tuesday 9 April 2024. [Con-4049]
- On 15 March 2024 Santos met with the ASC in Darwin. At the meeting Santos explained the Production Operations activities and risks involved. The ASC executive officer advised they had read through the information and did not have any feedback. The officer advised that the ASC typically does not provide comment on environmental matters when approached by oil and gas companies. [Con-6012]
- On 15 March 2024 Aboriginal Sea Company thanked Santos via email for the meeting and provided its Capability Statement. [Con-5235]

- On 5 June 2024 Santos emailed ASC to thank it for meeting and to advise it had passed on the ASC's information to relevant Santos staff. Santos thanked ASC for taking the time to review the information in the context of ASC typically not providing comment on environment plans, and noted it has no specific feedback on this occasion. [Con-4363]
- On 10 July 2024 Santos emailed ASC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP. from ASC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from ASC.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Gwalwa Daraniki Association (GDA)

Summary of consultation effort:

- On 12 March 2024 Santos emailed GDA to advise that it had commenced the consultation phase consulting for the Coastal Waters OEMP and Barossa Production Operations Environment Plan which would run until 9 April 2024. Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-4050]
- On 2 May 2024 Santos emailed GDA further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from GDA. [Con-4102]
- GDA was invited (by Larrakia Development Corporation) to a meeting between Larrakia Development Corporation and Santos on 20 June 2024 but did not attend.
- On 10 July 2024 Santos emailed GDA to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 27 and 28 August 2024 Santos attempted to contact GDA via phone to check whether the Association had intended to comment on Production Operations activities. The calls were not answered and there was no ability to leave message. [Con-5611]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from GDA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from GDA.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Kenbi Rangers

Summary of consultation effort:

- On 13 February 2024 Santos emailed the NLC, which also has responsibility for the Kenbi Rangers, to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3971] The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 12 March 2024 Santos emailed the NLC Kenbi Rangers representative further to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3975] Santos sought a meeting with Kenbi Rangers to discuss the information provided. [Con-3976]
- On 2 May 2024 Santos emailed the NLC Kenbi Rangers' representative further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the NLC Kenbi Rangers' representative. [Con-3977]
- On 10 July 2024 Santos emailed NLC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Santos advised NLC it would appreciate its support in passing on the information to Council Members/Representatives. [Con-5122]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from the NLC Kenbi Rangers' representative.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Kenbi Rangers.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Larrakia Development Corporation (LDC)

Summary of consultation effort:

- On 13 February 2024 Santos emailed LDC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4080]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 14 February an LDC representative responded to Santos via email advising of staffing changes and to provide appropriate contact details. [Con-4081]
- On 27 March 2024 Santos emailed LDC details of the Coastal Waters OEMP and Barossa Production Operations EP consultation sessions being held for Larrakia People in Darwin on 23 April and asked for the organisation to share the information with its Larrakia networks and post on notice boards and relevant social media channels. [Con- 6021]
- On 2 April 2024 Santos emailed LDC by way of reminder that the consultation is closing on April 9 and asks to be contacted as soon as possible if it has any feedback. [Con-4079]
- On 2 April 2024 LDC emailed Santos stating it would provide a written response to Santos by COB that week. [Con-4083]. Santos acknowledged the LDC email the same day. [Con-4084] The response was not provided by LDC by the date it had nominated.
- On 2 May 2024 Santos emailed LDC further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from LDC. [Con-4111]
- On 3 May 2024 LDC emailed Santos to advise it would be providing a formal response the following week. [Con-4112]
- On 24 May 2024 LDC emailed Santos and advised that Larrakia people want to have input into the Production Operations activities. LDC seeks to participate in genuine consultation with meetings with Larrakia representatives and access to independent advice about the nature of the proposal. LDC is working to arrange both of these in close partnership with Larrakia Nation Aboriginal Corporation and Gwalwa Daraniki Association and requests a reasonable opportunity to engage in consultations. LDC also requested financial assistance to obtain independent advice and to arrange meetings. [Con-4216]
- On 24 May 2024 Santos emailed LDC to confirm receipt of its email and advised an official response would follow. [Con-4217]
- On 11 June 2024 Santos emailed LDC inviting it to meet on 17 or 18 June 2024. Santos also advised that we were planning to proceed with the next round of Larrakia consultation sessions for the OEMP and EP (which all Larrakia are invited to attend) which are scheduled for Wednesday 12 June at Malak Community Centre. [Con-5007]
- On 12 June 2024 LDC respond to Santos via email stating it could meet on 20 or 21 June 2024. In the email LDC said Larrakia People were not currently resourced to respond to Santos' consultation approach and the consultation meetings Santos had scheduled were not adequate consultation for Larrakia People and should not be relied on as sufficient to meet the requirements for consultation under NOPSEMA guidelines or as discussed in the Tipakalippa court decision. [Con-5008].
- On 20 June 2024 LDC attended a meeting with Santos at which the main topic of discussion was LDC's concerns over engagement with Larrakia people by proponents of all large-scale development in Darwin. [Con-5056]
- At the meeting LDC stated the following:
  - Santos' consultation efforts (for the OEMP and EP) are not being criticised, but LDC is offering to set up a process that can be used from the outset of consultation that will also meet the expectations of the government regulator
  - the NT Government's proposed Middle Arm industrial development has prompted Larrakia organisations to work with the Government on a framework agreement for engagement with Larrakia people
  - project proponents have significant resources to spend on consultation but Larrakia organisations are not resourced enough to be able to seek independent advice on proposals and respond accordingly.
  - current capacity for LDC to respond is limited and, LDC's priority is Middle Arm.
  - the framework will aim to help redress this imbalance and put Larrakia people on an equal footing with proponents, and ensure they are informed and respected. The framework will set out how Larrakia people will be involved and set out costs
  - the framework is under consideration and will be presented to Larrakia families once ready
  - regarding the OEMP, it is a complex project and Larrakia have not had access to independent advice because they have not got the resources
  - asked whether Santos have been taking advice from Top End Alliance. Santos responded that their scope excludes Larrakia
- At the meeting Santos stated the following:
  - Santos has made a range of efforts to consult with Larrakia people on the Coastal Waters OEMP., both through their representative organisations and directly with Larrakia people
  - Santos welcomes any input on this OEMP and the EP, which will be submitted to the government regulator for assessment, another meeting can be set up if required.
  - Santos is committed to having a long-term relationship with Larrakia people and is happy to work with LDC and other organisations to achieve this
  - Santos is supportive in-principle of being involved in such a framework agreement and hearing more about it.
  - regarding this OEMP and the EP, Santos has tried to produce material that is understandable and has taken advice from other First Nations groups about how to present it. Santos wants to hear about possible improvements.
- On 10 July 2024 Santos emailed LDC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5181]
- On 11 July 2024 LDC emailed Santos stating it did not agree that the consultation process was concluded and reiterated its position that proper consultation required the coordinated input of all Larrakia families, the provision of independent expert advice to Larrakia and the resourcing to undertake this entire process. In its email LDC claimed Santos' response did not reflect a genuine commitment to engagement over the life of the project. [Con-5116]
- On 7 August 2024 Santos emailed LDC and clarified that Santos is open to working with LDC to discuss a consultation framework that would help to facilitate future consultation with the Larrakia families, and that it looks forward to receiving a draft framework agreement from LDC once it had concluded consultation with Larrakia families. [Con-5284]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 25 November 2024 LDC advertised a briefing session which would be run together with LNAC and GDA to present the framework to Larrakia families on 25 November 2024, for the purposes of the NT Government consultation [Con-6017]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from LDC. A draft framework agreement had not been received from LDC at the time of OEMP submission.
- Additional to formal consultation on the Production Operations EP and OEMP, Santos has continued to make a range of efforts to engage on an ongoing basis with NT First Nations People, both directly and through their representative organisations. See Section 8.4.9 Post-acceptance Consultation Implementation Strategy. No further correspondence or feedback was received from LDC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	EP reference
An LDC representative stated that consultation on large-scale development in Darwin requires meetings with Larrakia representatives.	Santos has considered the matters raised in the OEMP and provided a response. For the Coastal Waters OEMP, Santos adopted a multi-faceted approach to providing input and feedback opportunities for Larrakia people, including through representative organisations with a dedicated Larrakia focus, other First Nations organisations, Santos-coordinated Larrakia consultation sessions and provision of consultation materials with personnel at Santos' Darwin shopfront available to answer queries. These activities were supported by a local public awareness campaign, with the direction and support of representative organisation LNAC (see separate entry this section).	Santos has consulted with Larrakia people and Larrakia organisations.	Section 4.6.5.1.3.1

	Santos considers it has provided sufficient information and a reasonable period of time for consultation with LDC. Santos considers Section 25 consultation requirements to have been met.		
An LDC representative stated that LDC required additional time for consultation and communicated a proposal for a consultation framework (which LDC want to undertake in partnership with Larrakia Nation Aboriginal Corporation and Gwalwa Daraniki Association).	Santos has considered the matters raised in the OEMP and provided a response. Santos understands the LDC request for additional time for consultation, which was tied to a proposal for a consultation framework. Santos' consultation methodology considers and accommodates preferences expressed by Relevant Persons regarding design of the consultation process, where reasonably practicable and appropriate. Consistent with Santos' consultation methodology, Santos has considered this request but this request has not been accommodated for the purposes of s 25 consultation for the Coastal Waters OEMP because it was not reasonably practicable and appropriate in the circumstances. In particular, it was not reasonably practicable to accommodate this request because: • Santos has invited further information about the proposed framework and a copy of the framework, but did not receive any further information which it could review and consider during the consultation period for the Coastal Waters OEMP.. • Santos understands that, as of the present date, the proposed framework still does not have endorsement by Larrakia family groups. Further, the purported framework relates to the facilitation of consultation with Larrakia people in circumstances where: - The LDC does not currently have representative authority to speak broadly to the consultation needs of Larrakia People, noting its role as a commercial organisation that aims to support positive economic outcomes for Larrakia People, and that it is governed by a board of independent directors. - Santos has consulted with Larrakia People in a culturally sensitive and appropriate manner, including (but not limited to) implementing advice from LNAC who represents the Traditional Owners of the Darwin region and speaks on behalf of Larrakia People. - During Santos' consultation with Larrakia people and Larrakia representative bodies, Santos was not advised that the Larrakia People want LDC to represent them for the purpose of consultation for the Coastal Waters OEMP. Santos has provided the LDC with sufficient information and a reasonable period to assess any possible consequences of the Activity in the Coastal Waters OEMP on the LDC's functions, interests and activities, however LDC has not confirmed any consequences for its function, interests and activities. Notwithstanding this, Santos consulted with LDC in its own right, in its capacity as a commercial organisation that supports positive economic outcomes for Larrakia people. Santos included LDC in preliminary and formal consultation commencing in February 2024. LDC was also provided consultation opportunities beyond the formal consultation closing date of 16 May 2024, including in a meeting on 20 June 2024 and follow up email on 7 August 2024. On this basis, Santos considers that it has provided sufficient information and a reasonable period for LDC to participate in the consultation process for the Coastal Waters OEMP. Santos will continue to engage with LDC regarding the Barossa Gas Project. In the event that it delivers a consultation framework, that is supported by all Larrakia family groups, Santos will then have regard to it in relation to ongoing consultation over the life of the Barossa project.	Santos provided opportunities for LDC to participate in consultation and provide input regarding these activities, the environment that may be affected by the proposed activities, and the environmental impacts and risks associated with the proposed activities. Santos will continue to engage with LDC on the consultation framework, and if prepared and supported by all Larrakia family groups, will have regard to it in relation to ongoing consultation.	Not applicable.
An LDC representative stated that LDC's preferred mechanism for government and industry proponents to consult with Larrakia people was for Santos to enter into a consultation framework that would support future engagement. The representative noted that the framework was under consideration and would be presented to Larrakia families once ready. The representative stated that LDC was working on these matters in close partnership with Larrakia Nation Aboriginal Corporation and Gwalwa Daraniki Association.	Santos has considered the matters raised in the OEMP and provided a response. Santos' consultation methodology considers and accommodates preferences expressed by Relevant Persons regarding design of the consultation process, where reasonably practicable and appropriate. Consistent with Santos' consultation methodology, Santos has considered this request but this request has not been accommodated for the purposes of s 25 consultation for the Coastal Waters OEMP because it was not reasonably practicable and appropriate in the circumstances. In particular, it was not reasonably practicable to accommodate this request because: • The request lacked particularity. Santos invited further information and a copy of the consultation framework, but did not receive any further information which it could review and consider during the consultation period for the Coastal Waters OEMP. • Santos understands that, as of the present date, the proposed framework still does not have endorsement by Larrakia family groups. Further, it was not appropriate for Santos to accommodate as it relates to the facilitation of consultation with Larrakia People in circumstances where: • The LDC does not currently have representative authority to speak broadly to the consultation needs of Larrakia People, noting its role as a commercial organisation that aims to support positive economic outcomes for Larrakia People, and that it is governed by a board of independent directors. • Santos has consulted with Larrakia People in a culturally sensitive and appropriate manner, including (but not limited to) implementing advice from LNAC who represents the Traditional Owners of the Darwin region and speaks on behalf of	Santos understood that LDC would provide Santos a draft consultation framework once LDC had completed their engagement with all Larrakia families. Santos will continue to engage with LDC on the consultation framework, and if prepared and supported by all Larrakia family groups, will have regard to it in relation to ongoing consultation.	Not applicable.

	Larrakia people, noting its role as a commercial organisation that supports positive economic outcomes for Larrakia People. • During Santos' consultation with Larrakia people and Larrakia representative bodies, Santos was not advised that the Larrakia people want LDC to represent them for the purpose of consultation for the Coastal Waters OEMP. Santos will continue to engage with LDC regarding the Barossa Gas Project. In the event that it delivers a consultation framework, that is supported by all Larrakia family groups, Santos will then have regard to it in relation to ongoing consultation over the life of the Barossa project.		
An LDC representative stated that they required financial assistance in order to obtain independent advice and arrange meetings with Larrakia families, as the current capacity for LDC to respond is limited and its priority is Middle Arm.	Santos has considered the matters raised in the OEMP and provided a response. Santos notes the LDC's request for financial assistance in order to obtain independent advice for Larrakia People and arrange meetings with all Larrakia families. Santos understands this request was tied to a broader proposal for a consultation framework. Consistent with Santos' consultation methodology, Santos has considered this request but this request has not been accommodated for the purposes of s 25 consultation for the Coastal Waters OEMP. because it was not reasonably practicable and appropriate in the circumstances. In particular, it was not reasonably practicable to accommodate this request because: • The request lacked particularity. Santos understands the request was linked to a broader request for Santos to enter into a proposed consultation framework about which Santos invited further information and a copy of the framework, but did not receive any further information which it could review and consider during the consultation period for the Coastal Waters OEMP. • Santos understands that, as of the present date, the proposed framework still does not have endorsement by Larrakia family groups. • Further, the request was not appropriate for Santos to accommodate as it relates to the facilitation of consultation with Larrakia People in circumstances where: - The LDC does not currently have representative authority to speak broadly to the consultation needs of Larrakia People, noting its role as a commercial organisation that aims to support positive economic outcomes for Larrakia People, and that it is governed by a board of independent directors. - Santos has consulted with Larrakia People in a culturally sensitive and appropriate manner, including (but not limited to) implementing advice from LNAC who represents the Traditional Owners of the Darwin region and speaks on behalf of Larrakia people. - During Santos' consultation with Larrakia people and Larrakia representative bodies, Santos was not advised that the Larrakia people want LDC to represent them for the purpose of consultation for the Coastal Waters OEMP. Santos will continue to engage with LDC regarding the Barossa Gas Project. In the event that it delivers a consultation framework, that is supported by all Larrakia family groups, Santos will then have regard to it in relation to ongoing consultation over the life of the Barossa project. In the event that LDC delivers a framework (as described above), Santos will then consider appropriate financial recompense for meeting attendance and input, and/or access to independent advice that the framework may propose.	Santos understood that LDC, would provide Santos a draft framework once LDC had completed their engagement with all Larrakia families. Santos will continue to engage with LDC on the consultation framework and, if prepared and supported by all Larrakia family groups, will have regard to it in relation to ongoing consultation.	Not applicable.

North Australia Indigenous Land and Sea Management Alliance (NAILSMA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed NAILSMA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024 Santos emailed NAILSMA further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3794]
- On 4 April 2024 Santos phoned NAILSMA and left a message with phone contact details.
- On 2 May 2024 Santos emailed NAILSMA to follow-up on previous emails and advised of an additional risk associated with the proposed activity and provided a link to the updated booklet and factsheet. Santos advised it had extended the consultation period and requested NAILSMA input by 16 May 2024. [Con-4101]
- On 10 July 2024 Santos emailed NAILSMA to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from NAILSMA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

No response was received from NAILSMA.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Tiwi Islands Clan Groups and Individuals

Summary of consultation effort:

- Santos continued its staged approach to consultation with Tiwi Islands clan groups and individuals.
- Consultation activities were conducted in person at three locations on the Tiwi Islands, primarily through discussions or presentations.
- The sessions were advertised in advance in accordance with a process agreed with the Clan Groups.
- Some elected members of the TLC were often in attendance at the consultation sessions with their respective Clan Groups.
- At the sessions Santos used visual aids, maps, videos, animations to present information regarding the Activity and the project more generally.
- The presentation also covered the regulatory consultation processes and privacy provisions and provided an overview of Santos the company and the Barossa Project overall.
- The Production Operation information booklet, Santos Privacy Statement and NOPSEMA consultation brochure were provided at the consultation session.
- The following consultations sessions were held on the Tiwi Islands:
  - On 5 March 2024 with the Marrikawuyanga, Yimpinari and Wulirankuwu Clans at Milikapiti (Social and Sports Club) [Con-4160]
  - On 6 March 2024 with the Mantiyupwi Clan at Wurrumiyanga (Mantiyupwi Motel). [Con-4161]
  - On 6 March 2024 with the Jikilaruwu Clan at Wurrumiyanga (Mantiyupwi Motel). [Con-4162]
  - On 7 March 2024 with the Wurankuwu Clan at Wurrumiyanga (Mantiyupwi Motel). [Con-4163]
  - On 7 March 2024 with the Malawu Clan at Wurrumiyanga (Mantiyupwi Motel) [Con-4164]
  - On 8 April 2024 with the Munupi Clan at Pirlangimpi (Sports and Social Club). [Con-4093]
  - On 9 April 2024 with the Marrikawuyanga and Yimpinari Clans at Milikapiti (Social and Sports Club). [Con-4095]
  - On 10 April 2024 with the Jikilaruwu Clan at Wurrumiyanga (Mantiyupwi Motel). [Con-4097]
  - On 10 April 2024 with the Mantiyupwi Clan at Wurrumiyanga (Mantiyupwi Motel). [Con-4096]
  - On 13 May 2024 with the Marrikawuyanga, Yimpinari and Wulirankuwu Clans at Milikapiti (Social and Sports Club). [Con-4255]
  - On 15 May 2024 with the Jikilaruwu Clan at Wurrumiyanga (Mantiyupwi Motel). [Con-4256]
  - On 15 May 2024 with the Mantiyupwi at Wurrumiyanga (Mantiyupwi Motel). [Con-4257]
  - On 16 May 2024 with the Wurankuwu and Malawu Clans at Wurrumiyanga (Mantiyupwi Motel). [Con-4258]
  - On 17 May 2024 with the Munupi Clan at Pirlangimpi (Sports and Social Club). [Con-4231]
  - On 21 May 2024 with the Munupi Clan at Pirlangimpi (Sports and Social Club) [Con-4259]
  - On 22 May 2024 with Wurankuwu and Malawu Clans at Wurrumiyanga (Mantiyupwi Motel). [Con-4260]
- Santos also held three consultation sessions with each Tiwi Clan over an extended consultation period to ensure that information regarding the project was understood, that Clan members had ample opportunity to raise questions or concerns, and to ensure that technical information was explained clearly to relevant Clan members.
- In addition to the sessions held on the Tiwi Islands, sessions were also held in Darwin on 22 March 2024 and 8 April 2024 for any Darwin-based Tiwi People. [Con-4844], [Con-4166]
- The following information related to this OEMP. and was presented and discussed at each Tiwi consultation session:
  - The Commonwealth Government and NT Government regulations and approvals required
  - The activities covered by this OEMP
  - The environmental impacts and risks involved with the planned activities and planned controls to management those risks
  - The EMBA in the event of an unplanned event, the risks and planned controls to management those risks
  - The majority of the engagement with attendees involved discussion to increase their understanding of the proposed activities and the associated risks and impacts, without any objections or claims about the adverse impact of each activity to which the Coastal Waters OEMP. relates. Refer below “Summary of response by Relevant Persons” below for further detail of general topics/themes discussed.
  - A number of the questions raised at these sessions related to activities covered by other Barossa EPs (being the DPD, D&C, SURF and GEP EPs) that had also been raised and discussed at previous consultation sessions.
  - Some requests for further information during Tiwi consultation sessions were answered during the meeting. This includes requests for pictures of the Barossa condensate, which were requested during a Jikilaruwu Clan meeting and were provided to clan members on an iPad at a later stage in the meeting. [Con-4097]. Additionally, with respect to requests for the development of a cultural protocol for consultation which were raised during a consultation session with the Munupi Clan, Santos responded by committing to working better with Tiwi Clans and highlighting approaches Santos already takes to consultation with the Tiwi Clans, including its extended consultation timeframes. [Con-4093]. Where a question could not be answered fully at one session further response and information was provided at the next session. This includes with respect to requests for information on relevant environmental studies during a Wurankuwu Clan and Malawu Clan meeting on 7 March 2024 [Con-4163]. During further meetings, including on 16 May 2024 at a Wurankuwu and Malawu Clans meeting [Con-4258], a Munupi Clan meeting on17 May 2024 [Con-4231], a Jilikaruwu Clan meeting on 15 May 2024 [Con-4256] and a Wulirankuwu Clan meeting on 13 May 2024] [Con-4255], Santos addressed previous requests for further information on environmental studies relevant to the project by providing attendees with access to relevant studies on an iPad.
  - Some requests from individual Tiwi Clan members for more detailed information were followed-up via call or email with them directly. These are summarised below:
    - On 30 April 2024 Santos responded via email to questions on carbon capture and storage and provided links to further information. [Con-4099]
    - On 1 May 2024 the individual emailed Santos thanking it for the information provided on 30 April 2024. [Con-4100]
    - On 3 May 2024 Santos responded via email to questions on the compensation process in the event of an oil spill. [Con-4114]
    - On 3 May 2024 Santos responded via email to questions on material safety data sheets and the distance from the project activities to a reef formation. [Con-4113] Response to this information was received via email the same day. In their email the individual explained why they were seeking the data sheets and requested images of the reef formation. [Con-4115]
    - On 13 May 2024 Santos emailed a further response to the individual, providing links to images of the reef formation and stating it would be happy to meet with the individual at the next consultation session. [Con-4119]
    - On 6 May 2024 Santos responded via email to a question on consultation sessions and request to be advised of any further sessions. [Con-5020]
    - On 15 May 2024 Santos emailed a link to a previous Barossa EP (SURF) in response to a request. [Con-5027]
    - On 3 July 2024 Santos responded via phone to a question on its permission to conduct clan meetings on the Tiwi Islands and to follow-up on Santos’ consultation. In the discussion, with a Senior Elder of the Munupi Clan, no concerns regarding the Munupi Clan consultation sessions were raised. [Con-5026]
    - On 5 July Santos responded by email to a question on carbon credits and offsets [Con-5021]
  - Questions on how to access Santos’ employment and education opportunities and seek funding from Santos for community projects are managed outside the OEMP consultation process.
  - On 10 July 2024 Santos emailed the Tiwi Land Council to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. Santos advised TLC it would appreciate its support in passing on the information to the Land Council (Trustee and Directors) for them to share with their clans. [Con-5120]

- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback on the Coastal Waters OEMP was received from Tiwi clans
- Additional to formal consultation on the Coastal Waters OEMP and Barossa Production Operations EP, Santos has continued to make a range of efforts to engage on an ongoing basis with NT First Nations People, both directly and through their representative organisations. See Section 8.4.9 Post-acceptance Consultation Implementation Strategy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference

Following discussion on consultation material, there were questions and comments received in relation to the following matters:
• Activity
  • Properties of Barossa condensate
  • Inspection and maintenance of facilities
  • Consultation and Communication
  • Consultation process with Tiwi Clans
• Existing Environment
  • Survey of underwater cultural heritage
  • Whale migratory paths
• Environment impacts & risks
  • Oil spill management.
  • Timeframe for cleaning up an oil spill
  • Compensation process in the event of oil spill impact
  • Produce water discharge
  • Management of lighting impact on marine mammals such as turtles
  • Biosecurity management
  • Safe use of chemicals
  • GHG emissions management & Purchase of carbon credits as offsets
  • Air quality
  • Water quality
  • Noise emissions from the FPSO
  • Use of helicopters and associated noise.
• Other
  • Commonwealth Government regulatory process
• Carbon Capture and Storage
Santos answered those questions and there were no responses raised for consideration, other than those noted below.
	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.
	The answers provided at the meeting related to each activity to which this OEMP relates were based on the following sections of the OEMP:
	- The activity described in Section 2, including for the design parameters.
	- Consultation and communication described in Section 4 and required notifications in Section Sections 8.4.7 and 8.4.9.3.
	- The existing environment described in Section 3.
	- The environment risks & impacts as well as the management controls for these described in Sections 6 and 7. Specific risks and impacts pertinent to the matters raised include:
	- Atmospheric and greenhouse gas emissions – Section 6.3
	- Interactions with other marine users – Section 6.5
	- Noise emissions –Section 6.1
	- Light emissions – Section 6.2
	- Seabed disturbance - Section 6.4
	- Waste management – Section 6.6
	- Biosecurity management – Section 7.2
	- Marine Fauna interactions – Section 7.3
	• Potential impacts to marine life within a number of subsections in Section 6 and 7, and also in Section 7.3
	Loss of hydrocarbon management including gas release and spills in Sections 7.4, 7.5 and 7.6. With required notifications in Sections 8.4.7 and 8.4.9.3
	Barossa will meet its Safeguard Mechanism compliance obligations, set by the CER in accordance with Australian Government policy and emissions reduction targets, through the purchase and/or generation of ACCUs or SMCs
	Santos considers it has provided sufficient information and a reasonable period of time for consultation.
	Santos considers Section 25 consultation requirements to have been met.
		Noting that no objection or claims were raised about the adverse impact of each activity to which the Coastal Waters OEMP relates, no further response required.	Not applicable.

A clan member asked where further information can be read about Santos' plans regarding CCS.	Santos has considered the matters raised and provided a response. Santos notes the question from the clan member and has provided separately a response via email.	A response has been provided separate to the Coastal Waters OEMP.	Not applicable.
A clan member asked if CCS worked.	Santos has considered the matters raised and provided a response. Santos notes the question from the clan member and has provided separately a response via email.	A response has been provided separate to the Coastal Waters OEMP.	Not applicable.
A clan member asked when Santos will use CCS for Barossa.	Santos has considered the matters raised and provided a response. CCS is not part of the Coastal Waters OEMP and separate approval will be sought. Santos notes the question from the clan member and has provided separately a response via email.	A response has been provided separate to the Coastal Waters OEMP .	Not applicable.
A clan member asked how far Barossa activities are located from the largest formation 75m Pavona clavus?	The formation is located 60km west of the Barossa field and OA1 under the Barossa Production Operations EP and is relevant only to activities covered under the Barossa Production Operations EP. Santos notes the question from the clan member and has provided separately a response via email.	A response has been provided separate to the Coastal Waters OEMP	Not applicable.
A clan member asked if an oil spill were to occur, what compensation would the affected Tiwi Island people be entitled to.	Santos notes the question from the clan member and provided a response during the consultation session and further via email.	Santos confirmed via email that: Any compensation would depend on specific circumstances of the incident. As with any claim, assessment	Not applicable.

		and determination would be evidence-based. Santos and its Barossa joint venture partners are required to demonstrate a minimum level of financial assurance to be able to cover costs when responding to a spill event. The offshore regulator, NOPSEMA, will not accept the Production Operations Environment Plan without Santos first demonstrating a minimum level of financial assurance for a spill response. Santos relies on a combination of its own financial resources and insurance to meet its financial assurance requirements, including third party liability insurance for its activities. For each Oil Pollution Emergency Plan there is a comprehensive scientific monitoring program to measure impacts to the physical / biological environment and socio-economic receptors. The results of monitoring inform the extent of impacts.	
Several attendees at Tiwi sessions asked about availability of oil spill response training. One attendee suggested a register should be developed of Tiwi people who undertake the training.	Santos has considered the matters raised in the OEMP and provided a response. Santos provided information on the availability of oil spill response training.	Santos confirmed that: Spill response arrangements in place that would be activated include mobilisation of people to a spill site. The first training session with Tiwi Rangers has been held. The TLC was nominating additional people to participate in the next round of training.	Refer to Other Measures Section 8.3.3
An attendee at one session asked where oil spill response equipment is stored and whether Port Melville was an option?	Santos has considered the matters raised in the OEMP and provided a response.	Santos confirmed that: Santos had access to equipment at regional, national and international levels. Stockpiles were located in Australia and around the globe. They are strategically located as they are used not just for oil and gas, but also for shipping companies. Santos also had access to equipment stored in Darwin, Geelong and Fremantle. This equipment was owned by companies that provide this access and they decide where it is stored. Santos would store three rapid assessment kits on the Tiwi Islands which will be used by rangers to assess spills. The rangers would decide on the	Not applicable

		best location to store this equipment.	
An attendee at one session asked where Santos will source carbon credits for offsetting its emissions?	Santos has considered the matters raised in the OEMP and provided a response. The control measures Santos will apply to reduce GHG emissions to ALARP and acceptable levels, include the purchase and/or surrender of carbon credits are outlined in Section 6.3.3.	Santos referred them to our latest annual report and comments in that report that outlines further information on our generation and acquisition of carbon credits.	Section 6.3.3
An attendee asked what happens if Santos exceeds the total emissions for the year. As a consequence, would Santos shut down operations.	The answer provided was based on control measure BAO-CM-6.3.11 in Section 6.3. Queries relating to GHG emissions associated with the extraction and processing of Barossa gas (as distinct from GHG emissions specific to the scope of activity under this OEMP) are addressed in the Production Operations EP.	Santos confirmed that the Clean Energy Regulator will set a baseline (Safeguard Mechanism) for Barossa greenhouse gas emissions. Santos will purchase or generate Australian Carbon Credit Units (ACCUs) to offset Barossa's reservoir CO_2 emissions and any emissions above the Safeguard Mechanism baseline. Santos will comply with the Regulator's requirements. Companies which do not comply with the Safeguard Mechanism are subject to significant enforcement penalties from the Clean Energy Regulator.	Section 6.3.2.3.2
An attendee at one session claimed that migrating turtles would be impacted by the activity and asked how Santos will stop turtles migrating to the drill rig location.	The response raised a claim that migrating turtles would be impacted by the activity and asked how Santos would stop turtle migrating to the drill rig location (which is within OA1). Barossa Development drilling activities (i.e. use of a drill rig) are not covered in the Coastal Waters OEMP. Notwithstanding this, Santos recognises that marine turtles, including migrating marine turtles have the potential to be impacted by the activity. Santos has considered the distribution and movements of marine turtles in the vicinity of its operational area and the Tiwi Islands (Section 3.2.13.2.1). A review of turtle movement data indicates that migratory pathways in the vicinity of the Tiwi Islands are largely restricted to the waters inside of the 100 m depth contour (i.e., waters less than 100 m deep) and overlap with the OA (Pendoley, 2023). Although the OA overlaps with Marine Turtle BIAs, Santos considers that the limited frequency and duration of IMMR activities within the OA, combined with the implemented control measures, reduce the impacts and risks to migrating marine turtles to ALARP and acceptable levels Santos does not see merit in stopping marine turtles from migrating and considers this inconsistent with its performance outcomes and control measures which are in place to reduce disturbances to marine turtles.	Santos outlined within the session that OA1 (under the Production Operations EP) is not in or near a biologically important area and it has assessed impacts to marine turtles in its operational areas from light spill using lighting studies.	Santos includes an assessment of migratory marine turtle movements in the vicinity of Tiwi Islands and its operational area in Section 3.2.13.2.1 Santos includes control measures to reduce impacts to marine turtles in the OA to ALARP and acceptable levels in Section 6 and 7
An attendee/s at one session asked questions regarding helicopters flying over Tiwi and Seagull Island, particularly in relation to: • number of passengers; • clarifying if it was helicopter or plane; • purpose of flights.	No helicopter flights over the Tiwi Islands or Seagull Island are planned to occur for activities to which this OEMP relates. Helicopter flights are used to transport workers to and from the IMMR vessels if required. Questions related to Production Operations activities (helicopter flights to the FPSO) in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	Santos responded that: • there would be approximately 12 passengers; • it would use a helicopter; • flights are used to transport workers to and from the FPSO. • Santos had also outlined within the sessions that: • the use helicopters is required to safely transport our workers to and from the FPSO • that helicopters will fly over Tiwi islands on average 3 times per week. • planned flight paths are over the eastern end of Melville Island, at its closest point in 22km from Seagull Island	Not applicable

		• to manage any potential noise impacts, the Helicopter will fly between 1.8 km to 2.4km above Tiwi islands. • at this height Barossa helicopters are unlikely to be heard any differently than other background air traffic, this is also higher than birds generally fly.	
An attendee asked where Santos gets its permission to come to the Tiwi Islands and consult with clan group. The attendee stated that the TLC must consult with and have regard of Traditional Owners and: • ensure they understand any proposal; • ensure any affected Aboriginal community members, including the whole wider community, • ensure they have a chance to say what they think of the proposal and • satisfy itself that the Traditional Owners have consented to the proposal.	Santos has considered the matters raised in the OEMP and provided a response. The answers provided were based on consultation with Tiwi people and clan groups described in Section 4.7.6.1. Santos notes the statements by the attendee and has responded via a phone call on 3 July 2024 to address statements made at the consultation session, confirming Santos used a culturally appropriate process. In that exchange, no concerns regarding the Munupi Clan consultation sessions were raised. The attendee, who is Senior Elder, thanked Santos for always being "respectful" and going to the Trustee first, with the Trustee then going to Traditional Owners. This consultation process, agreed with the TLC and clan groups, has been followed for the past three Barossa EPs and includes consultation in person at specific locations on the Tiwi Islands, primarily through discussions or presentations with all clans.	Santos confirmed that: • Santos received the appropriate permits from the TLC. • The sessions were notified and advertised in advance in accordance with the usual practice, including via social media.	Not applicable
An attendee asked how Tiwi people could be sure that the FPSO has been cleaned properly as part of biosecurity precautions.	Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	No response required.	Not applicable.
A clan member advised before sea level rise there was one big land mass and we may find giant serpent bones. They would like to be notified if any bones are found.	Santos has considered the matters raised in the OEMP and provided a response. The answers provided were based on information contained in Section 3.2.15.11 and Section 6.4.2.4.3 Santos engaged Cosmos Archaeology to undertake maritime archaeological heritage assessments. There is no known UCH (including First Nations) within the OA.	Santos confirmed that no bones have been identified to date and if any bones are identified the clan member would be advised.	Refer to Other Measures Section 8.3.3
A clan member raised a query about water quality and if marine life could be affected from an oil spill, such as turtles and dugongs, which they traditionally hunt. A query was also raised if clams and mussels could be monitored as they are filter feeders and information can be used to determine changes in water quality.	Santos has considered the matters raised in the OEMP and provided a response. The answers were provided based on information contained in Section 7.4 and 7.6.	Santos outlined in the session that an Operational and Scientific Monitoring Plan (as part of the GEP NT Waters OPEP) would be implemented in the event of a spill.	Not applicable
A clan member raised a query regarding noise emissions from the FPSO affecting turtle hunting.	Santos has considered the matters raised in the OEMP and provided a response. Questions related to Production Operations activities in the Barossa Field are outside the scope of the Coastal Waters OEMP and are addressed in the Barossa Production Operations EP.	No response required.	Section 6.1
A clan member raised a query about sea levels, climate and erosion of land particularly from increased shipping movements that may cause accelerated erosion. They stated this erosion in turn can impact turtle nesting beaches and wanted to know how Santos and Tiwi people could work together.	Santos consider the clan member's claim that increased ship movements cause land erosion, and therefore impact turtle nesting, has no merit. Vessel movements are low during operations. There is no evidence to support the assertion that movements of vessels during the activity would result in erosion of land and impact turtle nesting beaches.	During the session, Santos advised a risk assessment regarding greenhouse gas emissions has been undertaken. The Tiwi clan were shown a map of shipping routes in the region (for all shipping and not limited to Santos), based on the Australian Maritime Safety Authority recorded vessel movements. Santos outlined that Activity vessel movements along the pipeline would not be permanent. Santos agreed to talk with the clan member after the session to understand needs, impacts and benefits on working together.	Not applicable

		The answers were provided based on information contained in Sections 2, 3.2.14.5 and 6.3	
A clan member requested evidence regarding the environmental studies relevant to the project.	Santos has considered the matters raised in the OEMP. Santos complied with this request.	During the session, Santos confirmed it would provide relevant environmental studies and evidence relating to the project environmental impacts and risks. At subsequent clan meetings Santos provided further information and had the relevant environmental studies available to review on iPads, and confirmed that they were also available online.	Environmental studies are referenced throughout the Coastal Waters OEMP.
A clan member requested a photo of Barossa condensate be provided.	Santos has considered the matters raised in the OEMP. Santos complied with this request.	During the session, Santos provided an iPad which contained a photo of the condensate.	Not applicable.
A clan member requested the development of a cultural protocol for consultation, requesting Santos to go through the clan Trustee and work with and respect Tiwi people.	Santos has considered the matters raised in the OEMP and provided a response. This particular request for a cultural protocol has been considered and assessed in context, having regard to the Santos' broader' approach to consultation with Tiwi Clan Groups and Individuals and the development of the existing arrangements. Santos' approach to consultation with Tiwi Clan Groups and Individuals was developed in consultation with Tiwi People on earlier Barossa EPs and includes: - obtaining appropriate permissions to be on Tiwi from the Tiwi Land Council, - scheduling of consultation sessions in conjunction with Clan Trustees/Traditional Owners, the Tiwi Land Council, Tiwi Recourses and Tiwi Enterprises to ensure no clashes with community events, cultural ceremony or "Sorry Business", - providing three consultation sessions per Clan and - providing an extended period of consultation for Tiwi Islands Clan Groups and Individuals. In addition, on 3 July 2024 Santos had a phone discussion with a Senior Elder of the Munupi Clan who made the comments regarding a cultural protocol, to follow-up on Santos' consultation. In that exchange, no concerns regarding the Munupi Clan consultation sessions were raised. The Senior Elder thanked Santos for always being "respectful" and going to the Trustee first with the Trustee then going to Traditional Owners. Consistent with Santos' consultation methodology, Santos has considered this request but, in the circumstances outlined above, determined it was not appropriate to progress it further (beyond the measures already taken) for the purposes of s 25 consultation for the Coastal Waters OEMP. Santos is committed to continuing to work with Tiwi People to continue to consult with them in a culturally appropriate manner.	During the session, Santos reiterated that it is committed to working with Tiwi Clans and was consulting with Tiwi Clans for an extended period. In addition, on 3 July 2024 Santos had a phone discussion with a Senior Elder of the Munupi Clan who made the comments regarding a cultural protocol, to follow-up on Santos' consultation. In that exchange, no concerns regarding the Munupi Clan consultation sessions were raised. The Senior Elder thanked Santos for always being "respectful" and going to the Trustee first with the Trustee then going to Traditional Owners.	Not applicable.
A clan member raised concerns regarding information provided, stating that some information provided to Tiwi Clan members is technical and needs to be simplified.	Santos has considered the matters raised in the OEMP. Santos notes the statements made by the attendee related to the written material on the power point slides being presented at the meeting. The meeting minutes (Con-4259) show that the information on the slides was not being read-out verbatim and an interpreter was present to further explain the material in language. The minutes also show there was strong engagement from clan members during the meeting, with clan members asking many questions, including to clarify technical information, and Santos' representatives providing clear responses. This was the third consultation session held with the Munupi Clan at which the Barossa Production Operations EP was discussed, the others being on 17 May 2024 (Con-4231) and 8 April 2024 (Con-4093). This consultation sessions were undertaken in line with the consultation process and consultation preferences, which Tiwi People have historically expressed during previous consultation on Barossa Project EPs, as outlined in Section 4.7.5.1.3, Consultation with Tiwi Islands Clans and Individuals.	The Santos representative speaking at the time responded that Santos was trying to share the information with attendees as simply as possible, noting that in the scientific world, some things are not as easy to put things simply. (Con-4259) The Santos representative thanked the clan member for raising the matter and further stated that Santos attendees would be happy to talk to the clan member after the meeting and to get feedback. On 3 July 2024 Santos followed-up by phone with a Senior Elder of the Munupi Clan. This was the same person who had made the comment on written materials	Not applicable.

		at the 21 May 2024 session. The Elder did not advise of any outstanding issues related to the Munupi consultation sessions.	

First Nations People and groups: Representative organisations – Western Australia

Kimberley Land Council (KLC)

Summary of consultation effort:

- On 22 February 2024 Santos emailed KLC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4037]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- In the email Santos advised it had identified that the KLC – in its capacity as a Representative Body – may have functions, interests or activities that may be affected by these proposed activities and would like to meet with KLC to determine if it wishes to participate in the consultation process. Should KLC be interested Santos can then discuss appropriate consultation methods appropriate to the KLC's information needs and interests.
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- Also included was a map of the Environment that May be Affected (EMBA) and a summary of Santos' understanding of how the EMBA related to Aboriginal heritage sites, native title claims or determinations as well as marine park management.
- On 2 May 2024 Santos emailed KLC to follow-up on previous emails and advised of an additional risk associated with the proposed activity and provided a link to the updated booklet and factsheet. Santos advised it had extended the consultation period and requested KLC input by 16 May 2024. [Con-4103].
- On 10 July 2024 Santos emailed KLC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5087]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 14 November 2024 Santos phoned the KLC seeking confirmation that it had no comments on the EP and OEMP. [Con-5987]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from the KLC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from the KLC.	With regard to the location of the proposed Production Operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable

Balanggarra Aboriginal Corporation (BAC)

Summary of consultation effort:

- On 22 February 2024 Santos emailed BAC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4060]
- The email advised that Santos was seeking information to better understand:
- *if you are from a government Department or agency, how the proposed Operations activities may be relevant to your department or agency; and*
- *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- In the email Santos advised BAC to contact Santos at the earliest opportunity if it considered that it may be a Relevant Person and wished to participate in the consultation process. Should BAC be interested Santos can then discuss appropriate consultation methods appropriate to BAC's information needs and interests.
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- Also included was a map of the Environment that May be Affected (EMBA) and a summary of Santos' understanding of how the EMBA related to Aboriginal heritage sites, native title claims or determinations as well as marine park management.
- On 13 March 2024 Santos emailed BAC further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. In the email Santos also advised it would try to call BAC as well. [Con-4061]

- On 14 March 2024 BAC advised Santos via email that the information provided by Santos in the 13 March email had been forwarded to the CEO. [Con-4067] The same day the BAC CEO advised Santos via email that the Chair of the BAC Board would seek instructions from the Board as to how to proceed further. [Con-5014]
- On 2 April 2024 Santos sent a reminder to BAC via email that the consultation period for the EP was closing on April 9 and to contact Santos as soon as possible if BAC had any feedback. The information previously provided was again included. [Con-4085]
- On 2 May 2024 Santos phoned and emailed BAC to follow up on the previous emails and advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from BAC. [Con-4105]
- On 28 May 2024 Santos emailed BAC in relation to its responsibilities under the Australian Marine Parks North Management Plan for sea country in the Joseph Bonaparte Marine Park. The email included a map showing the location of the park in relation to Balanggarra country. [Con-4209].
- On 10 July 2024 Santos emailed BAC to advise the consultation period had been completed. [Con-5127]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback has been received from BAC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from BAC.	With regard to the location of the proposed Production Operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Bardi and Jawi Niimidiman Aboriginal Corporation (BJAC)

Summary of consultation effort:

- On 22 February 2024 Santos emailed BJAC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4038]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Operations activities.*
- In the email Santos advised BJAC to contact Santos at the earliest opportunity if it considered that it may be a Relevant Person and wished to participate in the consultation process. Should Bardi Jawi be interested Santos can then discuss appropriate consultation methods appropriate to BJAC's information needs and interests.
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- Also included was a map of the Environment that May be Affected (EMBA) and a summary of Santos' understanding of how the EMBA related to Aboriginal heritage sites, native title claims or determinations as well as marine park management.
- On 13 March 2024 Santos emailed BAC further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. In the email Santos also advised it would try to call BAC as well.
- On 2 April 2024 Santos sent a reminder to BJAC via email that the consultation period was closing on April 9 and to contact Santos as soon as possible if BJAC had any feedback. The information previously provided was again included. [Con-4039]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from BJAC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from BJAC.	Santos considers it has provided sufficient information and a reasonable period of time for BJAC to advise its relevancy to the activities proposed under the Coastal Waters OEMP. With regard to the location of the proposed GEP operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may	No response required.	Not applicable.

	affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. Santos considers Section 25 consultation requirements to have been met.		

Dambimangari Aboriginal Corporation (DAC)

Summary of consultation effort:

- On 22 February 2024 Santos emailed DAC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. and the DPD Offshore CEMP. [Con-4040]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Operations activities.*
- In the email Santos advised DAC to contact Santos at the earliest opportunity if it considered that it may be a Relevant Person and wished to participate in the consultation process. Should DAC be interested Santos can then discuss appropriate consultation methods appropriate to DAC's information needs and interests.
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- Also included was a map of the Environment that May be Affected (EMBA) and a summary of Santos' understanding of how the EMBA related to Aboriginal heritage sites, native title claims or determinations as well as marine park management
- On 12 March 2024 a DAC representative advised Santos via email that the DAC Board would be able to meet with Santos to discuss the information during its meeting to be held on 10/11 April 2024. [Con-4048]
- On 12 March 2024 Santos responded to DAC's offer, stating it would check the dates with the appropriate personnel's availability and revert back as soon as possible. [Con-4054]
- On 13 March 2024 Santos emailed DAC to confirm it would be able to meet at any time on 10/11 April as requested by DAC. The email also advised that Santos had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-4065]
- On 19 March 2024 Santos re-confirmed its availability for a meeting during DAC's two-day Board meetings and requested details in order to plan attendance. [Con-4071]
- On 19 March 2024 DAC advised Santos via email that it would provide the agenda as soon as possible and also requested that the deadline for feedback be extended to accommodate feedback arising from the meeting. [Con-4072]
- On 19 March 2024 Santos responded to DAC to advise that feedback received at the meeting would be included. [Con-4074]
- On 26 March 2024 DAC emailed Santos the date and time for the meeting and Santos responded via email the same day. [Con-4075]
- On 2 April 2024 Santos sent a reminder to DAC via email that the consultation period was closing on April 9 and to contact Santos as soon as possible if DAC had any feedback. The information previously provided was again included. Santos noted in the email that the 9 April feedback deadline would be adjusted to accommodate the meeting with DAC and provision of its feedback. [Con-5016]
- On 10 April 2024 Santos held a meeting with DAC at the DAC offices in Derby, at which the Productions Operations activities were discussed. During the meeting one question was asked about the composition of Barossa condensate and what a condensate spill would look like. No issues or concerns were raised at the meeting. DAC advised that it would consider the information Santos had provided and get back to Santos if it had any further questions. At the meeting of 10 April 2024 DAC requested a copy of the Santos factsheet providing details of the Barossa Production Operations, and a copy of the information booklet was provided. [Con-4092]
- On 17 April 2024 Santos emailed DAC thanking it for the meeting. [Con-4098]
- On 2 May 2024 Santos emailed DAC to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from DAC. [Con-5015]
- On 10 July 2024 Santos emailed DAC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5126]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from DAC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
An attendee asked about the composition of Barossa condensate and what a condensate spill would look like.	This response does not raise an objection or claim about the adverse impact of each activity to which this OEMP relates. There is no risk of a condensate spill from activities under this OEMP. With regard to the location of the proposed GEP operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline	No response required.	Not applicable

Mayala Inninalang Aboriginal Corporation (MIAC)

Summary of consultation effort:

- On 22 February 2024 Santos emailed MIAC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. and the DPD Offshore CEMP. [Con-4041]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Operations activities.*

- In the email Santos advised MIAC to contact Santos at the earliest opportunity if it considered that it may be a Relevant Person and wished to participate in the consultation process. Should MAC be interested Santos can then discuss appropriate consultation methods appropriate to MAC's information needs and interests.
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- Also included was a map of the Environment that May be Affected (EMBA) and a summary of Santos' understanding of how the EMBA related to Aboriginal heritage sites, native title claims or determinations as well as marine park management.
- On 14 March 2024 Santos phoned MIAC and, further to the previous correspondence, followed up, later the same day, with an email to advise that it had commenced the consultation phase which would run until 9 April 2024. As reflected in the email, Santos had been instructed on the earlier telephone call to forward the email to another person in the same organisation (forwarding the email was the only matter discussed on that telephone call). [Con- 4068] In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. In the email Santos stated it would be happy to speak via phone again or attend a meeting with MIAC. [Con- 4068]
- On 2 April 2024 Santos sent a reminder to MIAC via email that the consultation period was closing on April 9 and to contact Santos as soon as possible if MAC had any feedback. The information previously provided was again included. [Con-4088]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from MIAC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from MIAC.	Santos considers it has provided sufficient information and a reasonable period of time for MAC to advise its relevancy to the activities proposed under this OEMP consultation. With regard to the location of the proposed GEP operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Miriuwung and Gajerrong Aboriginal Corporation (MGAC)

Summary of consultation effort:

- On 22 February 2024 Santos emailed MGAC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4043]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Operations activities.*
- In the email Santos advised MGAC to contact Santos at the earliest opportunity if it considered that it may be a Relevant Person and wished to participate in the consultation process. Should MGAC be interested Santos can then discuss appropriate consultation methods appropriate to MGAC's information needs and interests.
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- Also included was a map of the Environment that May be Affected (EMBA) and a summary of Santos' understanding of how the EMBA related to Aboriginal heritage sites, native title claims or determinations as well as marine park management.
- On 13 March 2024 Santos followed-up with a phone call to MGAC and then emailed to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-4062]
- On 13 March 2024 MGAC phoned Santos to advise that the Executive Office, the Chair of the Board, and the Board would be in touch with Santos once they have met and considered the issues. [Con- 4066]
- On 14 March 2024 MGAC attempted to phone Santos and followed-up with an email advising that it would call Santos the next day. [Con-4070]
- On 28 March 2024 Santos held a phone call with the Chair of MGAC, where options for meeting were discussed. It was agreed that MGAC was to get back to Santos with an appropriate date for meeting.
- On 28 March 2024, Santos phoned MGAC and followed up with and email to advise there are a number of potential projects of possible interest to MGAC Corporation and offered various option to meet. [Con-4076]
- On 2 April 2024 Santos sent a reminder to MGAC via email that the consultation period was closing on April 9 and to contact Santos as soon as possible if MGAC had any feedback. The information previously provided was again included. [Con-4086]
- On 4 April 2024 the Chair of MGAC emailed Santos to advise the Barossa Production Operations EP would be discussed at a Board meeting the following week, after which an outcome would be provided to Santos. [Con-4090]
- On 4 April 2024 Santos emailed MGAC and advised it looked forward to further communication. [Con-4091]
- On 2 May 2024 Santos emailed MGAC to advise it was following up on previous emails and advised of an additional risk associated with the proposed activity and provided a link to the updated booklet and factsheet. Santos advised it had extended the consultation period and requested MGAC input by 16 May 2024. [Con-4107]
- On 28 May 2024 Santos emailed MGAC in relation to its responsibilities under the Australian Marine Parks North Management Plan for sea country in the Joseph Bonaparte Marine Park. The email included a map showing the location of the park in relation to Miriuwung Gajerrong country. [Con-4210]
- On 28 May 2024 MGAC Chair emailed Santos to advise he would get back to Santos once the matter was reviewed. [Con-5233] No response was received.
- On 10 July 2024 Santos emailed MGAC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5124]

- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback on the Coastal Waters OEMP was received from MGAC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from MGAC.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. With regard to the location of the proposed GEP operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Wunambal Gaambera Aboriginal Corporation (WGAC)

Summary of consultation effort:

- On 22 February 2024 Santos emailed WGAC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4044]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Operations activities.*
- In the email Santos advised WGAC to contact Santos at the earliest opportunity if it considered that it may be a Relevant Person and wished to participate in the consultation process. Should WGAC be interested Santos can then discuss appropriate consultation methods appropriate to WAC's information needs and interests.
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- Also included was a map of the Environment that May be Affected (EMBA) and a summary of Santos' understanding of how the EMBA related to Aboriginal heritage sites, native title claims or determinations as well as marine park management.
- On 13 March 2024 Santos attempted to call WGAC and then emailed to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. In the email Santos provided phone contact details to receive further information or organise a consultation meeting. [Con-4064]
- On 2 April 2024 Santos sent a reminder to WGAC via email that the consultation period was closing on April 9 and to contact Santos as soon as possible if MGAC had any feedback. The information previously provided was again included. [Con-4089]
- On 2 May 2024 Santos phoned and emailed WGAC to follow-up on the previous emails and advised of an additional risk associated with the proposed activity and provided a link to the updated booklet and factsheet. Santos advised it had extended the consultation period and requested WAC input by 16 May 2024. [Con-4106]
- On 10 July 2024 Santos emailed WGAC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5125]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
  - On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP. from WGAC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from WGAC.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. With regard to the location of the proposed GEP operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any First Nations groups, clans and/or organisations along the WA coastline. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

4.8.9 Industry Associations

Table 4-19: Consultation Summary Table – Industry Associations

Section 25(1)(d) of the OPGGS(E)R: Persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the environment plan			
Australian Southern Bluefin Tuna Industry Association (ASBTIA)			
Summary of consultation effort: • On 15 February 2024 Santos emailed ASBTIA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4988] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 11 March 2024, Santos emailed ASBTIA advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793] • On 4 April 2024 Santos phoned ASBTIA regarding consultation for Production Operations activities and left a voice mail message. • On 2 May 2024, Santos emailed ASBTIA, further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from ASBTIA. [Con-4353] • On 10 July 2024 Santos emailed ASBTIA to advise the consultation period had been completed. Santos advised ASBTIA that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130] • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from ASBTIA.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP reference**
No response was received from ASBTIA.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.
Commonwealth Fisheries Association (CFA)			
Summary of consultation effort: • On 9 February 2024 Santos emailed CFA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 11 March 2024, Santos emailed CFA advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793] • On 4 April 2024 Santos phoned CFA regarding consultation for Production Operations activities and left a voice mail message. • On 9 May 2024, Santos emailed CFA, further to the previous correspondence, to advise it had extended the consultation period until 23 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from CFA. [Con-3929] • On 10 July 2024 Santos emailed CFA to advise the consultation period had been completed. Santos advised CFA that it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130] • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from CFA.			

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from CFA.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Northern Territory Seafood Council (NTSC)

Summary of consultation effort:

- On 9 February 2024 Santos emailed NTSC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed NTSC advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 4 April 2024 Santos phoned NTSC regarding consultation for Production Operations activities and spoke to a team member who advised that NTSC intended to provide input to the consultation.
- On 8 May 2024 emailed NTSC to advise, further to previous correspondence, it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from NTSC. [Con-4360]
- On 10 July 2024 Santos emailed NTSC to advise the consultation period had been completed. Santos advised NTSC that it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from NTSC.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from NTSC.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Northern Prawn Fishing Industry (NPFI) Limited

Summary of consultation effort:

- On 9 February 2024 Santos emailed NPFI to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed NPFI advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 4 April 2024 Santos phoned NPFI regarding consultation for Production Operations activities and left a voice mail message.
- On 2 May 2024, Santos emailed NPFI to advise, further to previous correspondence, it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from NPFI. [Con-4356]
- On 10 July 2024 Santos emailed NPFI to advise the consultation period had been completed. Santos advised NPFI that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from NPFI.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from NPFI.	Santos considers it has provided sufficient information and a reasonable period of time for consultation.	No response required.	Not applicable.

	Santos considers Section 25 consultation requirements to have been met.		

Western Australian Fishing Industry Council (WAFIC)

Summary of consultation effort:

- On 9 February 2024 Santos emailed WAFIC to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed WAFIC advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 4 April 2024 Santos phoned WAFIC regarding consultation for Production Operations activities and left a voice mail message.
- On 2 May 2024, Santos emailed WAFIC advise, further to previous correspondence, it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from WAFIC. [Con-4357]
- On 16 May 2024, WAFIC emailed Santos to clarify that WAFIC does not have an interest in activity in NT waters and asked to continue to receive updates on the Barossa Project. [Con-4220]
- On 10 July 2024 Santos emailed WAFIC to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
WAFIC stated that it did not have an interest in activity in NT waters.	Santos acknowledges that WAFIC's stated approach does not require consultation for the activities proposed under the Coastal Waters OEMP. The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. Therefore, with regard to the location of the proposed GEP operations activities in NT Coastal Waters, there is no consequence from activity on any of WAFIC's interests. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any WA-based persons	Santos confirmed the approach with WAFIC.	No reference required.
WAFIC asked to continue to receive updates on the Barossa project.	Santos provides pre-activity notifications and quarterly project updates to WAFIC.	Santos confirmed the approach with WAFIC.	Section 8.4.7

Amateur Fishermen's Association of the Northern Territory (AFANT)

Summary of consultation effort:

- On 9 February 2024 Santos emailed AFANT to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed AFANT advising that it is now consulting on Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 4 April 2024 Santos phoned AFANT regarding consultation for Production Operations activities and left a voice mail message. On 2 May 2024, Santos emailed AFANT, further to the previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from AFANT. [Con-4347]
- On 10 July 2024 Santos emailed AFANT to advise the consultation period had been completed. Santos advised AFANT that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from AFANT.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from AFANT.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Recfishwest

Summary of consultation effort:

- On 15 February 2024 Santos emailed Recfishwest to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4989]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed Recfishwest advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 4 April 2024 Santos phoned Recfishwest regarding consultation for Production Operations activities and spoke to a team member who advised they would contact Santos if they had any feedback.
- On 6 May 2024, Santos emailed Recfishwest, further to the previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Recfishwest. [Con-4314]
- On 10 July 2024 Santos emailed Recfishwest to advise the consultation period had been completed. Santos advised Recfishwest that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Recfishwest.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Recfishwest.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. Therefore, with regard to the location of the proposed GEP operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any WA-based persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any WA-based persons Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Western Australian Game Fishing Association (WAGFA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed WAGFA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed WAGFA advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 8 May 2024, Santos emailed WAGFA, further to the previous correspondence, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from WAGFA. [Con-4361]
- On 10 July 2024 Santos emailed WAGFA to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 14 November 2024 Santos phoned the WA Game Fishing Association to seek confirmation that it did not have any comments on the Barossa Production Operations EP or OEMP. An Association representative asked for the information to be re-sent and stated it still wasn't likely to have any comments. [Con-5983] Santos followed-up via email the same day, advising that any comments should be provided by 29 November 2024 [Con-5984]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from WAGFA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from WAGFA.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. Therefore, with regard to the location of the proposed GEP operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any WA-based persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any WA-based persons. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Northern Territory Guided Fishing Industry Association (NTGFIA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed NTGFIA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed NTGFIA advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 4 April 2024 Santos phoned NTGFIA regarding consultation for Production Operations activities and left a detailed message with an office-holder. The office-holder was also a representative of a charter fishing operator (also see separate entry in this Table for Reel Screamin' Barra Fishing)
- On 6 May 2024 Santos emailed NTGFIA, further to the previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from NTGFIA. [Con-4312].
- On 10 July 2024 Santos emailed NTGFIA to advise the consultation period had been completed. Santos advised NTGFIA that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from NTGFIA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from NTGFIA.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Assosiasaun Turizmu Maritima iha Timor-Leste

Summary of consultation effort:

- On 9 February 2024 Santos emailed Assosiasaun Turizmu Maritima iha Timor-Leste to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 13 March 2024, Santos emailed Assosiasaun Turizmu Maritima iha Timor-Leste advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP and asks for consideration as to whether their organisation considers itself a Relevant Person. It attaches previous correspondence and advised that the consultation is open until Tuesday 9 April 2024. [Con-3794]
- On 4 April 2024 Santos phoned Assosiasaun Turizmu Maritima iha Timor-Leste regarding consultation for Production Operations activities but was unable to leave a voice message.
- On 2 May 2024, Santos emailed Assosiasaun Turizmu Maritima iha Timor-Leste, further to the previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Assosiasaun Turizmu Maritima iha Timor-Leste. [Con-4352]
- On 10 July 2024 Santos emailed Assosiasaun Turizmu Maritima iha Timor-Leste to advise the consultation period had been completed. Santos advised Assosiasaun Turizmu Maritima iha Timor-Leste that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]

• On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Assosiasaun Turizmu Maritima iha Timor-Leste			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP reference**
No response was received from Assosiasaun Turizmu Maritima iha Timor-Leste.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. There are therefore no impacts from planned GEP operations activities in NT Coastal Waters that may affect the functions, interests or activities of any international persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any international persons. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Kimberley Marine Tourism Association (KMTA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed KMTA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed KMTA advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 4 April 2024 Santos phoned KMTA regarding consultation for Production Operations activities and left a detailed voice mail message.
- On 2 May 2024, Santos emailed KMTA, further to the previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from KMTA. [Con-4355]
- On 10 July 2024 Santos emailed KMTA to advise the consultation period had been completed. Santos advised KMTA that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from KMTA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from KMTA.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. There are therefore no impacts from planned GEP operations activities in NT Coastal Waters that may affect the functions, interests or activities of any relevant persons with functions, interests or activities in WA waters. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any relevant persons with functions, interests or activities in WA waters. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Marine Tourism WA (MTWA)

Summary of consultation effort:

- On 9 February 2024 Santos emailed MTWA to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed MTWA advising that it is now consulting on the Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 4 April 2024 Santos phoned MTWA regarding consultation for Production Operations activities which advised that Recfishwest and the WA Department of Fisheries should be contacted instead of MTWA.
- On 6 May 2024, Santos emailed MTWA, further to the previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from MTWA. [Con-4316]
- On 10 July 2024 Santos emailed MTWA to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from MTWA.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from MTWA.	Santos considers it has provided sufficient information and a reasonable period of time for consultation.	No response required.	Not applicable.

	The EMBA for the Coastal Waters OEMP does not extend beyond Commonwealth Waters off the Northern Territory. There are therefore no impacts from planned GEP operations activities in NT Coastal Waters that may affect the functions, interests or activities of any relevant persons with functions, interests or activities in WA waters. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any relevant persons with functions, interests or activities in WA waters. Santos considers Section 25 consultation requirements to have been met.		

Tourism Top End

Summary of consultation effort:

- On 9 February 2024 Santos emailed Tourism Top End to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed Santos emailed KMTA, further to the previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from KMTA. advising that it is now consulting on Barossa Production Operations Environment Plan in Commonwealth and Northern Territory waters until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 4 April 2024 Santos phoned Tourism Top End regarding consultation for Production Operations activities which stated it would call Santos back.
- On 6 May 2024, Santos emailed Tourism Top End, further to the previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Tourism Top End. [Con-4310]
- On 10 July 2024 Santos emailed Tourism Top End to advise the consultation period had been completed. Santos advised Tourism Top End that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Tourism Top End.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Tourism Top End.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Chamber of Commerce Northern Territory (CCNT)

Summary of consultation effort:

- On 9 February 2024 Santos emailed CCNT to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed CCNT advising that it is now consulting on Coastal Waters OEMP and Barossa Production Operations EP until Tuesday 9 April 2024 and attached previous correspondence. [Con-3793]
- On 4 April 2024 Santos phoned CCNT regarding consultation for Production Operations activities and left a detailed voice message.
- On 2 May 2024, Santos emailed CCNT, further to the previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from CCNT. [Con-4354]
- On 10 July 2024 Santos emailed CCNT to advise the consultation period had been completed. Santos advised CCNT that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from CCNT.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from CCNT.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

4.8.10 Infrastructure Operators

Table 4-20: Consultation Summary Table – Infrastructure Operators

Section 25(1)(d) of the OPGGS(E)R: Persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the environment plan			
BW Digital			
Summary of consultation effort: • On 9 February 2024 Santos emailed BW Digital to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 11 March 2024 Santos emailed BW Digital further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793] • On 4 April 2024 Santos phoned BW digital regarding consultation for Production Operations activities and left a voice mail message. • On 2 May 2024, Santos emailed BW Digital, to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from BW Digital. [Con-4346] • On 10 July 2024 Santos emailed BW Digital to advise the consultation period had been completed. Santos advised BW Digital that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130] • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from BW Digital.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP reference**
No response was received from BW Digital.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.
Darwin Port			
Summary of consultation effort: • On 9 February 2024 Santos emailed Darwin Port to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 11 March 2024 Santos emailed Darwin Port further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793] • On 4 April 2024 Santos phoned Darwin Port and left a message with a team member regarding consultation for Production Operations activities • On 6 May 2024, Santos emailed Darwin Port to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Darwin Port. [Con-4348] • On 10 July 2024 Santos emailed Darwin Port to advise the consultation period had been completed. Santos advised Darwin Port that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]. • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Darwin Port.			

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Darwin Port.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

NT Ports and Marine

Summary of consultation effort:

- On 9 February 2024 Santos emailed NT Ports and Marine to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if* any*) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed NT Ports and Marine further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned NT Ports and Marine and left a voice mail message for message regarding consultation for Production Operations activities.
- On 4 April 2024 NT Ports and Marine emailed Santos and stated that it had no feedback for this consultation process. [Con-3537]
- On 6 May 2024, Santos emailed NT Ports and Marine further to their email of 4 April 2024 to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from NT Ports and Marine. [Con-4381]
- On 10 July 2024 Santos emailed NT Ports and Marine to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received on the Coastal Waters OEMP from NT Ports and Marine.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
NT Ports and Marine responded that it had no feedback for this consultation process.	Santos notes the response from NT Ports and Marine. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

NT Power and Water Corporation

Summary of consultation effort:

- On 9 February 2024 Santos emailed NT Power and Water Corporation to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed NT Power and Water Corporation further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned NT Power and Water and spoke to a team member regarding consultation for Production Operations activities. The team member advised that NT Power and Water advised that it would not be contributing to the consultation.
- On 6 May 2024, Santos emailed NT Power and Water further to the previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the NT Power and Water. [Con-4379]
- On 10 July 2024 Santos emailed NT Power and Water to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5086]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback on the Coastal Waters OEMP was received from NT Power and Water Corporation.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
NT Power and Water Corporation responded that it would not be participating in the consultation process.	Santos notes the response by NT Power and Water Corporation. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Sun Cable

Summary of consultation effort:

- On 9 February 2024 Santos emailed Sun Cable to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Sun Cable further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 8 May 2024, Santos emailed Sun Cable further to emails sent previously and to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Sun Cable [Con-3996]
- On 23 May 2024, Sun Cable emailed Santos advising that it would like to be consulted on the EP and referred to previous information provided. They also advised they preferred any consultation feedback to remain confidential. [Con-4218]
- On 10 July 2024 Santos emailed Sun Cable to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 5 December 2024 Santos emailed Sun Cable to request a further confirmation that Sun Cable had no comments or input on the Coastal Waters OEMP. Sun Cable responded with confirmation via email the same day. [Con-6011]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP. from Sun Cable.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Sun Cable requested their response be kept confidential.	Information provided was outside the scope of the Coastal Waters OEMP. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Telstra

Summary of consultation effort:

- On 9 February 2024 Santos emailed Telstra to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Telstra further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Telstra regarding consultation for Production Operations activities and spoke to a team member who confirmed it had received the emails.
- On 6 May 2024, Santos emailed Telstra, to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Telstra. [Con-4349].
- On 10 July 2024 Santos emailed Telstra to advise the consultation period had been completed. Santos advised Telstra that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP. from Telstra.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Telstra.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Vocus

Summary of consultation effort:

- On 9 February 2024 Santos emailed Vocus to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Vocus further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Vocus and spoke to a team member regarding Production Operations activities which advised it would check with the relevant Vocus personnel.
- On 4 April 2024 Vocus emailed Santos and advised that the EMBA does cover over the top of the NWCS and if there was to be an incident, Vocus would need to be informed and understand the cleanup process, wanting to ensure there is no disturbance to the sea floor where the cable is located. Vocus noted Santos' documentation already mentioned the NWCS and a crossing Letter of No Objection (LONO) was already in place for the Barossa GEP. Other than receiving the relevant crossing documentation and As Built information upon completion, Vocus stated it had no further concerns about the Barossa Operations. [Con-4315]
- On 8 May 2024, Santos emailed Vocus, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Vocus. [Con-4351]
- On 10 July 2024 Santos emailed Vocus to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 6 December 2024 Santos advised Vocus via email that its request to be informed in the event of a spill, if clean-up activities may impact its infrastructure, had been included in Santos' formal notification process. [Con-6014]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback on the Coastal Waters OEMP was received from Vocus.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Vocus responded that it wished to be informed in the event of a spill if clean-up activities may impact Vocus' infrastructure.	Santos has considered the matters raised in the OEMP and provided a response. Santos has included Vocus in its formal spill notification process.	Santos advised Vocus that its request had been included in Santos' formal notification process.	Notifications are included in Section 8.4.7

4.8.11 Local Government Authorities and Recognised Community Reference / Liaison Groups

Table 4-21: Consultation Summary Table – Local Government Authorities and Recognised Community Reference / Liaison Groups

Section 25(1)(d) of the OPGGS(E)R: Persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the environment plan			
Belyuen Community Government Council			
Summary of consultation effort: • On 9 February 2024 Santos emailed the Belyuen Community Government Council to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 11 March 2024 Santos emailed the Belyuen Community Government Council further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793] • On 4 April 2024 Santos phoned the Belyuen Community Government Council and left a voice mail message regarding consultation for Production Operations activities. • On 2 May 2024, Santos emailed the Belyuen Community Government Council further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Belyuen Community Government Council. [Con-4985] • On 10 July 2024 Santos emailed Belyuen Community Government Council to advise the consultation period had been completed. Santos advised Belyuen Community Government Council that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130] • On 11 July 2024 Belyuen Community Government Council emailed Santos advising it had not had a great deal of input with the project and requested Santos be available at some stage to provide a summary of the project relating to the people of the Belyuen region. [Con-5115] • On 23 July 2024 Santos had a phone discussion with a representative of the Council's Executive during which the representative stated they wanted to ensure the Council was involved in discussions on potential community benefits and employment and training opportunities associated with Santos' activities going forward. The representative did not have any specific questions about the OEMP and EP. [Con-5236] • On 24 July 2024 Santos emailed Belyuen Community Government Council in follow-up to the phone discussion on 23 July 2024 [Con-5214] Santos is progressing discussions with the Council separate to consultation on the Coastal Waters OEMP. • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • No further correspondence has been received from the EP from Belyuen Community Government Council. • Additional to formal consultation on the Coastal Waters OEMP and Barossa Production Operations EP, Santos has continued to make a range of efforts to engage on an ongoing basis with NT First Nations People, both directly and through their representative organisations. See Section 8.4.9 Post-acceptance Consultation Implementation Strategy.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP reference**
Belyuen Community Government Council stated it wants to be involved in discussions on potential community benefits and employment and training opportunities associated with Santos' activities going forward.	The matters raised are outside the scope of the Coastal Waters OEMP. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	Santos has committed to ongoing discussions with the Council on matters that are separate to consultation on the Coastal Waters OEMP.	Not applicable.
City of Darwin			
Summary of consultation effort: • On 9 February 2024 Santos emailed City of Darwin to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787] • The email advised that Santos was seeking information to better understand: o *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and* o *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.* • The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024. • On 11 March 2024 Santos emailed City of Darwin further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793] • On 3 April 2024 Santos phoned City of Darwin regarding consultation for Community Government Council EP activities and spoke to a team member and was asked to resend the previous emails. Santos sent City of Darwin copies of emails sent on 9 February and 11 March 2024 on the same day. [Con-4149] • On 5 April 2024 City of Darwin emailed Santos and advised it has no feedback on the OEMP and EP. [Con-4986]			

- On 7 May 2024, Santos emailed City of Darwin further to previous correspondence to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the City of Darwin [Con-4159]
- On 10 July 2024 Santos emailed City of Darwin to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence has been received from the City of Darwin.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
City of Darwin responded that it had no feedback on the GEP Coastal Waters OEMP.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

East Arnhem Regional Council

Summary of consultation effort:

- On 9 February 2024 Santos emailed East Arnhem Regional Council to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed East Arnhem Regional Council further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned East Arnhem Regional Council and left a voice mail message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed East Arnhem Regional Council further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the East Arnhem Regional Council. [Con-4152]
- On 10 July 2024 Santos emailed East Arnhem Regional Council to advise the consultation period had been completed. Santos advised East Arnhem Regional Council that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from East Arnhem Regional Council.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from East Arnhem Regional Council.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Litchfield Council

Summary of consultation effort:

- On 9 February 2024 Santos emailed Litchfield Council to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Litchfield Council further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Litchfield Council regarding consultation for Production Operations activities and spoke to a team member who confirmed previously sent emails had been received.
- On 6 May 2024, Santos emailed Litchfield Council further to previous correspondence to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Litchfield Council. [Con-4987]
- On 10 July 2024 Santos emailed Litchfield Council to advise the consultation period had been completed. Santos advised Litchfield Council that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Litchfield Council.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Litchfield Council.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

City of Palmerston

Summary of consultation effort:

- On 9 February 2024 Santos emailed the City of Palmerston to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed the City of Palmerston further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned the City of Palmerston regarding consultation for Production Operations activities and spoke with a team member who asked for the previously sent emails to be resent.
- On 5 April 2024 Santos emailed City of Palmerston copies of emails originally sent on 9 February and 11 March 2024. [Con-4150]
- On 8 April 2024, City of Palmerston emailed Santos and advised they had no feedback on the OEMP and EP [Con-4151]
- On 7 May 2024, Santos emailed the City of Palmerston further to previous correspondence to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from the City of Palmerston. [Con-4158]
- On 10 July 2024 Santos emailed City of Palmerston to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence has been received from the City of Palmerston.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
City of Palmerston responded that it had no feedback on the Production Operations EP.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Roper Gulf Regional Council

Summary of consultation effort:

- On 9 February 2024 Santos emailed Roper Gulf Regional Council to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Roper Gulf Regional Council further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Roper Gulf Regional Council and spoke to a team member regarding consultation for Production Operations activities.
- On 8 May 2024, Santos emailed Roper Gulf Regional Council further to previous correspondence to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Roper Gulf Regional Council. [Con-4223]
- On 10 July 2024 Santos emailed Roper Gulf Regional Council to advise the consultation period had been completed. Santos advised Roper Gulf Regional Council that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Roper Gulf Regional Council.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Roper Gulf Regional Council.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Tiwi Islands Regional Council

Summary of consultation effort:

- On 9 February 2024 Santos emailed Tiwi Islands Regional Council to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
    - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
    - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Tiwi Islands Regional Council further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Tiwi Islands Regional Council and left a voice mail message regarding consultation for Barossa production operations activities.
- On 2 May 2024, Santos emailed Tiwi Islands Regional Council further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Tiwi Islands Regional Council. [Con-4155]
- On 10 July 2024 Santos emailed Tiwi Islands Regional Council to advise the consultation period had been completed. Santos advised Tiwi Islands Regional Council that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Tiwi Islands Regional Council.
- Additional to formal consultation on the Production Operations EP and OEMP, Santos has continued to make a range of efforts to engage on an ongoing basis with NT First Nations People, both directly and through their representative organisations. See Section 8.4.9 Post-acceptance Consultation Implementation Strategy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Tiwi Islands Regional Council.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Consultation with Tiwi people was undertaken by Santos directly with Tiwi people and clan groups and organised via Clan Trustees who are also members of the TLC and Tiwi Regional Council. Santos considers Section 25 consultation requirements to have been met.	No response required.	Santos' consultation with Tiwi people and clan groups is described in Section 4.7.6.1 and summarised in other entries in this Table for Tiwi Land Council and Tiwi people and clan groups.

Victoria Daly Regional Council

Summary of consultation effort:

- On 9 February 2024 Santos emailed Victoria Daly Regional Council to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Victoria Daly Regional Council further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Victoria Daly Regional Council and left a voice mail message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed Victoria Daly Regional Council further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Victoria Daly Regional Council. [Con-4153]
- On 10 July 2024 Santos emailed Victoria Daly Regional Council to advise the consultation period had been completed. Santos advised Victoria Daly Regional Council that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Victoria Daly Regional Council.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Victoria Daly Regional Council.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Wagait Shire Council

Summary of consultation effort:

- On 9 February 2024 Santos emailed Wagait Shire Council to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Wagait Shire Council further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Wagait Shire Council regarding consultation for Production Operations activities and spoke to a team member who asked for previously sent emails to be resent. Santos re-sent the emails the same day. [Con-4147]
- On 7 May 2024, Santos emailed Wagait Shire Council further to previous correspondence to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Wagait Shire Council. [Con-4221]
- On 7 May 2024 Wagait Shire Council emailed Santos and advised it would forward the email received to Councillors. [Con-4222]
- On 10 July 2024 Santos emailed Wagait Shire Council to advise the consultation period had been completed. Santos advised Wagait Shire Council that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Wagait Shire Council.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Wagait Shire Council.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

West Arnhem Regional Council

Summary of consultation effort:

- On 9 February 2024 Santos emailed West Arnhem Regional Council to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed West Arnhem Regional Council further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned West Arnhem Regional Council regarding consultation for Production Operations activities and spoke to a team member who asked for previously sent emails to be resent. Santos re-sent the emails the same day. [Con-4148]
- On 7 May 2024, Santos emailed West Arnhem Regional Council further to previous correspondence to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from West Arnhem Regional Council. [Con-4224]
- On 10 July 2024 Santos emailed West Arnhem Regional Council to advise the consultation period had been completed. Santos advised West Arnhem Regional Council that it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from West Arnhem Regional Council.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from West Arnhem Regional Council.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

West Daly Regional Council

Summary of consultation effort:

- On 9 February 2024 Santos emailed West Daly Regional Council to advise it of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed West Daly Regional Council further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned West Daly Regional Council and left a voice mail message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed West Daly Regional Council further to previous correspondence to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from West Daly Regional Council. [Con-4154]
- On 10 July 2024 Santos emailed West Daly Regional Council to advise the consultation period had been completed. Santos advised West Daly Regional Council that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from West Daly Regional Council.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from West Daly Regional Council.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

4.8.12 Tourism Operators

Table 4-22: Consultation Summary Table – Tourism Operators

Section 25(1)(d) of the OPGGS(E)R: Persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the environment plan			
Alure Fishing Charters			

Summary of consultation effort:
• On 9 February 2024 Santos emailed Alure Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
• The email advised that Santos was seeking information to better understand:
  ○ *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  ○ *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
• The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
• On 11 March 2024 Santos emailed NT tourism operators further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
• On 3 April 2024 Santos phoned Alure Fishing Charters and left a voice mail message.
• On 2 May 2024, Santos emailed Alure Fishing Charters further to the previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Alure Fishing Charters. [Con-4282]
• On 10 July 2024 Santos emailed Alure Fishing Charters to advise the consultation period had been completed. Santos advised Alure Fishing Charters that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
• On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
• On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
• Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Alure Fishing Charters.			

Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP reference**
No response was received from Alure Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Anglers Advantage Fishing Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Anglers Advantage Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Anglers Advantage Fishing Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Angler's Advantage Fishing Charters and left a voice mail message.
- On 2 May 2024, Santos emailed Angler's Advantage Fishing Charters to advise it had phoned to follow up on previous emails sent and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Angler's Advantage Fishing Charters. [Con-4283]
- On 10 July 2024 Santos emailed Angler's Advantage Fishing Charters to advise the consultation period had been completed. Santos advised Angler's Advantage Fishing Charters that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Anglers Advantage Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Anglers Advantage Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Angler's Choice Fishing Safaris

Summary of consultation effort:

- On 9 February 2024 Santos emailed Angler's Choice Fishing Safaris to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Angler's Choice Fishing Safaris further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Angler's Choice Fishing Safaris and left a voice mail message.
- On 2 May 2024, Santos emailed Angler's Choice Fishing Safaris to advise it had phoned to follow up on previous emails sent and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Angler's Choice Fishing Safaris. [Con-4284]
- On 10 July 2024 Santos emailed Angler's Choice Fishing Safaris to advise the consultation period had been completed. Santos advised Angler's Choice Fishing Safaris that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Anglers Choice Fishing Safaris.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Anglers Choice Fishing Safaris.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Arafura Bluewater Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Arafura Bluewater Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Arafura Bluewater Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Arafura Bluewater Charters, spoke to a company representative and reminded them of the deadline for comments on the EP and OEMP.
- On 6 May 2024, Santos emailed Arafura Bluewater Charters, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Arafura Charters. [Con-4311]
- On 10 July 2024 Santos emailed Arafura Bluewater Charters to advise the consultation period had been completed. Santos advised Arafura Bluewater Charters that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Arafura Bluewater Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Arafura Bluewater Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Arnhem Land Safaris

Summary of consultation effort:

- On 10 June 2024 Santos emailed Arnhem Land Safaris regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP and was seeking to consult with Relevant Persons. Santos asked Arnhem Land Safaris to advise Santos by 17 June 2024 if it considered it may be a Relevant Person and what functions, interests or activities it has that may be affected by the Production Operations activities. [Con-4975]
- The email included links to the Barossa Production Operations Activity Booklet and NOPSEMA's EP consultation information for the community. Santos advised if it did not hear from Arnhem Land Safaris by 17 June 2024, it would assume that it did not have functions, interests or activities that may be affected by the activities, or didn't wish to be consulted for the OEMP and EP.
- On 10 July 2024 Santos emailed Arnhem Land Safaris to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Arnhem Land Safaris.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Arnhem Land Safaris.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos notes that in June 2024, in response to consultation via email and phone on the Darwin Pipeline Duplication EP (Cwth) and DPD Offshore CEMP, Arnhem Land Safaris advised that it did not consider that the activities were relevant to its operations, as it operated on land and inland waters 300km east of Darwin. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Barra Fishing Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Barra Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*

- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Barra Fishing Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Barra Fishing Charters and left a voice mail message.
- On 2 May 2024, Santos emailed Barra Fishing Charters to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Barra Fishing Charters. [Con-4285]
- On 10 July 2024 Santos emailed Barra Fishing Charters to advise the consultation period had been completed. Santos advised Barra Fishing Charters that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Barra Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Barra Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Bayview Marina

Summary of consultation effort:

- On 9 February 2024 Santos emailed NT tourism operators to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed NT tourism operators further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned Bayview Marina regarding Production Operations activities which advised it had no feedback and did not believe they would be impacted.
- On 6 May 2024 Santos emailed Bayview Marina, and to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Bayview Marina. [Con-4317]
- On 10 July 2024 Santos emailed Bayview Marina to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Bayview Marina.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Bayview Marina.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Buffalo Boat Hire

Summary of consultation effort:

- On 10 June 2024 Santos emailed Buffalo Boat Hire regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP and was seeking to consult with relevant persons. Santos asked Buffalo Boat Hire to advise Santos by 17 June 2024 if it considered it may be a Relevant Person and what functions, interests or activities it has that may be affected by the production operations activities. [Con-4976]
- The email included links to the Barossa Production Operations Activity Booklet and NOPSEMA's EP consultation information for the community. Santos advised if it did not hear from Buffalo Boat Hire by 17 June 2024, it would assume that it did not have functions, interests or activities that may be affected by the activities, or didn't wish to be consulted for the OEMP and EP.
- On 10 July 2024 Santos emailed Buffalo Boat Hire to advise the consultation period had been completed. Santos advised Buffalo Boat Hire that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]

- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Buffalo Boat Hire.
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Buffalo Boat Hire.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Buffalo Boat Hire.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos notes that in June 2024, in response to consultation by email and phone on the Darwin Pipeline Duplication EP (Cwth) and DPD Offshore CEMP, Buffalo Boat Hire advised that it did not conduct tours that far from Darwin and had provided no comments. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Clearwater Island Lodge

Summary of consultation effort:

- On 9 February 2024 Santos emailed NT tourism operators to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed NT tourism operators further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 3 April 2024 Santos phoned and left a voice mail message.
- On 2 May 2024, Santos emailed Clearwater Island Lodge to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Clearwater Island Lodge. [Con-4286]
- On 10 July 2024 Santos emailed Clearwater Island Lodge to advise the consultation period had been completed. Santos advised Clearwater Island Lodge that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Clearwater Island Lodge.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	• OEMP reference
No response was received from Clearwater Island Lodge.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Cobourg Fishing Safaris/Venture North

Summary of consultation effort:

- On 10 June 2024 Santos emailed Cobourg Fishing Safaris regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP and was seeking to consult with Relevant Persons. Santos asked Cobourg Fishing Safaris to advise Santos by 17 June 2024 if it considered it may be a Relevant Person and what functions, interests or activities it has that may be affected by the production operations activities. [Con-4977]
- The email included links to the Barossa Production Operations Activity Booklet and NOPSEMA's EP consultation information for the community. Santos advised if it did not hear from Cobourg Fishing Safaris by 17 June 2024, it would assume that it did not have functions, interests or activities that may be affected by the activities, or didn't wish to be consulted for the OEMP and EP.
- On 2 July 2024 Santos phoned Cobourg Fishing Safaris and left a message with office staff who advised the owner would call back if they had any comments.
- On 10 July 2024 Santos emailed Cobourg Fishing Safaris to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP. from Cobourg Fishing Safaris.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Cobourg Fishing Safaris.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos notes that in June 2024, in response to consultation via email and phone on the Darwin Pipeline Duplication EP (Cwth) and DPD Offshore CEMP, Cobourg Fishing Safaris/Venture North had provided no comments. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Crab Claw Island Resort

Summary of consultation effort:

- On 9 February 2024 Santos emailed NT tourism operators to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed NT tourism operators further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Crab Claw Island Resort and spoke to a company representative who asked Santos to call back the following day.
- On 5 April 2024 Santos phoned Crab Claw Island Resort and left a voice mail message.
- On 2 May 2024, Santos emailed Crab Claw Island Resort further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Crab Claw Island Resort. [Con-4301]
- On 10 July 2024 Santos emailed Crab Claw Resort to advise the consultation period had been completed. Santos advised Crab Claw Resort that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Crab Claw Island Resort.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Crab Claw Island Resort.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Cullen Bay Fishing Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Cullen Bay Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]

- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Cullen Bay Fishing Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Cullen Bay Fishing Charters and was unable to leave a message.
- On 2 May 2024, Santos emailed Cullen Bay Fishing Charters further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Cullen Bay Fishing Charters. [Con-4278]
- On 10 July 2024 Santos emailed Cullen Bay Fishing Charters to advise the consultation period had been completed. Santos advised Cullen Bay Fishing Charters that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Cullen Bay Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Cullen Bay Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Cullen Bay Marina			

Summary of consultation effort:
• On 9 February 2024 Santos emailed Cullen Bay Marina to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
• The email advised that Santos was seeking information to better understand:
  ○ *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  ○ *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
• The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
• On 11 March 2024 Santos emailed Cullen Bay Marina further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
• On 4 April 2024 Santos phoned Cullen Bay Marina and left a voice mail message.
• On 2 May 2024, Santos emailed Cullen Bay Marina further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Cullen Bay Marina. [Con-4287]
• On 10 July 2024 Santos emailed Cullen Bay Marina to advise the consultation period had been completed. Santos advised Cullen Bay Marina that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
• On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
• On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
• Notwithstanding the consultation information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Cullen Bay Marina.			

Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP reference**
No response was received from Cullen Bay Marina.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Darwin Bara Fishing Tours

Summary of consultation effort:

- On 9 February 2024 Santos emailed Darwin Barra Fishing Tours to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Darwin Barra Fishing Tours further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Darwin Barra Fishing Tours and spoke to a company representative who confirmed that emails sent on 9 February and 11 March had been received and that Darwin Bara Fishing Tours did not have any feedback.
- On 6 May 2024, Santos emailed Darwin Barra Fishing Tours further to previous correspondence, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Darwin Barra Fishing Tours. [Con-4309].
- On 10 July 2024 Santos emailed Darwin Bara Fishing Tours to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Darwin Barra Fishing Tours.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
Darwin Bara Fishing Tours responded that it had no feedback on the Production Operations EP.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Darwin Dive Academy

Summary of consultation effort:

- On 9 February 2024 Santos emailed Darwin Dive Academy to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Darwin Dive Academy further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Darwin Dive Academy but was unable to leave a message.
- On 2 May 2024, Santos emailed Darwin Dive Academy to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Darwin Dive Academy. [Con-4279]
- On 10 July 2024 Santos emailed Darwin Dive Academy to advise the consultation period had been completed. Santos advised Darwin Dive Academy that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Darwin Dive Academy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Darwin Dive Academy.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Darwin Fish Seeker Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Darwin Fish Seeker Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]

- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Darwin Fish Seeker Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 20243. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 and 5 April 2024 Santos phoned Darwin Fish Seeker Charters and spoke to a company representative who advised that Darwin Fish Seeker Charters did not have any feedback.
- On 8 May 2024, Santos emailed Darwin Fish Seeker Charters to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Darwin Fish Seeker Charters. [Con-4323]
- On 10 July 2024 Santos emailed Darwin Fish Seeker Charters to advise the consultation period had been completed. Santos advised Darwin Fish Seeker Charters that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Darwin Fish Seeker Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Darwin Fish Seeker Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Darwin Harbour Cruises

Summary of consultation effort:

- On 9 February 2024 Santos emailed Darwin Harbour Cruises to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Darwin Harbour Cruises further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Darwin Harbour Cruises and left a message with a team member.
- On 6 May 2024, Santos emailed Darwin Harbour Cruises to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Darwin Harbour Cruises. [Con-4308]
- On 10 July 2024 Santos emailed Darwin Harbour Cruises to advise the consultation period had been completed. Santos advised Darwin Harbour Cruises that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Darwin Harbour Cruises.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Darwin Harbour Cruises.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Darwin Harbour Fishing Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Darwin Harbour Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed NT tourism operators further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Darwin Harbour Fishing Charters regarding consultation for Production Operations activities and spoke to a team member who requested emails sent 9 February and 11 March 2024 be resent. These were re-sent by Santos the same day. [Con-4274]
- On 7 May 2024, Santos emailed Darwin Harbour Fishing Charters to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Darwin Harbour Fishing Charters. [Con-4320]
- On 10 July 2024 Santos emailed Darwin Harbour Fishing Charters to advise the consultation period had been completed. Santos advised Darwin Harbour Fishing Charters for its input and advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Darwin Harbour Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Darwin Harbour Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Darwin Red Devil Fishing Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Darwin Red Devil Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Darwin Red Devil Fishing Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Darwin Red Devil Fishing Charters and left a voice mail message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed Darwin Red Devil Fishing Charters to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Darwin Red Devil Fishing Charters. [Con-4288]
- On 10 July 2024 Santos emailed Darwin Red Devil Fishing Charters to advise the consultation period had been completed. Santos advised Darwin Red Devil Fishing Charters that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Darwin Red Devil Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Darwin Red Devils Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Darwin Sailing Club

Summary of consultation effort:

- On 9 February 2024 Santos emailed Darwin Sailing Club to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Darwin Sailing Club further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Darwin Sailing Club and was unable to leave a message.
- On 2 May 2024, Santos emailed Darwin Sailing Club to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Darwin Sailing Club. [Con-4280]
- On 10 July 2024 Santos emailed Darwin Sailing Club to advise the consultation period had been completed. Santos advised Darwin Sailing Club that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Darwin Sailing Club.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Darwin Sailing Club.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Darwin Trailer Boat Club

Summary of consultation effort:

- On 9 February 2024 Santos emailed Darwin Trailer Boat Club to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Darwin Trailer Boat Club further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Darwin Trailer Boat Club and spoke to a team member who confirmed emails sent on 9 February and 11 March had been received.
- On 6 May 2024, Santos emailed Darwin Trailer Boat Club to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Darwin Trailer Boat Club. [Con-4306]
- On 10 July 2024 Santos emailed Darwin Trailer Boat Club to advise the consultation period had been completed. Santos advised Darwin Trailer Boat Club that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Darwin Trailer Boat Club.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Darwin Trailer Boat Club.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Dinah Beach Cruising Yacht Club

Summary of consultation effort:

- On 9 February 2024 Santos emailed Dinah Beach Cruising Yacht Club to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Dinah Beach Cruising Yacht Club further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Dinah Beach Cruising Yacht Club and left a voice mail message regarding consultation for Production Operations activities.
- On 2 May 2024, Santos emailed Dinah Beach Cruising Yacht Club to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Dinah Beach Cruising Yacht Club. [Con-4289]
- On 2 May 2024, Dinah Beach Cruising Yacht Association emailed Santos and advised it had circulated information received from Santos to its committee and asked interested parties to respond. [Con-4302]
- On 10 July 2024 Santos emailed Dinah Beach Cruising Yacht Association to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Dinah Beach Cruising Yacht Association.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Dinah Beach Cruising Yacht Association.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Dreamers Dive Academy Timor

Summary of consultation effort:

- On 9 February 2024 Santos emailed Dreamers Dive Academy Timor to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Dreamers Dive Academy Timor further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Dreamers Dive Academy Timor and was unable to leave a message.
- On 2 May 2024, Santos emailed Dreamers Dive Academy further to previous correspondence, to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Dreamers Dive Academy. [Con-4281]
- On 10 July 2024 Santos emailed Dreamers Dive Academy Timor to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Dreamers Dive Academy.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Dreamers Dive Academy Timor.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Dundee Beach Fishing Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Dundee Beach Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Dundee Beach Fishing Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Dundee Beach Fishing Charters and spoke to a team member who confirmed emails sent on 9 February and 11 March had been received.
- On 6 May 2024, Santos emailed Dundee Beach Fishing Charters further to previous correspondence, to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Dundee Beach Fishing Charters. [Con-4305]
- On 10 July 2024 Santos emailed Dundee Beach Fishing Charters to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Dundee Beach Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP reference
No response was received from Dundee Beach Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Equinox Fishing Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Equinox Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Equinox Fishing Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Equinox Fishing Charters and spoke with a company representative regarding consultation for Production Operations activities who provided feedback during the call. The feedback is summarised below.
- On 3 May 2024, Santos emailed Equinox Fishing Charters to summarise feedback received and to advise it had extended the consultation period until 17 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Equinox Fishing Charters. [Con-4303]
- On 10 July 2024 Santos emailed Equinox Fishing Charters to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Equinox Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
Equinox Fishing Charters were concerned about activity and development across different industries, having a potential impact on fishing.	Santos has considered the matters raised in the OEMP. Santos acknowledges that the response raises a general concern on the potential for cumulative impacts of industry in the region to fishing. Santos has no control over other non-Santos developments and industry in the region but does consider the potential for impacts with	No response required	An assessment of tourism operators within the operational areas and EMBA is provided in Section 3.2.14.6. Santos' impact and risk assessment, inclusive of impacts and risks to fish and tourism operators, , is provided in Section 6 and 7

	other marine users within its impact and risk assessment (Section 6 & 7) and considers impacts to fish and tourism operators. No planned concurrent activities will occur in the OEMP and the vessel Activity is based on IMMR vessel presence occurring once every three to five years for approximately 7 – 30 days.		

Estuary Escapes Fishing Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Estuary Escapes Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Estuary Escapes Fishing Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Estuary Escapes Fishing Charters regarding consultation for Production Operations activities and spoke to a company representative who indicated they wanted to provide feedback and asked for an extension of time to do so.
- On 8 May 2024, Santos emailed Estuary Escapes Fishing Charters further to previous correspondence, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Estuary Escapes Fishing Charters. [Con-4324]
- On 10 July 2024 Santos emailed Estuary Escapes Fishing Charters to advise the consultation period had been completed. Santos advised Estuary Escapes Fishing Charters that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Estuary Escapes Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Estuary Escape Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Fish the Top End Fishing Charters (incorporating Obsession Fishing Safaris and Vision Sport Fishing Adventures)

Summary of consultation effort:

- On 9 February 2024 Santos emailed Fish the Top End Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Fish the Top End Fishing Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Fish the Top End Fishing Charters and spoke to a company representative regarding consultation for Production Operations activities who advised that they received the emails and did not have feedback as there would be no impacts from Barossa Production Operations EP activities. They also indicated they also manage Obsession Fishing Safaris and Vision Sport Fishing Adventures.
- On 6 May 2024, Santos emailed Vision Sportfishing Adventures, Obsession Fishing Safaris and Fish the Top End Fishing Charters, to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Vision Sportfishing Adventures, Obsession Fishing Safaris and Fish the Top End Fishing Charters. [Con-4307]
- On 10 July 2024 Santos emailed Vision Sportfishing Adventures, Obsession Fishing Safaris and Fish the Top End Fishing Charters to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Fish the Top End Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
Top End Fishing Charters responded that it did not have feedback as there would be no impacts from OEMP activities on its functions, interests or activities.	Santos notes the response provided by Top End Fishing.. Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

FNA Sports Fishing

Summary of consultation effort:

- On 9 February 2024 Santos emailed FNA Sports Fishing to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed FNA Sports Fishing further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned FNA Sports Fishing and left a voice mail message.
- On 2 May 2024, Santos emailed FNA Sports Fishing to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from FNA Sports Fishing [Con-4290]
- On 10 July 2024 Santos emailed FNA Sports Fishing to advise the consultation period had been completed. Santos advised FNA Sports Fishing that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from FNA Sports Fishing.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from FNA Sports Fishing.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Humbug Fishing

Summary of consultation effort:

- On 9 February 2024 Santos emailed Humbug Fishing to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Humbug Fishing further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Humbug Fishing and left a voice mail message.
- On 2 May 2024, Santos emailed Humbug Fishing to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Humbug Fishing. [Con-4291]
- On 10 July 2024 Santos emailed Humbug Fishing to advise the consultation period had been completed. Santos advised Humbug Fishing that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference

No response was received from Humbug Fishing.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Mousies Barra Fishing Charters

Summary of consultation effort:

- On 10 June 2024 Santos emailed Mousies Barra Fishing Charters regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP and was seeking to consult with Relevant Persons. Santos asked Mousies Barra Fishing Charters to advise Santos by 17 June 2024 if it considered it may be a Relevant Person and what functions, interests or activities it has that may be affected by the production operations activities. [Con-4978]
- The email included links to the Barossa Production Operations Activity Booklet and NOPSEMA's EP consultation information for the community. Santos advised if it did not hear from Mousies Barra Fishing Charters by 17 June 2024, it would assume that it did not have functions, interests or activities that may be affected by the activities, or didn't wish to be consulted for the OEMP and EP.
- On 10 July 2024 Santos emailed Mousies Barra Fishing Charters to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Mousies Barra Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Mousies Barra Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos notes that in June 2024, in response to consultation via email and phone on the Darwin Pipeline Duplication EP (Cwth) and DPD Offshore CEMP, Mousies Barra Fishing Charters had provided no comments. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

NT Indigenous Tours

Summary of consultation effort:

- On 9 February 2024 Santos emailed NT Indigenous Tours to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed NT Indigenous Tours further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned NT Indigenous Tours regarding consultation for Barossa Production Operations EP activities and spoke to a team member who requested emails sent 9 February and 11 March 2024 be resent. These were resent by Santos the same day. [Con-4275]
- On 7 May 2024, Santos emailed NT Indigenous Tours to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from NT Indigenous Tours. [Con-4321]
- On 10 July 2024 Santos emailed NT Indigenous Tours to advise the consultation period had been completed. Santos advised NT Indigenous Tours that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from NT Indigenous Tours.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Offshore Boats Fishing Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Offshore Boats Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Offshore Boats Fishing Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Offshore Boats Fishing Charters and spoke to a company representative who advised they are unlikely to have any interaction with offshore vessels. (CON - 5281)
- On 8 May 2024, Santos emailed Offshore Boats Fishing Charters, to advise it had extended the consultation period until 22 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Offshore Boats Fishing Charters. [Con-4325]
- On 10 July 2024 Santos emailed Offshore Boats Fishing Charters to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Offshore Boats Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
Offshore Boats Fishing Charter responded that they are unlikely to have any interaction with offshore vessels.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Outback Fishing Charters

Summary of consultation effort:

- On 10 June 2024 Santos emailed Outback Fishing Charters regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP and was seeking to consult with Relevant Persons. Santos asked Outback Fishing Charters to advise Santos by 17 June 2024 if it considered it may be a Relevant Person and what functions, interests or activities it has that may be affected by the Production Operations activities. [Con-4979]
- The email included links to the Barossa Production Operations Activity Booklet and NOPSEMA's EP consultation information for the community. Santos advised if it did not hear from Outback Fishing Charters by 17 June 2024, it would assume that it did not have functions, interests or activities that may be affected by the activities, or didn't wish to be consulted for the OEMP and EP.
- On 10 July 2024 Santos emailed Outback Fishing Charters to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Outback Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Outback Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos notes that in June 2024, in response to consultation via email and phone on the Darwin Pipeline Duplication EP (Cwth) and DPD Offshore CEMP, Outback Fishing Charters had provided no comments. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Palmerston Game Fishing Club

Summary of consultation effort:

- On 9 February 2024 Santos emailed Palmerston Game Fishing Club to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.

- On 11 March 2024 Santos emailed Palmerston Game Fishing Club further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793
- On 4 April 2024 Santos phoned and left a voicemail.
- On 2 May 2024, Santos emailed Palmerston Game Fishing Club to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Palmerston Game Fishing Club. [Con-4292]
- On 10 July 2024 Santos emailed Palmerston Game Fishing Club to advise the consultation period had been completed. Santos advised Palmerston Game Fishing Club that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Palmerston Game Fishing Club.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Palmerston Game Fishing Club.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Reel Screamin Barra Fishing

Summary of consultation effort:

- On 9 February 2024 Santos emailed Reel Screamin Barra Fishing to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Reel Screamin Barra Fishing further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Reel Screamin Barra Fishing and spoke to a company representative (also an office-holder with the NT Guided Fishing Industry Association).
- On 6 May 2024, Santos emailed Reel Screamin Barra Fishing to advise it had extended the consultation period until 20 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Reel Screamin Barra Fishing. [Con-4313]
- On 10 July 2024 Santos emailed Reel Screamin Barra Fishing to advise the consultation period had been completed. Santos advised Reel Screamin Barra Fishing that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Reel Screamin Barra Fishing.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Reel Screamin Barra Fishing.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

River and Reef

Summary of consultation effort:

- On 10 June 2024 Santos emailed River and Reef regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP and was seeking to consult with Relevant Persons. Santos asked River and Reef to advise Santos by 17 June 2024 if it considered it may be a Relevant Person and what functions, interests or activities it has that may be affected by the production operations activities. [Con-4980]
- The email included links to the Barossa Production Operations Activity Booklet and NOPSEMA's EP consultation information for the community. Santos advised if it did not hear from River and Reef by 17 June 2024, it would assume that it did not have functions, interests or activities that may be affected by the activities, or didn't wish to be consulted for the OEMP and EP.
- On 10 July 2024 Santos emailed River and Reef to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]

- No further correspondence or feedback was received from River and Reef.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from River and Reef.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos notes that in June 2024, in response to consultation via email and phone on the Darwin Pipeline Duplication EP (Cwth) and DPD Offshore CEMP, River and Reef had provided no comments. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Sail Darwin

Summary of consultation effort:

- On 15 February 2024 Santos emailed Sail Darwin to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4990]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 emailed Sail Darwin further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Sail Darwin and left a voice mail message.
- On 2 May 2024, Santos emailed Sail Darwin to advise it was calling to follow up on previous emails to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Sail Darwin. [Con-4293]
- On 10 July 2024 Santos emailed Sail Darwin to advise the consultation period had been completed. Santos advised Sail Darwin that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Sail Darwin.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Sail Darwin.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Saltwater Cultural Tours

Summary of consultation effort:

- On 9 February 2024 Santos emailed Saltwater Cultural Tours to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Saltwater Cultural Tours further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Saltwater Cultural Tours and left a voice mail message.
- On 2 May 2024, Santos emailed Saltwater Cultural Tours to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Saltwater Cultural Tours. [Con-4294]
- On 10 July 2024 Santos emailed Saltwater Cultural Tours to advise the consultation period had been completed. Santos advised Saltwater Cultural Tours that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]

• Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Saltwater Cultural Tours.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP Reference**
No response was received from Saltwater Cultural Tours.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Sea Darwin

Summary of consultation effort:

- On 15 February 2024 Santos emailed Sea Darwin to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-4981]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Sea Darwin further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Sea Darwin and spoke to a company representative regarding email sent on 15 February and 11 March. They requested the emails be resent and this was done the same day. [Con-4276]
- On 5 April 2024, Sea Darwin emailed Santos and acknowledged receipt of emails below and indicated if there was no response by 9 April assume that Sea Darwin had no input. [Con-4277]
- On 7 May 2024, Santos emailed Sea Darwin to advise it had extended the consultation period 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Sea Darwin. [Con-4318]
- On 10 July 2024 Santos emailed Sea Darwin to advise the consultation period had been completed. Santos advised Sea Darwin that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Sea Darwin.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Sea Darwin.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Shoal Bay Sportfishing Tours

Summary of consultation effort:

- On 9 February 2024 Santos emailed Shoal Bay Sportfishing Tours to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Shoal Bay Sportfishing Tours further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned and spoke with a company representative who indicated there was no impact on its activity from Barossa Production Operations EP activities and did not want to respond, requesting to be removed from Santos' contact list.
- On 10 July 2024 Santos emailed Shoal Bay Sportfishing Tours to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Shoal Bay Sportfishing Tours.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Shoal Bay Sportfishing Tours.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Skippers at Dundee

- On 10 June 2024 Santos emailed Skippers at Dundee regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP and was seeking to consult with Relevant Persons. Santos asked Skippers at Dundee to advise Santos by 17 June 2024 if it considered it may be a Relevant Person and what functions, interests or activities it has that may be affected by the production operations activities. [Con-4982]

- The email included links to the Barossa Production Operations Activity Booklet and NOPSEMA's EP consultation information for the community. Santos advised if it did not hear from Skippers by 17 June 2024, it would assume that it did not have functions, interests or activities that may be affected by the activities, or didn't wish to be consulted for the OEMP and EP.
- On 4 July 2024 Santos phoned Skippers at Dundee and left a message with a staff member.
- On 10 July 2024 Santos emailed Skippers at Dundee to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Skippers at Dundee.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Skippers at Dundee.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Spring Tide Safaris

Summary of consultation effort:

- On 9 February 2024 Santos emailed Spring Tide Safaris to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Spring Tide Safaris further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Spring Tide Safaris and left a voice mail message.
- On 2 May 2024, Santos emailed Spring Tide Safaris to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Spring Tide Safaris. [Con-4295]
- On 10 July 2024 Santos emailed Spring Tide Safaris to advise the consultation period had been completed. Santos advised Spring Tide Safaris for its input and advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP from Spring Tide Safaris.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Spring Tide Safaris.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Streeter Cruises

Summary of consultation effort:

- On 9 February 2024 Santos emailed Streeter Cruises to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Streeter Cruises further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Streeter Cruises and left a voice mail message.

- On 2 May 2024, Santos emailed Streeter Cruises to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Streeter Cruises. [Con-4296]
- On 10 July 2024 Santos emailed Streeters Cruises to advise the consultation period had been completed. Santos advised Streeter Cruises that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- Notwithstanding the information provided and the steps described above, no comments or input were received on the Coastal Waters OEMP. from Streeter Cruises.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Streeter Cruises.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Territory Guided Fishing

Summary of consultation effort:

- On 9 February 2024 Santos emailed Territory Guided Fishing to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Territory Guided Fishing further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Territory Guided Fishing and left a voice mail message.
- On 2 May 2024, Santos emailed Territory Guided Fishing to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Territory Guided Fishing. [Con-4297]
- On 10 July 2024 Santos emailed Territory Guided Fishing to advise the consultation period had been completed. Santos advised Territory Guided Fishing that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Territory Guided Fishing.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Territory Guided Fishing.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Tiwi Island Adventures

Summary of consultation effort:

- On 9 February 2024 Santos emailed Tiwi Island Adventures to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Tiwi Island Adventures further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Tiwi Island Adventures and left a message with a company representative.
- On 3 May 2024, Santos emailed Tiwi Islands Adventures to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 17 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Tiwi Island Adventures. [Con-4304]
- On 10 July 2024 Santos emailed Tiwi Island Adventures to advise the consultation period had been completed. Santos advised Tiwi Island Adventures that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Tiwi Island Adventures.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Tiwi Island Adventures.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Tiwi Island Retreat

Summary of consultation effort:

- On 9 February 2024 Santos emailed Tiwi Island Retreat to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Tiwi Island Retreat further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Tiwi Island Retreat and spoke a team member regarding consultation for Production Operations activities who confirmed that emails sent on 9 February and 11 March had been received.
- On 5 April 2024, Tiwi Island Retreat emailed Santos and advised it does not have any comment or input for the Barossa Production Operations EP consultation process. [Con-4983]
- On 7 May 2024, Santos emailed Tiwi Island Retreat to advise it had extended the consultation period until 21 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Tiwi Island Retreat. [Con-4322]
- On 10 July 2024 Santos emailed Tiwi Island Retreat to advise the consultation period had been completed. Santos advised it considered that consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Tiwi Island Retreat.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
Tiwi Island Retreat responded that it had no comment or input for the Coastal Waters OEMP.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Top End Barra Fishing Tours

Summary of consultation effort:

- On 9 February 2024 Santos emailed Top End Barra Fishing Tours to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed Top End Barra Fishing Tours further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Top End Barra Fishing Tours and left a voice mail message.
- On 2 May 2024, Santos emailed Top End Barra Fishing Tours to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Top End Barra Fishing Tours. [Con-4984]
- On 10 July 2024 Santos emailed Top End Barra Fishing Tours to advise the consultation period had been completed. Santos advised Top End Barra Fishing Tours that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Top End Barra Fishing Tours.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Top End Barra Fishing Tours.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Top End Seafaris

Summary of consultation effort:

- On 9 February 2024 Santos emailed Top End Seafaris to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence on 11 March 2024 and close on 9 April 2024.
- On 11 March 2024, Santos emailed Top End Seafaris further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. [Con-3793]
- On 4 April 2024 Santos phoned Top End Seafaris and left a voice mail message.
- On 2 May 2024, Santos emailed Top End Seafaris to advise it was calling to follow up on previous emails and a to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Top End Seafaris. [Con-4299]
- On 10 July 2024 Santos emailed Top End Seafaris to advise the consultation period had been completed. Santos advised Top End Seafaris that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Top End Seafaris.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Top End Seafaris.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

Yknot Fishing Charters

Summary of consultation effort:

- On 9 February 2024 Santos emailed Yknot Fishing Charters to advise the start of preliminary consultation regarding proposed activities for consultation to be managed under the Coastal Waters OEMP and Barossa Production Operations EP. [Con-3787]
- The email advised that Santos was seeking information to better understand:
  - *if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your department or agency; and*
  - *what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed DPD activities.*
- The email included information on the regulatory process for the activities in Commonwealth and NT jurisdictions and links to a Santos information booklet on the proposed activities and a NOPSEMA brochure on the consultation process and details of how to contact Santos to register as a Relevant Person. The email stated that the consultation phase would commence 11 March 2024 and close on 9 April 2024.
- On 11 March 2024 Santos emailed Yknot Fishing Charters further to the previous correspondence, to advise that it had commenced the consultation phase which would run until 9 April 2024. In addition to the previous information again being provided, Santos provided information on Relevant Persons' entitlements under the regulatory processes, details of how to provide feedback and a reminder of the closing date for consultation. In the email Santos stated that, if input is not received by this date Santos will infer this means you do not want Santos to consult with you further on the Productions Operations EP [Con-3793]
- On 4 April 2024 Santos phoned Yknot Fishing Charters and left a voice mail message.
- On 2 May 2024, Santos emailed Yknot Fishing Charters to advise it was calling to follow up on previous emails and a to advise it was calling to follow up on previous emails and to advise it had extended the consultation period until 16 May 2024. In providing this extension of time, Santos advised that the information in the booklet and factsheet had been updated to account for an additional risk associated with the proposed activity. Santos confirmed that consultation will close on the revised date unless Santos hears otherwise from Yknot Fishing Charters. [Con-4300]
- On 10 July 2024 Santos emailed Yknot Fishing Charters to advise the consultation period had been completed. Santos advised Yknot Fishing Charters that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con-5130]
- On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982]
- On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036]
- No further correspondence or feedback was received from Yknot Fishing Charters.

Summary of response by Relevant Person	Assessment of merits	Santos' Response Statement	OEMP Reference
No response was received from Yknot Fishing Charters.	Santos considers it has provided sufficient information and a reasonable period of time for consultation. Santos considers Section 25 consultation requirements to have been met.	No response required.	Not applicable.

4.8.13 Other Relevant Persons

Table 4-23: Consultation Summary Table – Other Relevant Persons

Section 25(1)(d) of the OPGGS(E)R: Persons or organisations whose functions, interests or activities may be affected by the activities to be carried out under the environment plan			
Autoridade Nacional do Petróleo e Minerais (ANP Timor-Leste)			
Summary of consultation effort: • On 26 June 2024 Santos emailed ANP in its capacity as having responsibility for petroleum environmental matters in Timor-Leste. Santos advised that it was currently consulting on the Barossa Production Operations EP in accordance with section 25 of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations (Cth) and was specifically seeking to clarify the Authority's oil spill notification requirements for inclusion in the appropriate emergency response procedures for the Barossa Project. [Con-4962] • Santos provided the information booklet on the proposed activities, with specific reference to the section on oil spill risk and management and requested the ANP respond on its oil spill notification requirements at its earliest convenience. Santos advised ANP that the information will be used for the development of the EP for production operations activity in Commonwealth waters, which will be assessed by NOPSEMA. • On 26 June 2024 ANP emailed Santos to acknowledge the email and advised it would be considered. [Con-4963] • On 1 July 2024 ANP emailed Santos requesting the information that had been provided via email was re-sent as an official letter and, upon receipt, the ANP would respond accordingly. [Con-4964] Santos provided the letter, via email, to the ANP the same day. [Con-4965] • On 1 July 2024 ANP emailed Santos' confirming that it would review the letter provided by Santos earlier the same day. [Con-5084] • On 17 July 2024 Santos emailed the ANP to request it provide any comments in relation to the environmental management of the Barossa Project by 26 July, if they wished to have them included in this OEMP. [Con-5114] • On 18 July 2024 ANP emailed Santos to advise it was in the process of finalising its response letter and would send in due course. [Con-5141] • On 2 August 2024 ANP wrote to Santos to advise contact details within Timor-Leste for spill notifications and to request additional information on spill modelling, mitigation measures and the notification process. [Con- 5258] • On 7 August Santos wrote to ANP and provided the details requested by the ANP in their letter of 2 August 2024 and advised that it considered consultation had now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment. [Con--5278] • On 7 August 2024 ANP emailed and thanked Santos for the information and advised they would contact Santos if further information or clarification was required. [Con 5279 • On 15 October 2024 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that the EP had been submitted to NOPSEMA for assessment, provided a link to the full EP on the NOPSEMA website and Santos' contact details for any queries. The Update also stated that the OEMP would be submitted to the NT-DITT for assessment. [Con- 5982] • On 23 January 2025 Santos emailed the Barossa Project Quarterly Update to all stakeholders on its distribution list, including all those consulted during preparation of the Production Operations EP and OEMP. The Update advised that, following a request from NOPSEMA to provide further information, Santos had re-submitted the EP with some amendments in December 2024 for further assessment. The Update also re-stated that the OEMP would be submitted to the NT-DITT for assessment. [Con-6036] • • No further correspondence or feedback was received from ANP.			
Summary of response by Relevant Person	**Assessment of merits**	**Santos' Response Statement**	**OEMP Reference**
ANP provided contact details within Timor-Leste for spill notifications and requested additional information on spill modelling, spill mitigation measures and the spill notification process	This response does not raise an objection or claim about the adverse impact of each activity to which the Coastal Waters OEMP relates. With regard to the location of the proposed GEP operations activities in NT Coastal Waters, there are no impacts from planned activities that may affect the functions, interests or activities of any international persons. The worst-case credible spill scenario modelled for the EMBA for the Coastal Waters OEMP also shows there are no impacts from unplanned activities that may affect the functions, interests or activities of any international persons. The response is addressed in the Barossa Production Operations EP which does have an EMBA that extends into international waters.	No response required.	Not applicable.

5. Impact and Risk Assessment Methodology

OPGGS(E)R 2023 Requirements
Section 21. Environmental assessment
Evaluation of environmental impacts and risks (5) The environment plan must include: a. details of the environmental impacts and risks of the activity; and b. an evaluation of all the environmental impacts and risks, appropriate to the nature and scale of each impact or risk; and c. details of the control measures that will be used to reduce the impacts and risks of the activity to as low as reasonably practicable and an acceptable level. (6) To avoid doubt, the evaluation mentioned in paragraph (5)(b) must evaluate all of the environmental impacts and risks arising directly or indirectly from: a. all operations of the activity; and b. any potential emergency conditions, whether resulting from an accident or any other cause.

Environmental impact and risk assessment refers to a process whereby planned and unplanned events that will or may occur during an activity are assessed for their impacts on the environment (as defined in Section 5 of the OPGGS(E)R) at a defined location and specified period. In addition, unplanned events are assessed based on their likelihood of occurrence, which defines their risk level.

Santos has undertaken environmental impact and risk assessments for the planned events – including any routine, non-routine, and contingency activities – and unplanned events in accordance with the OPGGS(E)R.

This section of the GEP Coastal Waters OEMP provides information on the environmental impact and risk assessment approach, specifically:

- terminology used
- summary of the approach used.

The process used to identify, analyse, and evaluate environmental impacts and risks is documented in Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline.

5.1 Impact and Risk Assessment Methodology

Common terms applied during the environmental impact and risk assessment process, and used in this GEP Coastal Waters OEMP, are defined in Table 5-1.

Table 5-1: Impact and risk assessment terms

Term	Definition
Acceptability	Determined for both impacts and risks. Acceptability of events is in part determined by the consequence of the impact following management controls. Acceptability of unplanned events is in part determined from its risk ranking following management controls. For both impacts and risks, acceptability is also determined from a demonstration of the ALARP principle, consistency with Santos policies, consistency with all applicable legislation, and consideration of information received through consultation when determining management controls.
Activity	Specific tasks and actions undertaken throughout the lifecycle of oil and gas exploration, development, production and decommissioning.
ALARP	As Low as Reasonably Practicable. The term refers to reducing impact and risk to a level that is as low as reasonably practicable. In practice, this means showing (through reasoned and supported arguments) that there are no other practicable measures that could reasonably be taken to reduce impacts or risks further (NOPSEMA Guidance Note: ALARP, dated 1/08/2022 (N-04300-GN01660166 A138249); NOPSEMA Guideline: Environment plan decision making guideline, dated 10/01/2024 (N-04750-GL1721 A524696).
Authorised person	Person with the authority to make a decision or take an action. Examples are vessel master, superintendent, supervisor, person-in-charge, company authorised representative, and operations manager.
Control measure	Is defined by the OPGGS(E)R to mean a system, an item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.

Term	Definition
ENVID workshop	Environmental hazard identification workshop.
Environment	Is under the OPGGS(E)R as: (a) ecosystems and their constituent parts, including people and communities (b) natural and physical resources (c) the qualities and characteristics of locations, places and areas (d) the heritage value of places; and includes (e) the social, economic and cultural features of the matters mentioned in paragraphs (a), (b), (c) and (d).
Environmental consequence	A consequence is the outcome of an event affecting objectives. Note 1: An event can be one or more occurrences and can have several cases. Note 2: An event can consist of something not happening. *(Reference ISO 73:2009 Risk Vocabulary)*
Environmental impact	Defined by the OPGGS(E)R as any change to the environment, whether adverse or beneficial, wholly or partly resulting from an activity.
Environmental objective	An environmental result the company intends to achieve
Environmental risk	Applies to unplanned events. Risk is a function of the likelihood of the unplanned event occurring and the consequence of the environmental impact that arises from that event.
Grossly disproportionate	Where the sacrifice (cost and effort) of implementing a control measure to reduce impact or risk, grossly exceeds the environmental benefit to be gained.
Hazard	A situation with the potential to cause harm.
Impact assessment	The process of determining the consequence of an impact (in terms of the consequence to the environment) arising from a planned or unplanned event over a specified period.
Likelihood	The chance of an unplanned event occurring.
Non-routine planned event	An attribute of the planned activity that may occur or will occur infrequently during the planned activity. A non-routine planned event is intended to occur at the time.
Planned activity	The activity to be undertaken under this GEP Coastal Waters OEMP, including the services, equipment, products, assets, personnel, timing, duration and location and aspect of the activity.
Planned event	An event arising from the activity that is done with intent (i.e., not an unplanned event) and has some level of environmental impact. A planned event could be routine (expected to occur consistently throughout the activity) or non-routine (may occur infrequently if at all). Air emissions and activity discharges are examples of planned events.
Receptor	A feature of the environment that may have values.
Risk	The effect of uncertainty on objectives.
Risk assessment	The process of determining the likelihood of an unplanned event and the consequence of the impact (in terms of economic, human safety and health, or ecological effects) arising from the event over a specified period.
Routine planned event	An attribute of the planned activity that results in some level of environmental impact and will occur continuously or frequently through the duration of the planned activity.
Unplanned event	An event that results in some level of environmental impact and may occur despite preventive safeguards and control measures being in place. An unplanned event is not intended to occur during the activity.

5.2 Summary of the environmental impact and risk assessment approach

5.2.1 Overview

Santos operates under an overarching Risk Management Policy. The company Risk Procedure underpins the Risk Management Policy and is consistent with the requirements of AS/NZS ISO 31000:2018, Risk Management – Guidelines (ISO, 2018).

The key steps to risk management are illustrated in Figure 5-1, as defined in the Santos Offshore Division Environmental Hazard Identification and Assessment Guideline.

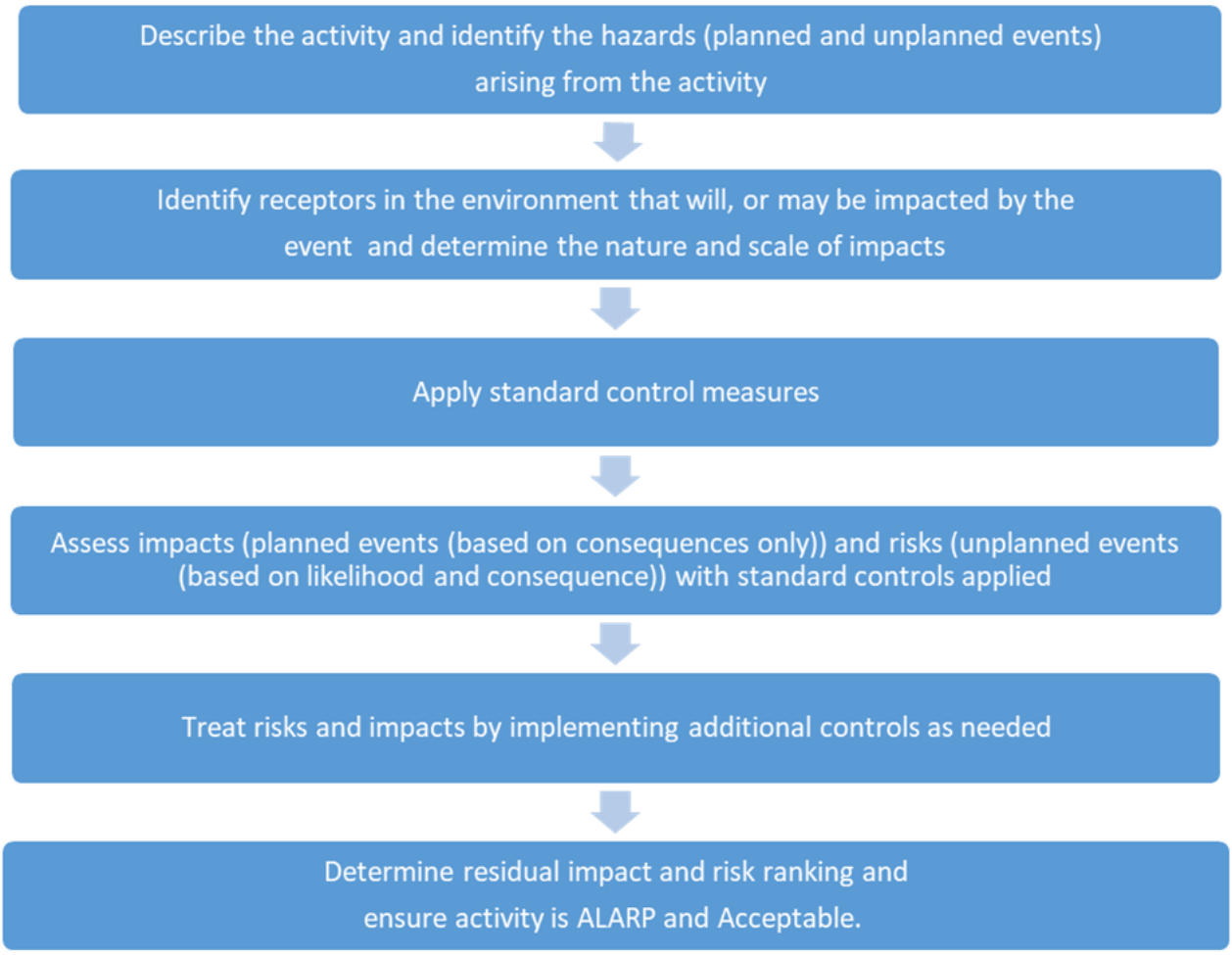


Figure 5-1: Hazard identification and assessment guideline

These steps are considered in activity-specific environmental assessment workshop(s) (ENVID workshop) and in the development of this GEP Coastal Waters OEMP. The workshop involves participants from Santos' Health, Safety and Environment (HSE), Spill Response and relevant departments, and specialist environmental consultants.

5.2.2 Describe the Activity and hazards (planned and unplanned events)

The location, timing and scope of the Activity must be understood to define the hazards and determine the impacts from planned events, as well as the risks and impacts from unplanned events, which together determine the environment that may be affected or indirectly affected (EMBA) by the Activity.

The outcome of this assessment is detailed in Sections 6 and 7.

5.2.3 Identify receptors and determine the nature and scale of impacts

A description of the environment within which hazards from the Activity will, or may occur, is required. This constitutes a crucial stage of the risk assessment, as an understanding of the environmental, socioeconomic and cultural features values and sensitivities that will or may be affected is required to determine the type and consequence of impacts from the Activity being assessed.

The environment must be understood with respect to the spatial and temporal limits of the Activity and key resources at risk that will or could be impacted by planned and unplanned events. Section 3 describes the existing environment that may be affected by the Activity and is informed through consultation (refer Section 4). A protected matters search was conducted over the Activity EMBA to identify occurring or potentially occurring receptors. These receptors are detailed in Section 3.

ENVID workshops (as described in Section 5.1) were held on 23 July 2024 and 29 July 2024 to consider the GEP activities and this Activity. New requirements (such as changes in legislation, guidelines or other requirements) were also considered.

The extent of impacts from planned Activities or risks and impacts from unplanned events were assessed using, where required, modelling (e.g. hydrocarbon release) and scientific reports. The expected duration of each event was also defined using subject matter expertise.

Santos assessed the cumulative impacts of the Activity with other marine users. However, due to the relatively remote location of the OA, it is unlikely that there will be a cumulative impact above impact thresholds with other marine users.

5.3 Describe the environmental performance outcomes and control measures

As required by the OPGGS(E)R, environmental performance outcomes(s) (EPOs), control measures (CMs), environmental performance standards (EPSs) and measurement criteria (MC) were identified for the identified environmental impacts and risks. All reasonably practicable control measures were considered and either accepted for use or rejected based on whether impacts and risks had been reduced to levels considered to be ALARP and acceptable.

Accepted control measures were allocated in order of preference, as shown in Figure 5-2.

Control	Effectiveness	Example
Eliminate		*Removal of the risk.* Refueling of vessels at port eliminates the risks of an offshore refueling.
Substitute		*Change the risk for a lower one.* The use of low-toxicity chemicals that perform the same task as a more toxic additive.
Engineering		*Engineer out the risk.* The use of oil-in-water separator to minimise the volume of oil discharged.
Isolation		*Isolate people or the environment from the risk.* The use of bunding for containment of bulk liquid materials.
Administrative		*Provide instructions or training to people to lower the risk.* The use of Job Hazard Analysis to assess and minimise the environmental risks of an activity.
Protective		*Use of protective equipment.* Containment and recovery of spilt hydrocarbons.

Figure 5-2: Hierarchy of controls

5.4 Determine the impact consequence level and risk rankings

The consequence level of a potential impact was determined for each planned and unplanned event using Santos' environment consequence descriptors (Appendix E), and assuming that all control measures had been implemented.

These detailed environmental consequence descriptions are based on the consequence of the impact to relevant receptors within the categories of:

- Threatened, Migratory or local fauna
- physical environment and habitat
- threatened ecological communities
- protected areas

- socioeconomic receptors
- cultural features.

Consequence descriptors are based on set criteria for each receptor category and take into consideration the duration and extent of the impact, receptor recovery time, and the effect of the impact at a population, ecosystem or industry level.

When assessing impacts to cultural features that are part of the EMBA for the Activity, Santos considered cultural features of the environment as defined under the OPGGS(E)R):

(a) ecosystems and their constituent parts, including people and communities

(b) natural and physical resources

(c) the qualities and characteristics of locations, places and areas

(d) the heritage value of places

When assessing the consequence level of impact to cultural features, Santos considers the different types of cultural features and types of impacts. For impacts to cultural features, in the form of impacts to marine species that are either a cultural food source or are considered culturally significant to First Nations people, Santos assesses impacts with reference to the consequence assessment for threatened/migratory/local fauna. Similarly, where cultural features are linked to a specific place, impacts to cultural features are assessed with reference to the consequence assessment for physical environment/threatened ecological communities/protected areas as applicable. Where there are concerns raised by individuals about cultural and spiritual beliefs that do not link to a specific location or place, Santos will evaluate impact and risk acceptability with consideration for assessment of impacts from analogous activities (e.g., historical drilling, trawl fishing activity, industrial shipping) and consider culturally appropriate measures in response to concerns raised by individuals.

As planned events are expected to occur during the Activity, the likelihood of their occurrence was not considered during the environmental assessment, and only a consequence level was assigned (Table 5-2).

Table 5-2: Summary of the Santos Environmental Consequence Descriptors

Consequence level	Consequence level description
I	Negligible – No impact or negligible impact
II	Minor – Detectable but insignificant change to local population, industry or ecosystem factors
III	Moderate – Significant impact to local population, industry or ecosystem factors
IV	Major – Major long-term effect on local population, industry or ecosystem factors
V	Severe – Complete loss of local population, industry or ecosystem factors and/or extensive regional impacts with slow recovery
VI	Critical – Irreversible impact to regional population, industry or ecosystem factors

For unplanned events, the consequence level of the impact was combined with the likelihood of the impact occurring (Table 5-3) to determine a residual risk ranking using Santos' corporate risk matrix (Table 5-4).

Table 5-3: Likelihood description

No.	Matrix	Description
f	Almost Certain	Occurs in almost all circumstances OR could occur within days to weeks
e	Likely	Occurs in most circumstances OR could occur within weeks to months
d	Occasional	Has occurred before in Santos OR could occur within months to years
c	Possible	Has occurred before in the industry OR could occur within the next few years
b	Unlikely	Has occurred elsewhere OR could occur within decades
a	Remote	Requires exceptional circumstances and is unlikely to occur even in the long term

Table 5-4: Santos risk matrix

		Consequence					
		I	II	III	IV	V	VI
Likelihood	f	Low	Medium	High	Very High	Very High	Very High
	e	Low	Medium	High	High	Very High	Very High
	d	Low	Low	Medium	High	High	Very High
	c	Very Low	Low	Low	Medium	High	Very High
	b	Very Low	Very Low	Low	Low	Medium	High
	a	Very Low	Very Low	Very Low	Low	Medium	Medium

5.5 Evaluate if impacts and risks are ALARP

For planned and unplanned events, an ALARP assessment was undertaken to demonstrate the standard control measures adopted reduce the impact (consequence level) or risk to ALARP. This process relies on demonstrating further potential control measures would require a disproportionate level of cost and effort to reduce the level of impact or risk. If this cannot be demonstrated, then further control measures are adopted. The level of detail included within the ALARP assessment is based upon the nature and scale of the potential impact or risk (e.g., more detail is required for a risk ranked as 'Medium' compared with a risk ranked as 'Low').

5.6 Evaluate impact and risk acceptability

Santos considers an impact or risk associated with the activities to be acceptable if each of the following criteria, where relevant, are satisfied:

- the consequence of a planned event is ranked as I or II; or a risk of impact from an unplanned event is ranked Very Low to Medium
- an assessment has been completed to determine that sufficient information or studies have been considered to validate the consequence assessment
- the activity will be carried out in a manner that is consistent with the principles of ecologically sustainable development (ESD)
- the acceptable levels of impact and risks have been informed by relevant species recovery plans, threat abatement plans and conservation advice
- performance outcomes, control measures and associated performance standards:
  - are consistent with legal and regulatory requirements
  - are consistent with Santos' Environment, Health and Safety Policy (Appendix A)
  - are consistent with industry standards
  - take into consideration Relevant Person feedback
  - have been demonstrated to reduce the impact or risk to ALARP.

6. Planned activities impact assessment

OPGGS(E)R 2023 Requirements
Section 21. Environmental assessment
Evaluation of environmental impacts and risks (5) The environment plan must include: a. details of the environmental impacts and risks for the activity; and b. an evaluation of all the impacts and risks, appropriate to the nature and scale of each impact or risk; and c. details of the control measures that will be used to reduce the impacts and risks of the activity to as low as reasonably practicable and an acceptable level. (6) To avoid doubt, the evaluation mentioned in paragraph (5)(b) must evaluate all the environmental impacts and risks arising directly or indirectly from: a. all operations of the activity; and b. potential emergency conditions, whether resulting from accident or any other reason. *Environmental performance outcomes and standards* (7) The environment plan must: a. set environmental performance standards for the control measures identified under paragraph (5)(c); and b. set out the environmental performance outcomes against which the performance of the titleholder in protecting the environment is to be measured; and c. include measurement criteria that the titleholder will use to determine whether each environmental performance outcome and environmental performance standard is being met.

An ENVID workshop (as described in Section 5.2.3) was held on 23 July and 29 July 2024 to assess the impacts associated with activities described in this GEP Coastal Waters OEMP. Santos' environmental assessment identified six sources of environmental and socioeconomic impacts associated with the planned activities to be undertaken within the OA.

A comprehensive assessment for each of the sources, termed planned events, and subsequent control measures adopted to reduce the impacts to ALARP and acceptable levels are detailed in the following subsections. The resultant residual consequence levels associated with the planned events are summarised in Table 6-1 as supported in the following subsections.

Adopted control measures are assigned a reference number (e.g. BAO-CM-6.1.1). The control measure reference numbers are aligned with the Barossa Production Operations EP and therefore are not in numerical order in this GEP Coastal Waters OEMP.

Table 6-1: Environmental impact assessment summary

OEMP section	Planned event	Residual consequence level
6.1	Noise emissions	II – Minor
6.2	Light emissions	II – Minor
6.3	Atmospheric and greenhouse gas emissions	I – Negligible
6.4	Seabed and benthic habitat disturbance	II – Minor
6.5	Interactions with other marine users	I – Negligible
6.6	Operational discharges	I – Negligible

6.1 Noise emissions

6.1.1 Description of event

Event	Underwater noise emissions will be generated from the following sources: • IMMR vessel operations (e.g. vessel engines, thrusters and other machinery and equipment) • non-vessel IMMR activities: including mechanical jetting, ROV and tooling (pipeline cutting and coating removal), AUV, SSS and MBES surveys • Helicopter activities • contingency activities presented in Section 2.4.3 • operation of the pipeline
Extent	• The worst-case distance for potential impact (furthest distance which behavioural impacts may occur) is approximately 9.8 km, associated with a large IMMR vessel on DP. This is a conservative estimate based on sound levels from a pipelay vessel. • A conservative estimate for the use of survey equipment is that noise will propagate horizontally within a few hundred metre radius. • No permanent noise source will be active along the pipeline, however the minor noise from gas moving through the pipeline is expected to fall to ambient levels within 100 m of the pipeline.
Duration	Noise emissions are expected to occur intermittently every 3-5 years from discrete campaigns for 7 to 30 days (e.g. IMMR vessel presence, ROVs, helicopter movements)

6.1.1.1 Introduction

Santos commissioned a technical study into underwater noise impacts on marine fauna (JASCO, 2020) using contemporary criteria and has used the findings to inform the underwater noise emissions impact assessment. Noise sources involved in the activities described in this GEP Coastal Waters OEMP include non-impulsive (continuous e.g. vessel operations) and impulsive (e.g. SSS and MBES surveys) noise sources. Impulsive sounds have the high peak sound pressure and rapid rise and decay time that non-impulsive sounds do not have. The relevant terminology for underwater acoustic levels relevant to non-impulsive sources are sound pressure levels (SPL), and accumulated sound exposure levels (SEL).

ROVs and associated mounted equipment (e.g. cutting device) may be launched from activity vessels and the noise generated from this equipment will have a considerably lower intensity than vessel noise as will the other minor sources of noise generating activities (mechanical jetting and AUV). Underwater sound levels depend on the primary (noisiest) sound source rather than being strictly additive. Thus, these sources will make little contribution to the overall noise emissions associated with vessel activities or SSS and MBES surveys so are not considered further in the impact assessment of noise emissions.

6.1.1.2 Noise generated by vessels

Vessel operational noise includes machinery noise (e.g., engine noise) and hydrodynamic noise (e.g., water flowing past the hull, thruster use, and propeller singing). During normal operations, the activity vessels will generate continuous noise from propeller cavitation, thrusters and hydrodynamic flow around the hull. The activity vessels and their activities are described in Section 2.4. Typically, the type of vessel operations that will occur are:

- Vessel steaming at low speed
- Manoeuvring during IMMR activities (vessels under DP).

The typical sound levels generated by vessels are broadband and usually increase with increasing vessel size, with smaller vessels (less than 50 m in length) having source levels 160 to 175 dB (re 1 µPa), medium sized vessels (50 to 100 m in length) 165 to 180 dB (re 1 µPa) and larger sized vessels (greater than 100 m in length) 180 to 190 dB (re 1 µPa) (OSPAR, 2009; Richardson et al., 1995 in Genesis Oil and Gas Consultants, 2011). Gotz et al. (2009) lists tugboats, crew boats, supply ships and many research vessels in the 50 to 100 m size class also having similar levels of 165 to 180 dB re 1 µPa range (221 SELcum [Richardson et al., 1995]).

For activity vessels, the noisiest anticipated activity is when the vessel uses thrusters to maintain its position. McCauley et al. (1998) measured underwater SPLs equivalent to approximately 182 dB re 1 µPa at 1 m with a frequency range of 20 Hz to 10 kHz from a support vessel holding station in the Timor Sea. The thruster noise dropped below 120 dB re 1 µPa within 3–4 km and was audible above ambient noise up to 20 km away (McCauley, 1998). This has been taken as the greatest noise-generating activity for assessment purposes, as other vessel activities will require the vessel to be idle or moving. McCauley et al. (1998) measured underwater sound levels from the Pacific Ariki, a 64 m long support vessel with 6,000 kW main engines during calm conditions in the Timor

Sea in 110 m of water while transiting at 11 knots, and found the distance to 120 dB re 1 µPa to be approximately 1 km.

6.1.1.3 Noise generated by a helicopter

Sound travelling from a source in the air (e.g. a helicopter) to a receiver underwater is affected by both in-air and underwater propagation processes, and processes occurring at the air/sea water surface interface (e.g. wind and waves). The level of noise received underwater depends on source altitude and lateral distance, receiver depth, water depth, and other variables.

Helicopter engine noise is emitted at various frequencies; however, the dominant tones are generally of a low frequency below 500 Hz (Richardson et al., 1995). Sound pressure in the water directly below a helicopter is greatest at the surface and diminishes with increasing receiver depth. Noise also reduces with increasing helicopter altitude, but the duration of audibility often increases with increasing altitude, with sound penetrating water at angles less than 13° (Richardson et al., 1995). The noise from the flyover of a Bell 214ST helicopter has been recorded underwater (Richardson et al., 1995), with the maximum recorded sound level for the dominant 22 Hz tone was 109 dB re 1 µPa (SPL) when the helicopter was 152 m from the surface and the hydrophone 3 and 18 m under the surface.

For context, the Bell 214ST uses a single powerful Lycoming LTC4B-8 engine of 2,185 kW (Frawley, 2003), while the modern Bell 412, often used as a rescue helicopter in Australia (Air Services Australia, 2020) uses twin 1,250 hp (930 kW) turboshaft engines (Bell Helicopter, 2012). Typical offshore crew change and medivac helicopters in Australia are Leonardo AW139s (Milne, 2019), which have been measured to be 2 dB(A) quieter than the Bell 412 helicopters (Air Services Australia, 2020).

Helicopter activities produce strong underwater sounds for brief periods when the helicopter takes off/lands on the vessel. Sound from helicopter activities is very localised and infrequent. Further, helicopter operations are expected to result in received underwater noise levels lower than those associated with vessel operations and are not considered further in the impact assessment of noise emissions.

6.1.1.4 Noise generated by MBES and SSS

MBES and SSS transmit at high frequencies (approximately 70 to 400 kHz) and produce a highly focused beam of sound down towards the seabed, so there is very limited horizontal sound propagation. Source levels for these survey methods include:

- Multibeam echo-sounder (MBES), such as the Reson SeaBat 7125 transmitting at 400 kHz. At 400 kHz it has a 1° beamwidth along the track, and a source level of 220 dB re 1 µPa SPL (Coastal Frontiers, 2017)
- Side scan sonar (SSS), which is generally considered a high acoustic density source and medium-frequency generator. The level of sound pressure ranges from about 200 to 234 dB re 1 µPa SPL. The frequency ranges from about 75 to 900 kHz (Jimenez-Arranz et al., 2020).

6.1.1.5 Noise generated by pipeline

The level of noise emitted by subsea infrastructure such as the pipeline are expected to be low levels, similar to ambient noise levels in the region. Based on the measurements of wellhead noise discussed in McCauley (2003), which included flow noise in pipelines, noise produced along a pipeline may be expected to be similar to that described for wellheads, with the radiated noise field falling to ambient levels within 100 m of the pipeline, noting that there are no valves on the pipeline in the OA where noise is expected to be emitted.

6.1.1.6 Summary of noise sources and rationale for assessment

The sound source levels expected from the activities are summarised in Table 6-2.

Table 6-2: Summary of expected sound source levels during the operations activity

Source	Expected Source Levels (dB re 1 µPa)	Reference
Vessels	Support vessel under DP: 182	McCauley et al., 1998
Surveys	MBES: 220 SSS: 200 to 234	Coastal Frontiers, 2017 Jimenez-Arranz et al., 2020

6.1.2 Nature and scale of environmental impacts

Potential receptors: Threatened, Migratory or local fauna (marine mammals, marine turtles, sharks, fish, rays, and invertebrates), socio-economic and cultural features.

Some of these marine species have cultural significance to First Nations persons either as a traditional food source or for other cultural reasons (see Sections 3.2.15.9 and 3.2.15.10).

A PMST search was undertaken for a 20 km noise assessment boundary around the OA as a conservative buffer to identify any threatened or migratory species that could be affected by noise outside of the OA. Although the estimated behavioural disturbance distance for cetaceans is up to 9.8 km (Table 6-5), a conservative 20 km buffer was chosen based on noise from vessel thrusters that may be audible above ambient noise up to 20 km away (Section 6.1.1.2).

An additional threatened species, the speartooth shark, and three additional migratory species, dugong, longfin mako, and shortfin mako, were identified within the noise assessment boundary compared with the OA (Table 3-14). The 20 km noise assessment boundary intersects the flatback internesting BIA and habitat critical to the survival of the flatback, and the habitat critical to the survival of olive ridley and does not intersect any known marine mammal or bird BIA.

Marine fauna use sound in a variety of functions, including social interactions, foraging, orientation, and response to predators. Underwater noise can affect marine fauna in these ways:

- Attraction
- Disturbance, leading to behavioural changes or displacement to fauna. The occurrence and intensity of disturbance is highly variable and depends on a range of factors relating to the animal and situation
- Disruption to underwater acoustic cues
- Increased stress levels
- Indirectly by inducing behavioural and physiological changes in predator or prey species
- Localised avoidance
- Injury to hearing or other organs; hearing loss may be temporary (temporary threshold shift; TTS) or permanent (permanent threshold shift; PTS)
- Masking or interfering with other biologically important sounds (including vocal communications, echolocation, signals and sounds produced by predators or prey).

The nature and scale of impacts must be considered in the context of the ambient noise environment. Ambient underwater noise levels depend on location, and are often dominated by local wind noise, waves, biological noise (e.g. fish choruses are capable of reaching very high levels, in excess of 130 dB re 1 µPa (McCauley, 2012) and vessel traffic. Wind speed and seabed conditions have a clear influence on the ambient noise level. Anthropogenic underwater noise sources in the region comprise shipping and small vessel traffic, petroleum production and exploration drilling activities and sporadic petroleum seismic surveys.

Marine fauna respond variably when exposed to underwater noise from anthropogenic sources, with effects depending on various factors, including distance from the sound source, water depth and bathymetry, the animal's hearing sensitivity, type and duration of sound exposure and the animal's activity at the time of exposure. Broadly, the effects of sound on marine fauna can be categorised as:

- Acoustic masking – anthropogenic sounds may interfere with, or mask, biological signals, therefore reducing the communication and perceptual space of an individual. Auditory masking impacts could occur when audibility is reduced for one sound (signal) that is caused by the presence of another sound (noise). For this to occur, the noise must be loud enough and have a similar frequency to the signal, and both signal and noise must occur at the same time.
- Behavioural response – behavioural impacts will depend on the audible frequency range of each potential receptor in relation to the noise frequency—marine animals will only respond to acoustic signals they can detect, as well as the noise intensity. The intensity of behavioural responses of marine mammals to sound exposure ranges from subtle responses, which may be difficult to observe and have little implications for the affected animal, to obvious responses, such as avoidance or panic reactions. The context in which an animal receives the sound affects the nature and extent of responses to a stimulus. The threshold for eliciting behavioural responses depends on the received sound level and multiple contextual factors such as the activity state of animals exposed to different sounds, the nature and novelty of a sound, spatial relations between a sound source and receiving animals, and the gender, age, and reproductive status of the receiving animal.
- Physiological impacts – auditory threshold shift (temporary and permanent hearing loss) – marine fauna exposed to intense sound may experience a loss of hearing sensitivity or even potentially mortal injury. Hearing loss may be temporary (TTS) from which an animal recovers within minutes or hours, or permanent (PTS) from which the animal does not recover.

The levels of acoustic exposure that may result in injury or behavioural changes in marine fauna is an area of increasing research. Because of differences in experimental design, methods and units of measure, comparing studies to determine likely sound exposure thresholds can be difficult. After assessing the available scientific information, thresholds were defined to inform the impact assessment and interpret the estimated sound ranges. These are discussed for each receptor in JASCO (2020).

The assessment compared modelled received underwater sound levels to defined noise effect criteria, as determined by scientific research and academic papers (JASCO, 2020), for the identified environmental and social receptors. Although the relationship between received sound levels and impacts to marine species is the subject of ongoing research, the science underlying noise modelling is well understood (Farcas et al., 2016).

6.1.2.1 Marine mammals

There are no known BIAs for marine mammals within the 20 km noise assessment boundary (Table 3-12). Therefore, marine mammals are unlikely to aggregate or occur in large numbers within the noise assessment area, however, cetaceans and sirenians may transit the area. The PMST report for the noise assessment boundary identified a migratory species—dugong— additional to the several whale and dolphin species listed in the PMST report for the OA (Table 3-10). The closest significant feature to the noise assessment boundary are breeding dolphin BIAs—spotted bottlenose (Darwin Harbour stock), Australian humpback (a sub-species of the Indo-Pacific humpback dolphin; Darwin Harbour and Van Diemen Gulf stock) and Australian snubfin (Darwin Harbour and Van Diemen Gulf stock) which are greater than 46 km away from the OA (refer to Table 3-12). The nearest whale (pygmy blue) distribution to the OA is greater than 300 km away.

The PMST report for the 20 km noise assessment boundary identified several threatened marine mammal species, including whales (blue, fin and sei) and migratory marine mammal species, including dolphins (Appendix C). A number of migratory species of whales may also occur within the noise assessment boundary, including humpback and Bryde's. These whales have been classified as low frequency (LF) cetaceans based on their hearing range. A number of odontocetes (including dolphins and killer whales) may also be transiting the noise assessment boundary and have been classified as high frequency (HF) cetaceans.

Dugongs are unlikely to occur within the noise assessment boundary, preferring shallow tidal and subtidal seagrass meadows.

The Conservation Management Plan for the Blue Whale 2015–2025 (CoA, 2015a), Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015d) and Conservation Advice for *Balaenoptera borealis* (sei whale) (TSSC, 2015c) list noise disturbance as a threat, specifically relating to impulsive sound sources, such as seismic surveys, and acute industrial noise, such as pile driving. Although seismic surveys and pile driving are outside the scope of this GEP Coastal Waters OEMP, SSS and MBES survey activities are an impulsive sound source. Impulsive sound sources present a greater risk than most continuous sounds because of the high peak levels and frequent repetition (CoA, 2015a). Shipping noise in busy shipping channels is also identified as a potential source of noise emissions, although the risk assessment determines that consequences would be restricted to individuals, and no population-level effects are expected. The Conservation Management Plan for the Blue Whale 2015–2025 requires that anthropogenic noise in BIAs will be managed such that any blue whales may continue to use the area without injury. The OA and the 20km noise assessment boundary used for this assessment is distant from the pigmy blue whale migration BIA (~373 km), such that impacts from vessel noise emissions are not inconsistent with the requirements of the Blue Whale Conservation Management Plan (CoA, 2015a).

To better reflect the auditory similarities between closely related species, but also significant differences between species groups among the marine mammals, Southall et al. (2007) assigned the marine mammal species to functional hearing groups based on their hearing capabilities and sound production. This division into broad categories was intended to provide a realistic number of categories for which individual noise exposure criteria were developed. These groups were revised by National Marine Fisheries Service (NMFS, 2018) and most recently by Southall et al. (2019). The categorisation has proven to be a scientifically justified and useful approach in developing auditory weighting functions and deriving noise exposure criteria for marine mammals. These auditory weighting functions are referred to as frequency weighting. These thresholds that detail receptor noise impacts and behavioural response for continuous noise (vessels and cutting tool), along with the new nomenclature and classifications for marine mammals are summarised in Table 6-3. The table details receptor noise impact and behavioural thresholds for continuous noise (vessel), being:

- Low-frequency (LF) cetaceans: which consists of baleen whales such as humpback whales
- High-frequency (HF) cetaceans: which consists of toothed whales except porpoises and river dolphins.
- Very-High frequency (VHF) cetaceans: which consists of whales such as pygmy sperm whale
- Sirenians: which includes dugong.

For non-impulsive noise such as that expected during operations, NMFS currently uses a step function (all-or-none) threshold of 120 dB re 1 µPa SPL (unweighted) to assess and regulate noise-induced behavioural impacts

for marine mammals (NOAA, 2019). The behavioural disturbance threshold criteria applied summates the most recent scientific literature on the impacts of sound on marine mammal hearing, so is considered the most relevant to this activity. Table 6-3 details cetacean behavioural, TTS and permanent threshold shift (PTS) thresholds for continuous noise (vessels); Table 6-4 details cetacean behavioural, TTS and PTS thresholds for impulsive noise (MBES and SSS survey equipment).

Table 6-3: Continuous noise: summary of marine mammal impact thresholds as derived from Southall et al. (2019) and National Oceanic and Atmospheric Administration (2019)

Hearing group	NOAA (2019)	Southall et al. (2019)	
	Behaviour	PTS onset thresholds (received level)	TTS onset thresholds (received level)
	SPL (dB re 1 µPa)	Weighted SEL_{24h} (dB re 1 $\mu Pa^2 \cdot s$)	Weighted SEL_{24h} (dB re 1 $\mu Pa^2 \cdot s$)
LF cetaceans	120	199	179
HF cetaceans, including		198	178
VHF cetaceans		173	153
Sirenians (dugong)		206	186

Table 6-4: Impulsive noise: unweighted sound pressure level, SEL24h and PK thresholds for acoustic effects on marine mammals

Hearing group	NOAA (2019)	NMFS (2018), Southall et al. (2019)			
	Behaviour	PTS onset thresholds (received level)		TTS onset thresholds (received level)	
	SPL (dB re 1 µPa)	Weighted SEL_{24h} (dB re 1 $\mu Pa^2 \cdot s$)	PK (L_{pk}; dB re 1 µPa)	Weighted SEL_{24h} (dB re 1 $\mu Pa^2 \cdot s$)	PK (L_{pk}; dB re 1 µPa)
LF cetaceans	160	183	219	168	213
HF cetaceans, including	160	185	230	170	224
Sirenians (dugong)	160	190	226	175	220

6.1.2.1.1 *Potential impacts from activity vessels*

Using the predicted source levels described above, estimated distances from activity vessels to behavioural and physiological thresholds (as listed in Table 6-5) for cetaceans are provided herein.

Zykov et al. (2013) considers a range of modelling scenarios for pipelay vessels in 23 to 80 m of water, with sea floor surface geology consisting of sand and silt. The depths and geology are similar to those within the OA, and the sound speed profile is similar at the relevant shallow depths to that used in previous work for the Barossa Development (JASCO, 2016). The vessel referenced in Zykov et al. (2013) is the Solitaire, a vessel with substantially greater total thruster power (~55,000 kW) than the support vessel the *Sapura Constructor,* which is representative of the vessel size to be used during IMMR activities (~9,800 kW). Results from this noise modelling are therefore considered highly conservative.

McPherson et al. (2019) considers the most recent criteria for potential physiological effects to marine mammals (Southall, 2019) and the equivalent NMFS (2018) from support vessels with similar total thruster power and length to the *Sapura Constructor*. The water depths for this modelling ranged between 50-150m.

Underwater noise modelling assessed in Inpex (2010) considers modelling scenarios for support vessels in water depths equivalent to the OA (60 m). The modelling is considered to provide a representative estimate of potential underwater noise levels from support vessels in the Barossa (ConocoPhillips, 2018).

These modelling scenarios have been considered where there are similarities to the noise emissions from vessels that may be used for IMMR activities.

Table 6-5: Estimated distances to behavioural and physiological thresholds for marine mammals from vessels

Potential marine mammal receptor	Estimated distance	Justification/reference
PTS		
HF cetaceans, including dolphins	Not predicted to occur	McPherson et al. (2019), offshore support vessel under DP

Potential marine mammal receptor	Estimated distance	Justification/reference
LF cetaceans	<110 m	McPherson et al. (2019), offshore support vessel under DP
Sirenians (dugong)	Not predicted to occur	McPherson et al. (2019), offshore support vessel under DP
TTS		
HF cetaceans, including dolphins	<120 m	McPherson et al. (2019), offshore support vessel under DP
LF cetaceans	<1.5 km	McPherson et al. (2019), offshore support vessel under DP
Sirenians (dugong)	<1.5 km	McPherson et al. (2019), offshore support vessel under DP
Behaviour		
HF cetaceans, including dolphins	1.3 – 9.8 km	McPherson et al. (2019), offshore support vessel under DP (1.3 km) Zykov et al. (2013), pipelay vessel under DP in 80 m water (9.8 km) Inpex (2010), offshore support vessel under DP (3.5 km)
LF cetaceans		
Sirenians (dugong)		

Auditory masking impacts could occur when audibility is reduced for one sound (signal) that is caused by the presence of another sound (noise). For this to occur, the noise must be loud enough and have a similar frequency to the signal, and both signal and noise must occur simultaneously. Therefore, the closer the marine mammal is to the vessel and the more overlap there is with their vocalisation frequencies, the higher the probability of auditory masking. Thus, the potential for masking and communication impacts is classified as high near the vessel (within tens of metres), moderate within hundreds of metres, and low within thousands of metres (Clark et al., 2009).

As outlined in Table 6-5, noise emissions generated from vessel activities can cause behavioural responses, such as avoidance, in marine mammals within 1.3 to 9.8 km of vessels used for IMMR activities.

While it is considered unlikely that transiting individuals would remain in close proximity to the sound source, PTS could occur in LF cetaceans within close proximity (<110 m) of the vessel. TTS could occur up to 1.5 km away for LF cetaceans and within close proximity (<120 m) for HF cetaceans, including sirenians (dugongs). However, it is unlikely that individuals would remain within these distances for periods of time sufficient to be harmful.

6.1.2.1.2 *Potential impacts from helicopters*

Helicopter noise has been measured at a maximum received level of 109 dB re 1 µPa (SPL) and only detectable underwater for 11 to 38 seconds (based on transit speed), depending on water depth (Richardson et al., 1995). Therefore, the only credible impact would be behavioural impacts, limited to short term behavioural responses such as diving or increased swimming speed when the helicopter lands or takes off. Such impacts are considered unlikely to result in substantial effects to marine mammal populations or distribution.

6.1.2.1.3 *Potential impacts from MBES and SSS survey equipment*

Survey geophysical equipment has been modelled at a number of locations, including the coast of Russia, Greenland, California and the Otway Basin (Zykov et al., 2013; Austin et al., 2012; McPherson & Wood, 2017). These studies, along with the example of accumulation provided in McPherson (2020), indicate both peak and frequency-weighted SEL noise emissions from survey equipment, such as MBES operating at 400 kHz, are typically below sound levels that could result in low- and high-frequency marine mammal TTS or PTS from either PK or SEL criteria (Table 6-4) in a horizontal direction. The threshold for behavioural disturbance (Table 6-4) could be exceeded within 120 m (McPherson, 2020). SSS impulses and MBES sound levels are outside the auditory range of LF species and baleen whales (such as humpback and pygmy blue whales), but within the mid-frequency and HF cetacean marine fauna auditory range (such as sperm whales and dolphins). However, PTS and TTS thresholds for these species (Table 6-4) are only expected to be exceeded close to the source. Due to the lack of aggregating areas for these species, individuals are expected to be transitory only, displaying behavioural responses, and moving away from the source before TTS and PTS thresholds are exceeded.

Survey equipment could cause masking of vocalisations of cetaceans due to the overlap in frequency range between signals and vocalisations. Masking will primarily apply to HF cetaceans, with all signals above 2 kHz. Higher frequency sounds have limited propagation, and attenuate rapidly, resulting in a relatively small area of influence. Therefore, the range at which masking impacts could occur would be limited to within hundreds of metres from the sound source.

The risk of impact is further reduced as the survey vessels will be moving along the pipeline when conducting these types of surveys. The likelihood of an individual remaining within the distances above for any length of time is highly unlikely.

6.1.2.2 Marine reptiles

The 20 km noise assessment boundary intersects the flatback turtle internesting BIA (>800 km of NT coastline) and habitat critical to the survival of the flatback turtle, and the habitat critical to the survival of olive ridley. The flatback turtle peak internesting period occurs between June to September and low-density nesting occurs during the wet season. Notwithstanding, the OA represents a minute portion of the NT-wide total areas of flatback turtle BIA (internesting) and habitat critical to the survival of flatback turtles (nesting) shown in Figure 3-9. Furthermore, as the OA is located in water depths greater than 50 m and has a lack of foraging habitat, the potential numbers of affected internesting turtles is expected to be limited. The OA may also be traversed by green, olive ridley, loggerhead, leatherback, and hawksbill turtles nesting in other areas of northern Australia as marine turtle migratory pathways are largely restricted to waters less than 100 m deep (Pendoley, 2022).

The Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b) highlights noise interference from anthropogenic activities as a threat to marine turtles. The plan refers to vessel noise and the operation of some energy infrastructure as sources of chronic (continuous) noise in the marine environment, exposure to which may lead to the avoidance of important turtle habitat. The recovery plan notes there is limited information available on the impact of noise on marine turtles and that the impact of noise on turtle stocks may vary depending on whether exposure is short (acute) or long term (chronic). Turtles have been shown to respond to LF sound, with indications that they have the highest hearing sensitivity in the frequency range of 100–700 Hz (Bartol and Musick, 2003).

Finneran et al. (2017) presented revised thresholds for marine turtle injury and hearing impairment (TTS and PTS). Their rationale is that marine turtles have better auditory sensitivity at low frequencies and poor auditory sensitivity at other frequencies (Bartol and Ketten, 2006; Dow Piniak et al., 2012; Martin et al., 2012). Accordingly, TTS and PTS thresholds for turtles are likely more similar to those of fish than to marine mammals (Popper et al., 2014).

Studies show that marine turtle behavioural responses occur to received sound levels of approximately 166 dB re 1 µPa and that avoidance responses occur at around 175 dB re 1 µPa (McCauley et al., 2000). These levels overlap with the sound frequencies produced by activity vessels. Based on the limited data regarding noise levels that elicit a behavioural response in turtles, the lower level of 166 dB re 1 µPa from the National Science Foundation (NSF, 2011) is typically applied, both in Australia and by NMFS, as the threshold level at which behavioural disturbance could occur. The recommended criteria for continuous and impulsive sound sources for turtles are listed in Table 6-6 and Table 6-7.

Table 6-6: Continuous noise: criteria for vessel noise exposure for marine reptiles

Potential marine fauna receptor	Popper et al. (2014)		Finneran et al. (2017) Weighted SEL_{24h} (dB re 1 μPa^2s)	
	Masking	Behaviour	PTS onset threshold	TTS onset threshold
Marine reptile	(N) High (I) High (F) Moderate	(N) High (I) Moderate (F) Low	220	200

Note: Relative risk (high, moderate, low) is given for animals at three distances from the source defined in relative terms as near (N) – tens of metres, intermediate (I) – hundreds of metres, and far (F) – thousands of metres.

Table 6-7: Impulsive noise: criteria for impulsive noise exposure for marine reptiles, adapted from Popper et al., 2014

Potential marine fauna receptor	Masking	Behaviour	TTS	Recoverable injury	Mortality and potential mortal injury
Marine reptile	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low	(N) High (I) Low (F) Low	(N) High (I) Low (F) Low	>210 dB SEL_{24h} or >207 dB PK

Note: Relative risk (high, moderate, low) is given for animals at three distances from the source defined in relative terms as near (N) – tens of metres, intermediate (I) – hundreds of metres, and far (F) – thousands of metres.

6.1.2.2.1 *Potential impacts from activity vessels*

Based on the criteria detailed within Table 6-6, there is a low risk of any injury to marine turtles from activity vessel noise. Behavioural changes, such as avoidance and diving, are only predicted for individuals near the activity vessels: high risk of behavioural impacts within tens of metres of a vessel and moderate risk of behavioural impacts within hundreds of metres of a vessel. There is a high risk of masking within hundreds of metres of the vessel, and a moderate risk of masking within thousands of metres from the vessel. Little is known regarding masking in marine turtles; behavioural reactions have been found to be highly context-specific, with behavioural sensitisation and habituation affecting the onset threshold for reactions and impacts (Ellison et al., 2012). However, given the relatively low-level increase in sound, it is unlikely vessel noise will cause significant masking impacts in turtles.

6.1.2.2.2 *Potential impacts from helicopters*

Helicopter noise will be intermittent during the Activity and below the behavioural impact threshold (PTS and TTS). Impacts to marine turtles from helicopter noise are expected to be limited to short term behavioural impacts (i.e. diving or swimming rapidly) when the helicopter is taking off or landing, based on measurements of helicopter noise (Richardson et al. 1995). Such impacts are considered unlikely to affect marine turtle populations or distribution substantially.

6.1.2.2.3 *Potential impacts from survey equipment*

The sound levels of the survey equipment are below those associated with the PK criterion for injury (Table 6-7) beyond a few metres (McPherson, 2020) and, due to the low per-pulse SEL (McPherson, 2020), the SEL criterion will also not be exceeded. Recoverable injury and TTS could occur within tens of metres applying the relative risk criteria from Popper et al. (2014) (Table 6-7). Behavioural changes, such as avoidance and diving, are only predicted for individuals in proximity to the survey: high risk of behavioural impacts within tens of metres of the source and moderate risk of behavioural impacts within hundreds of metres of the source.

Turtles are unlikely to experience masking, even at close range to the source. This is in part because the sounds from survey equipment are all outside of the hearing frequency range for turtles (approximately 50 to 2000 Hz, with highest sensitivity to sounds between 200 and 400 Hz) (Ridgway et al., 1969; Bartol et al., 1999; Ketten & Bartol, 2005; Bartol & Ketten, 2006; Yudhana et al., 2010; Piniak et al., 2011; Lavender et al., 2012, 2014).

Impacts to marine turtles from underwater noise generated by survey equipment are unlikely to result in significant impacts, given impacts are likely to be limited to physiological impacts in individuals located within tens of metres of the sound source, and behavioural impacts in individuals located within hundreds of metres of the sound source. The risk of impact is further reduced as the vessels will be moving when undertaking surveys and it is highly unlikely any individual would remain within the distances above for any length of time.

In summary, considering the offshore location and water depths of greater than 50 m within the OA, only individual turtles may be affected as they transit the area, and impacts from noise are not considered significant because:

- The 20 km noise assessment boundary intersects a minute portion of the total area of flatback turtle internesting BIA (>800 km of NT coastline) and habitat critical to the survival of the flatback turtle, as well as habitat critical to the survival of the olive ridley turtle.
- There are no flatback turtle or olive ridley nesting sites within the noise assessment boundary
- Vessel noise, and survey and positioning equipment are expected to be below the thresholds for PTS and TTS given the typical size of vessels used for IMMR activities and the slow vessel speeds within the OA; the received levels may result in behavioural impacts, but for a limited time and will not result in significant impacts
- Individual marine turtles may traverse the 20 km noise assessment boundary but are unlikely to aggregate
- following the impact thresholds outlined in Table 6-6 and Table 6-7, marine turtles are at low credible risk of mortality or permanent injury due to continuous noise sources, even near the source
- behavioural responses are expected to occur near the sources but will be limited to avoidance or a temporary change in swimming behaviour.

6.1.2.3 Crocodiles and sea snakes

There is limited information on the effects of noise on sea snakes and crocodiles. A current research project investigating the impacts of impulsive noise (based on seismic surveys, noting seismic surveys are outside the scope of this GEP Coastal Waters OEMP) found that the hearing sensitivity of sea snakes is similar to species of fish without a swim bladder. Therefore, it is considered that there is a moderate risk in the near and intermediate distances (which extend hundreds of metres) of behavioural impacts to sea snakes, with the impacts being limited to temporary avoidance of the area.

Crocodiles are considered to hold cultural significance as totemic species (Section 3.2.15.10). There are no known studies that have investigated the effects of noise on crocodiles so the thresholds for turtles shown in Table 6-6 and Table 6-7 are considered applicable. Such impacts are considered unlikely to result in substantial affects to crocodile populations or distribution.

6.1.2.4 Sharks, rays, and fish

The PMST report for the noise assessment boundary identified a threatened species—speartooth shark—, and migratory species —longfin mako and shortfin mako — additional to the several sawfish, ray, shark, and other fish species listed in the PMST report for the OA (Table 3-10). There are no known fish spawning or aggregation areas along the GEP route in coastal waters; however, individuals or schools may transit. The closest area that supports site attached fish is the Shepparton Shoal (23 km from the OA) and Afghan Shoal (24 km from the OA).

All fish species can detect noise sources, although hearing ranges and sensitivities vary substantially between species (Dale et al., 2015). Sensitivity to sound pressure in fish seems to be functionally correlated to the presence or absence of gas-filled chambers in the sound transduction system. These chambers enable fish to detect sound pressure and extend their hearing abilities to lower sound levels and higher frequencies (Ladich and Popper, 2004; Braun and Grande, 2008). Based on their morphology, Popper et al. (2014) classified fish into 3 animal groups comprising:

- Fish with swim bladders whose hearing does not involve the swim bladder or other gas volumes
- Fish whose hearing does involve a swim bladder or other gas volume
- Fish without a swim bladder that can sink and settle on the substrate when inactive.

Thresholds for PTS and recoverable injury are between 207 dB peak and 213 dB peak (depending on the presence or absence of a swim bladder), and the threshold for TTS is 186 dB SELcum (Popper et al., 2014). Because there are no exposure criteria for sawfish, sharks and rays, the same criteria are adopted, although these species do not possess a swim bladder.

The criteria defined in Popper et al. (2014) for continuous (Table 6-8) and impulsive (Table 6-9) noise sources were applied when assessing impacts to sharks, rays, and other fish.

Table 6-8: Continuous noise: summary of fish impact thresholds

Marine fauna group	Mortality and potentially fatal injury	Impairment			Behaviour
		Recoverable injury	TTS	Masking	
I Fish: No swim bladder (particle motion detection) includes sharks and rays.	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) Moderate (I) Moderate (F) Low
II Fish: Swim bladder not involved in hearing (particle motion detection)	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) Moderate (I) Moderate (F) Low
III Fish: Swim bladder involved in hearing (primarily pressure detection)	(N) Low (I) Low (F) Low	170 dB SPL for 48 h	158 dB SPL for 12 h	(N) High (I) High (F) High	(N) High (I) Moderate (F) Low
Fish eggs and fish larvae	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low	(N) Moderate (I) Moderate (F) Low

Source: Adapted from Popper et al., 2014

Note: Relative risk (high, moderate, low) is given for animals at three distances from the source defined in relative terms as near (N) – tens of metres, intermediate (I) – hundreds of metres, and far (F) – thousands of metres.

Table 6-9: Impulsive noise: summary of fish impact thresholds

Marine fauna group	Mortality and potentially fatal injury	Impairment			Behaviour
		Recoverable injury	TTS	Masking	
I Fish: No swim bladder (particle motion detection) includes sharks and rays.	> 219 dB SEL24h or > 213 dB PK	> 219 dB SEL24h or > 213 dB PK	>>186 dB SEL24h	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low
II Fish: Swim bladder not involved in hearing (particle motion detection)	210 dB SEL24h or > 207 dB PK	203 dB SEL24h or > 207 dB PK	>>186 dB SEL24h	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low
III Fish: Swim bladder involved in hearing (primarily pressure detection)	207 dB SEL24h or > 207 dB PK	203 dB SEL24h or > 207 dB PK	186 dB SEL24h	(N) Low (I) Low (F) Moderate	(N) High (I) High (F) Moderate

Fish eggs and fish larvae	> 210 dB SEL24h or > 207 dB PK	(N) Moderate (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low

Source: Adapted from Popper et al., 2014 Note: Relative risk (high, moderate, low) is given for animals at 3 distances from the source defined in relative terms as near (N) – tens of metres, intermediate (I) – hundreds of metres, and far (F) – thousands of metres.

6.1.2.4.1 *Potential impacts from vessels*

Based on the Popper et al. (2014) review, vessel noise has a low risk of resulting in mortality for all fish types. The risk of recoverable injury to Group I and Group II fish is low; however, it is moderate for TTS and behavioural impacts when fish are within tens of metres of an activity vessel (Popper et al., 2014). For Group III fish, recoverable injury and TTS may occur within 60 m of the source (McPherson et al., 2019), with a high risk of behavioural impacts occurring within tens of metres of an activity vessel (Popper et al., 2014).

Whale sharks are not considered to be particularly vulnerable to noise-related impacts and are categorised as 'fish with no swim bladder' when determining impact thresholds. Whale sharks would be expected to show avoidance to vessel noise, although they are likely to tolerate low-level noise—whale sharks have been observed swimming close to energy industry platforms on WA's North-West Shelf.

Fish within the OA are expected to be highly mobile or a transitory, with no sensitive or significant benthic features known to be present that would cause an aggregation of fauna or site attached species. In addition, impacts to fish are not considered to have the potential to be significant because noise levels from vessels that may cause behavioural responses are expected to be within a radius of a few hundred metres of the noise source.

6.1.2.4.2 *Potential impacts from survey equipment*

The criteria defined in Popper et al. (2014) for impulsive noise sources has been adopted (Table 6-9). Impulsive noises from survey equipment could result in physiological impacts to fish located within metres of the sound source, considering the results presented in McPherson (2020). Given the ability of fish to move away from the sound source, physiological impacts are not expected.

Behavioural impacts to fish from survey equipment noise may occur in individuals located within hundreds of metres of the source. None of the survey equipment has energy below 1 kHz; therefore, it is unable to be heard by most fish, which further reduces the risk of impact (Ladich & Fay, 2013). The impact of masking is low at all ranges, apart from fish who specialise in pressure detection, which can be impacted in a moderate way at thousands of metres. However, as these signals are outside the hearing range of most fish in the region, the risk of impact is reduced.

Impacts to fish from underwater noise generated by survey equipment are unlikely to result in substantial impacts to populations or distribution, given impacts are likely to be limited to behavioural impacts within hundreds of metres and masking within thousands of metres. Fish are considered unlikely to remain in proximity of the sound source for long periods of time and are, therefore, unlikely to be exposed to sound at the above thresholds. Site-attached fish are more at risk of impacts. Given the vessel is constantly moving when undertaking surveys, survey source noise will not impact any one location for an extended duration.

6.1.2.5 Invertebrates

6.1.2.5.1 *Potential impacts from vessels*

Benthic invertebrates are unlikely to be negatively impacted from noise generated from vessel activities (i.e., water depth is greater than 50 m). There are no thresholds or guidelines regulating the exposure of marine invertebrates to underwater noise.

Stress responses to non-impulsive sound exposure have been documented for marine invertebrates. The worst-case consequence for individual animals can be expected to be moderate to major, but due to the limited spatial extent of the affected area, population consequences are considered to be minor.

There is no systematic information available if and to what extent marine invertebrates use acoustic cues to communicate with conspecifics or their environment. Anecdotal information indicates no functional relevance of sound for these animals – vibration, such as ground-borne or near-field particle motion – however, sound can be assumed to have functional relevance as it provides information about potential food availability or approaching predators. This information could potentially be masked by the noise and particle motion emitted by the vessels, even though this effect would be limited to the direct vicinity of noise-generating sources. The consequence of (acoustic and vibrational) masking is considered to be, in the worst case, moderate for individuals. Due to an expected limited number of individuals experiencing this masking, it would have a negligible impact on a population level.

There is limited and inconclusive data available about the potential for behavioural responses and noise-induced physical effects on marine invertebrates. Theoretically, behavioural responses and significant sensory impairment

or injury can have moderate consequences for an individual. In the absence of conclusive scientific information about the scope of these effects and the animals' ability to compensate for the effects, it is impossible to assess the consequences of behavioural responses and noise-induced impairment or injury.

Plankton, including fish eggs and larvae, and pelagic invertebrates could drift close to high energy noise sources (for example, vessel thrusters). However, any negative impacts that could occur would be restricted to within metres of the sound source.

6.1.2.5.2 *Potential impacts from survey equipment*

For impulsive noise and benthic invertebrates, the source is an important consideration in the assessment.

Any negative impacts on plankton and invertebrates that could occur would be restricted to within metres of the sound source. At such a localised extent, impacts would be negligible at an ecosystem or population level.

There are no thresholds or information available for assessing the potential impacts from HF sources such as MBES/SBES on either water column or benthic invertebrates. These sources are often used to assess and quantify plankton densities, including within McCauley et al. (2017), who used a Simrad EK60 echosounder operating at 120 kHz.

6.1.2.6 Socioeconomic

Impacts to socioeconomic receptors, including commercial fisheries, recreation and tourism are considered to be minor due to the localised, infrequent and temporary noise levels and low socioeconomic activity levels expected within the noise assessment boundary. No commercial fisheries feedback about noise impacts was provided during consultation (refer to Section 4.8).

6.1.2.7 Cultural features

No First Nations people feedback was provided about potential noise impacts to any geographically specific cultural features (excluding marine fauna species) during consultation (refer to Section 4.8). The potential direct or indirect impacts to culturally significant marine fauna species (such as dreaming / songs and totem species including whales, dolphins, dugongs, turtles, crocodiles, sawfish, sharks, rays and other fish) are assessed in Sections 6.1.2.1 to 6.1.2.4).

During consultation meetings with Tiwi Clans for the Barossa Development Drilling and Completions EP concerns were raised about the impact of drilling on their dreaming totems (including turtle totems). In the 2022 Statement of Reasons Requests, the Tiwi clan members raised their concern regarding traditional hunting of marine species and totem species. First Nations people maintain a continuing spiritual connection with sea country, including marine fauna species with cultural significance, such as totems or as a cultural food source. The potential impacts to culturally significant marine fauna species are likely to be limited to localised, temporary behavioural impacts (see Sections 6.1.2.1 to 6.1.2.4). It is unlikely to result in significant impacts to marine species at the individual or population level. Consequently, it is anticipated that noise emissions are unlikely to impact traditional hunting practices or resources.

As presented in Section 3.2.15, some First Nations peoples' cultural beliefs place significance on culturally important spiritual beings and the protection they afford First Nations communities from natural disasters and sickness. Santos recognises that some First Nations Relevant Persons fear sickness or other adverse effects from the actions of spiritual beings in response to impacts on the environment of sea country itself. Of direct relevance these sorts of Tiwi cultural and spiritual values were tested in the Federal Court and were found not to be consistently spread amongst relevant Tiwi Islanders and in any event did not represent a particular 'place' of cultural and spiritual significance.

Santos notes that existing subsea infrastructure has previously been placed on the seabed in the region, such as the Bayu-Undan pipeline since approximately 2006, the Ichthys Pipeline since approximately 2016, the North West Cable System since approximately 2016 and the GEP since 2023. The region also has a history of significant historic and ongoing industrial shipping, fish trawling activities and drilling of almost 900 offshore wells. There is no evidence to support actual adverse effects from the actions of spiritual beings in response to impacts on the environment from these activities.

Santos recognises the importance of cultural and spiritual beliefs to First Nations people. Santos recognises that some First Nations people remain concerned about the potential for adverse consequences to First Nations people and natural environment, that may arise as a result of disturbance from the Barossa Gas Project to spiritual dreaming and culturally important spiritual beings. Santos understands the spiritual protection believed to be afforded to the First Nations people is broadly maintained by protecting the features of the natural environment and through ceremonial practices alerting the spiritual beings to the presence of people travelling through country and the like (Corrigan, 2023).

Dr Corrigan (2024) documented input from Larrakia people and relevant First Nations persons from Belyuen and Wagait, who advised the presence of a range of ancestral beings and dreaming stories of relevance to the Darwin

Harbour, surrounding seas and the DPD (now GEP) Project footprint. None of these cultural features are known to be associated with any specific or particular places in the GEP footprint but rather have a more general association with the wider area, as well as having associations with particular and specific places outside of the GEP footprint.

Santos considers that the control measure to provide cultural heritage training (BAO-CM-6.1.4 will reduce impacts and risks to intangible cultural values to ALARP and an acceptable level. Santos has also considered those concerns relating to potential noise impacts relating to other Barossa Gas Project EPs and where applicable additional EPOs, EPSs and CMs have been adopted.

6.1.3 Environmental performance outcomes and control measures

The EPOs relating to this event include:

- No injury of, or mortality to, EPBC Act 1999 listed marine fauna or marine fauna listed as threatened species under the Territory Parks and Wildlife Conservation Act 1976 (NT) as a result of the Activity. (EPO-08)
- No displacement of marine turtles from habitat critical during nesting/breeding (including internesting periods for turtles) and ensure biologically important behaviour can continue in biologically important areas. (EPO-15)

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this activity are described in Table 6-10 to demonstrate the potential impacts from this aspect are ALARP. Control measures that are adopted have associated EPSs and measurement criteria and are presented in Table 8-2. Rejected control measures have an ALARP evaluation provided to justify their rejection.

Table 6-10: Control measure evaluation for noise emissions

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.1.1	Apply Santos' Protected Marine Fauna Interaction and Sighting Procedure to vessel and helicopter activities when in the vicinity of cetaceans and turtles (isolation control)	Santos implements EPBC Regulations– Part 8 Division 8.1 Interacting with cetaceans (and applied for marine turtles) where vessel crew (or Vessel Master of the USV) act as wildlife observers to reduce the risk of a collision with marine fauna (Section 7.3). This control may result in a minor ancillary reduction in the potential for vessel noise impacts. It also effectively reduces helicopter noise levels received by fauna near the sea surface through minimising interaction with marine fauna. Reduces the potential impacts to culturally significant marine species, including totemic species, such as marine turtles and marine mammals.	Operational costs to adhere to marine fauna interaction restrictions, such as vessel and helicopter speed and direction, are based on legislated requirements and must be accepted.	**Adopted** – benefits in reducing impacts to marine fauna outweigh the costs incurred by Santos. Control measure drives compliance with EPBC Regulations (Part 8).
BAO-CM-6.1.2	Vessels equipped and crewed in accordance with Australian maritime requirements, including Marine Order	Ensures contracted vessels are operated, maintained, and crewed in accordance with industry standards and	Costs are expected as part of standard procedure.	**Adopted** – benefit of assuring vessels outweighs procedure compliance costs.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
	30 (Prevention of Collisions) and Marine Order 21 (Safety and Emergency Arrangements) (administrative control)	regulatory requirements. Ensures vessels meet Marine Assurance Standards to reduce the likelihood of vessel collision (such as minimum and working lighting for maritime safety).		
Additional control measures				
BAO-CM-6.1.4	Inductions for all site-based workforce will include information on cultural heritage to raise awareness about the cultural and spiritual belief of First Nations people (administrative control)	Addresses concerns raised (during consultation for the Barossa Project construction activities) of some First Nations people about the potential impacts of the Activity on their spiritual beliefs in a culturally appropriate manner.	Cost to engage First Nations representatives to perform cultural ceremony. Administrative cost to deliver cultural heritage training.	**Adopted** – benefits considered to outweigh costs.
N/A	Avoid activities near cetaceans and turtles) (isolation control)	Reduces noise impacts to internesting flatback turtles during key life stages. Reduces the potential impacts to culturally significant marine species, including totemic species, such as marine turtles and marine mammals.	Reduces the window of opportunity for undertaking the Activity.	**Not adopted** – the potential for impact is considered acceptable as impacts to marine turtles from underwater noise generated by survey equipment are likely to be limited to physiological impacts in individuals located within tens of metres of the sound source, and behavioural impacts in individuals located within hundreds of metres of the sound source. Activities in HC area will be infrequent (every three to five years, and short in duration).
N/A	Manage the timing of the Activity to avoid sensitive periods, such as migration (whales), spawning (fish), or nesting (turtles) (administrative control)	Reduces potential impacts to fauna during key life stages.	Reduces the window of opportunity for undertaking the Activity.	**Not adopted** – not considered necessary or feasible as primary noise is from vessel DP thrusters and engines. The OA does not overlap with any whale migration BIAs and therefore seasonal presence of whales is not expected to be higher at certain times of the year. Additionally, given the low potential impacts to individual fauna, including marine turtles, significant

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
				impacts to migratory or nesting behaviours are not expected. Activities in turtle HC area will be infrequent and short in duration. Therefore, no impacts are predicted at a population level that would justify altering the timing of the Activity.
N/A	Verification of noise levels (administrative control)	Allow adaptive management controls to be implemented if impact is greater than expected. May help verify estimated potential noise impact zones.	Costs of deploying noise monitoring equipment and processing data. Field monitoring program not warranted where potential impacts are low risk.	**Not adopted** – Cost considered disproportionate to the environmental benefit, given the rapid reduction in noise levels from Activity vessels and the low-level behavioural response expected.
N/A	Implement a shutdown zone around MBES and SSS in the OA (elimination control)	Implement an area around survey vessels in which equipment is shut down if marine fauna are observed within a defined zone of potential physiological impact.	Additional costs for suitably trained personnel to observe fauna around the shutdown zone, and potential disruption to the Activity if operations must stop while in progress.	**Not adopted** – MBES and SSS surveys are infrequently conducted as part of ongoing operations.
N/A	Dedicated marine mammal observers (MMOs) (administrative control)	Improved ability to spot and identify marine fauna.	Additional cost of contracting several specialist MMOs. Even if marine fauna are identified, noise sources cannot be shut down since they are integral to the safe operation of Activity vessels.	**Not adopted** – cost disproportionate to increase in environmental benefit given that seismic surveys require MMOs and seismic surveys are not being conducted (as per EPBC Policy Statement 2.1 Part B.1). Activity noise is considered negligible
NA	Noise management plan (administrative control)	Impacts are predicted to be minor (e.g. potential temporary and minor behavioural changes); therefore, a noise management plan and associated management controls would have little or no benefit on outcomes (i.e. further reducing impacts).	Personnel costs of preparing and reviewing the management plan.	**Not adopted** – the OA is not near any resting, foraging, calving or confined migratory pathways for protected cetacean species. Therefore, the cost outweighs the benefit associated with developing a management plan for an Activity of short duration and minor impact (i.e. potential temporary and minor behavioural changes).
N/A	Helicopters will not land or take off if marine megafauna are	Reduces potential impacts to megafauna.	May impact safety during landing or take off.	**Not adopted** – increased exposure risk to passengers.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
	present in the vicinity of an Activity vessel (elimination control)			Risk of exhausting fuel supplies.
N/A	Application of EPBC Policy Statement 2.1 Interaction between offshore seismic exploration and whales	Minimises potential impacts to whales as a result of seismic activities through visual observations, soft starts, stop work, nighttime and low visibility procedures. No seismic activities will be undertaken as part of the proposed activities.	Additional cost of contracting several specialist MMOs. Cost associated with soft starts and stop work procedures.	**Not adopted** – cost disproportionate to increase in environmental benefit given there are no seismic surveys (as per EPBC Policy Statement 2.1) activity noise generated is considered negligible and no known whale BIAs overlap (or are close to) the OA. Vessels noise is infrequent, and no seismic activities will be undertaken.
N/A	Use of passive acoustic monitoring	Improve detection of some sensitive receptors.	Costs of passive acoustic monitoring operators. Operational costs of shutdowns will potentially prolong the activity.	**Not adopted**- Cost incurred disproportionate to increase in environmental benefit given the low-level behavioural response expected. Limited ability of passive acoustic monitoring to detect cetaceans would provide little benefit to species expected to be present.
N/A	Manage timing of activities to avoid coinciding with sensitive periods for marine fauna present in the operations area (pygmy blue whale migration period)	Reduces the risk of impacts from noise emissions during environmentally sensitive periods for listed marine fauna	High cost in moving or delaying activity schedule (for the Barossa GEP from the FPSO to DLNG). The risk to all listed marine fauna cannot be reduced due to variability in timing of environmentally sensitive periods and unpredictable presence of some species.	**Not adopted** - TTS thresholds from underwater noise will be limited to within a few hundred meters of the source and will not overlap the water depths (500m+) that pygmy blue whales are known to use during their migration. Therefore, potential for impacts to migrating whales extremely limited, given close proximity to the source for underwater noise to fall below TTS levels (considered an injury under the Management Plan for Pygmy Blue Whales), in water depths shallower than preferred by migrating pygmy blue whales. Therefore, the activities are not inconsistent with the objectives of the

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
				Pygmy Blue Whale Management Plan.
N/A	Vessel activities will only occur during daylight hours.	Reduces the risk of impacts from noise emissions due to vessel being stationary at night	Vessel are required to work 24 hours when undertaking operations and maintenance activities to ensure the safe operation of the facility. Limiting the activity to daylight hours would also result in significant financial costs.[	**Not adopted-**limiting the activity to daylight hours would increase the time required to undertake activities to ensure the safe operation of the facility. The high financial cost would be grossly disproportionate to negligible environmental benefits.

6.1.4 Environmental impact assessment

Receptor	Consequence level
Noise emissions	
Threatened, Migratory or local fauna	While the level of noise expected from operational activities has the potential to cause physical injury to marine fauna, most species that may transit through the OA are expected to demonstrate avoidance behaviour if noise levels approach those that could cause pathological effects. Avoidance behaviour is likely to be localised (less than 1 km) within the area of the activity vessels (due to the small spatial extent of elevated noise) and temporary (duration of the activity vessels operating). Impacts to marine mammals from underwater noise generated by the Activity are considered unlikely to be substantial given that there are no significant feeding, breeding or aggregation areas in the vicinity of the OA. The closest marine mammal BIA is the dolphin breeding BIA, located approximately 46 km from the OA, outside the area predicted to exceed thresholds for behavioural, masking or physiological impacts. The nearest whale (pygmy blue) distribution is greater than 300 km away. Any responses will be limited to transiting individuals, which is unlikely to result in substantial impacts to marine mammal populations or distribution. Behavioural impacts may include increased swimming speed, changes in dive behaviour or avoidance of the area. Such impacts would be temporary, with no significant impacts predicted to individuals or populations. Potential behavioural impacts from underwater noise will be limited to within 9.8 km of activity vessels. There is potential for TTS to occur within 120 m and 1,500 m from the source for HF cetaceans, including sirenians (dugongs) and LF cetaceans, respectively. The potential for PTS in LF cetaceans is estimated to be within 110 m of the source. Notably, the modelled exposure area for the SEL24 criteria represents an area within which the animals may be exposed to sound levels associated with impairment (PTS or TTS) if they remain within the ensonified area for a duration of 24 hours. Behavioural impacts to fish from survey equipment noise may occur in individuals located within hundreds of metres of the source. Survey equipment could cause masking of vocalisations of cetaceans but would be limited to within hundreds of metres from the sound source. PTS and TTS thresholds for marine mammals are only expected to be exceeded close to the source. Due to the lack of aggregating areas for these species and significant distances to the nearest marine mammal BIA, individuals are expected to be transitory only, displaying behavioural responses, and moving away from the source, before TTS and PTS thresholds are exceeded. In the Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b), noise interference to marine turtles depends on whether the exposure is short (acute) or long-term (chronic). The noise generated by the Activity is acute, with impacts restricted to localised changes in behaviour within hundreds of metres of the source. The 20 km noise assessment boundary intersects the flatback internesting BIA and habitat critical to the survival of the flatback and habitat critical to the survival of the olive ridley turtle. However, due to the OA water depths, the BIA extending across more than 800 km of coastline, a lack of foraging habitat and that no aggregations are expected, the potential numbers of affected internesting turtles are expected to be limited. Potential impacts to marine turtles from underwater noise are considered unlikely to result in substantial impacts to populations or distribution given that

Receptor	Consequence level
	impacts are likely to be limited to behavioural and masking impacts within a relatively small area of important turtle habitat. Potential impacts to threatened or migratory sawfish, sharks, rays or other fish species are limited to the potential for avoidance behavioural responses within hundreds of metres of the source. Although there is the potential for TTS within this range, this is not expected due to noise avoidance behaviour. Impacts to fish are not considered to have the potential to be significant because noise levels from noise sources that may cause avoidance behavioural responses are expected to be within a radius of a few hundred metres of the noise source. Other protected species are not expected to be affected given their wide distribution (in the case of sea snakes, crocodiles and sharks), distances to seabird breeding colonies, and preference for shallow coastal habitats (sawfish). For the above reasons, no substantial change to threatened and migratory species is anticipated that may: • Lead to a long-term decrease in the size of a population • Reduce the area of occupancy of the species • Fragment an existing population into 2 or more populations • Adversely affect habitat critical to the survival of a species • Displace threatened and migratory marine fauna from habitat critical to the survival of a species areas • Disrupt biologically important behaviours of threatened and migratory marine fauna within BIAs • Disrupt the breeding cycle of a population • Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline • Interfere with the recovery of the species. The consequence of noise emissions is assessed as I – Negligible
Physical environment/ habitat	Not applicable – Noise will not impact the physical environment itself (including the Carbonate bank and terrace system of the Van Diemen Rise KEF that overlaps the OA). Species associated with the continental slope and patch reefs, and the hard substrate sediments of deep channels that characterise these KEFs – such as demersal fish, whale sharks, sharks, seasnakes and turtles – are unlikely to aggregate within the OA due to the lack of seafloor features. However, potential impacts to these species are described above.
Threatened ecological communities	Not applicable – No threatened ecological communities identified in the area over which noise emissions are expected.
Protected areas	Not applicable – no protected areas have been identified in the area over which noise emissions are expected.
Socioeconomic receptors	The consequence of noise emissions on receptors is assessed as I – Negligible. Noise emissions are not expected to impact commercial fisheries. Impacts to fauna, including fish and other marine species is likely to be limited to temporary behavioural impacts within a 9.8 km radius around activities, and will not result in significant impacts to marine species at the individual or population level. Given the negligible consequence to marine species, subsequent impacts to commercial fish stock are not anticipated. Impacts to socioeconomic receptors, including commercial fisheries, recreation and tourism are considered to be minor due to the localised and temporary noise levels and low socioeconomic activity levels within the noise assessment boundary.
Cultural Features	No First Nations people feedback was provided about potential noise impacts to cultural features during consultation. An important outcome of Dr Corrigan's research is that no sacred sites or dreamings are shown to be directly impacted by the DPD project footprint (now the GEP), however some marine species are known to be associated with dreamings and songs (Corrigan, 2024). It is anticipated that noise emissions are unlikely to impact traditional hunting practices or resources. For assessment of impacts to marine species that are of cultural significance and/or represent a traditional food source for First Nations groups, refer to the assessment for threatened, migratory or local fauna. Santos notes that existing subsea infrastructure has previously been placed on the seabed in the region, such as the Bayu-Undan pipeline since approximately 2006, the Ichthys Pipeline since approximately 2016, the North West Cable System since approximately 2016 and GEP since 2023. The region also has a history of significant historic and ongoing industrial shipping, fish trawling activities and drilling of almost 900 offshore wells. There is no evidence to support actual adverse effects from the actions of spiritual beings in response to impacts on the environment from these activities. Notwithstanding, in response to the concerns raised by some First Nations people during consultation for the D&C EP and the GEP EP (noting no concerns were raised by First Nations

Receptor	Consequence level
	people for this Activity during the development of this GEP Coastal Waters OEMP), a control measure (BAO-CM-6.1.4[) relating to cultural heritage training is proposed. Santos considers the adoption of BAO-CM-6.1.4 and EPO-20 practicable and appropriate.
Overall worst-case consequence	II – Minor

6.1.5 Demonstration of as low as reasonably practicable

The use of vessels on DP, survey equipment, and other equipment described in Section 2 for the Activity are unavoidable as there are no other options for undertaking IMMR activities.

The sound levels generated by surveys are medium– to high–frequency and decay rapidly with distance travelled from the source, as demonstrated by Zykov et al. (2013), with the furthest distance survey noise is expected to travel being hundreds of metres. Note that marine fauna affected in varying degrees by acoustic noise (i.e., marine mammals, marine reptiles, sawfish, sharks and fish) are all expected to avoid the source of noise and will be unlikely to remain within the ensonified area for a duration of 24 hours. Avoidance behaviours are likely to be from a small area and to be temporary.

All reasonably practicable control measures were reviewed and those adopted are considered appropriate to manage the impacts such that the residual consequence is assessed to be II – Minor. The proposed management controls are in accordance with Santos' risk management criteria and are considered appropriate to reduce impacts to ALARP.

In relation to spiritual and/or cultural heritage beliefs and connections to sea country and related concerns of some First Nations people, Santos has been implementing cultural heritage training and ceremony while undertaking activities authorised pursuant to the GEP EP since November 2023, with broad support of First Nations communities as a culturally appropriate practice and response to cultural concerns. Santos considers that the adopted control measure (BAO-CM-6.1.4) based on the Corrigan 2024 Report recommendations will reduce environmental impacts and risks to ALARP, as relevant to First Nations individuals who hold these concerns in relation to their beliefs.

The proposed management controls are in accordance with Santos' risk management criteria and are considered appropriate to reduce impacts to ALARP.

6.1.6 Acceptability evaluation

Is the consequence ranked as I or II?	Yes – maximum consequence from noise emissions is II – Minor.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available.
Are the risks and impacts consistent with the principles of ecological sustainable development?	Yes – activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline which considers the principles of ESD: The impacts associated with noise emissions do not result in 'threats of serious or irreversible harm' as detailed within the EPBC Act and biodiversity and ecological integrity will be maintained. Conservative assumptions have been applied to the underwater noise modelling that has been adapted for this assessment. There are no identified health, diversity or productivity impacts that may affect the biodiversity or ecological function for future generations. The consequence against this aspect is II (Minor) and therefore does not affect the outcomes of the principles of ESD.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans, conservation advice, wildlife conservation plans and Australian marine park zoning objectives)?	Yes – controls implemented will minimise the potential impacts from the activity to species identified in recovery plans and conservation advice as having the potential to be impacted by noise emissions. Consistent with relevant species recovery plans, conservation advice, wildlife conservation plans and management actions set out in Table 3-13, including: • **Recovery Plans:** The Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b)Conservation Management Plan for the Blue Whale 2015–2025 (CoA, 2015a) **Conservation Advice:** • Approved Conservation Advice for *Balaenoptera borealis* (sei whale) (TSSC, 2015b)

	• Approved Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015c). For the identified plans, the objectives of those plans are achieved through the adoption of performance outcomes and the control measures outlined in Section 6.1.3. Santos considers that the level of impact from Activity noise emissions is not inconsistent with these plans.
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – management consistent with relevant sections of EPBC Regulations Part 8. Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B. The GEP Coastal Waters OEMP is also compliant with the conditions of EPBC approval EPBC 2022/09372 (Appendix B).
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable Operations EPs accepted by NOPSEMA have been reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback	Yes – Relevant Persons feedback for this Activity has been considered when evaluating the EPOs, CMs, or EPSs. An additional performance outcome and control measures (e.g., EPO-19 and BAO-CM-6.1.4) have been adopted based on Relevant Persons feedback on other Barossa Gas Project EPs.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, with no additional control measures adopted.

The consequence of noise emissions is assessed as II – Minor. Based on an assessment of Santos' acceptability criteria and with the control measures in place, potential impacts are considered acceptable.

6.2 Light emissions

6.2.1 Description of event

Event	Light emissions will occur from Activity vessels and other support vessels. Sources of impacts from lighting on sensitive receptors within the OA may occur as a result of: • safety and navigational lighting on vessels and ROVs undertaking IMMR activities • spot lighting used when needed, such as equipment deployment and retrieval Lighting will consist of bright white (as in, metal halide, halogen, fluorescent) lights typical of lighting used in offshore petroleum and other offshore activities in the region, such as fishing and shipping. Activity vessels will have external lighting to provide a safe working environment and to comply with relevant maritime navigation requirements at night. Lighting levels will primarily be determined by operational safety and navigational requirements under relevant legislation, specifically the *Navigation Act 2012* (Cth). Activity vessels will be required to generate and use navigational lighting at night to indicate their position, and they must also indicate their limited ability to manoeuvre during operations under the *Navigation Act 2012* (Cth).
Extent	No permanent light sources will be required along the pipeline; however, lighting may be required for periodic activities, such as IMMR. Light or light glow from is expected to reduce to levels unlikely to cause biological effects at 3.3 km from the source, either moving slowly along the pipeline or in one area (depending on the type of IMMR). The light assessment boundary of 20 km from the source is considered representative of the extent of light exposure, in accordance with National Light Pollution Guidelines for Wildlife (NLPGW) (DCCEEW, 2023c). This additional 20 km buffer around the OA is the extent relevant to the impact assessment for planned light emissions. Cumulative modelling of 2 vessels working together indicates that light is predicted to reduce to below ambient levels at approximately 21.6 km and potential behavioural impacts to turtles is limited to 4.5 km (Pendoley, 2022).
Duration	Navigational and task lighting is required 24 hours a day for the duration of the IMMR activity. IMMR vessels are typically present for 7 to 30 days along the pipeline route during planned inspection campaigns. These campaigns occur every three to five years or as needed.

6.2.2 Nature and scale of environmental impacts

Potential receptors: threatened, migratory or local fauna (marine mammals, marine reptiles, seabirds, sharks, rays and other fish); socioeconomic; and cultural features.

To humans, light is visible between wavelengths of approximately 380–780 nanometres (nm), between the violet and red regions of the electromagnetic spectrum. In fauna, light is visible between 300 nm and >700 nm, depending on the species. Some fauna do not see long wavelength red light at all, while others see light beyond the blue-violet end of the spectrum and into the ultraviolet (DCCEEW, 2023c). Therefore, the source of light impacts relates to both the amount of artificial light, as well as the types of light and the wavelengths that different lights emit.

The combinations of colour, intensity, closeness, direction and persistence of a light source are key factors in determining the magnitude of environmental impact (DCCEEW, 2023c). Light from Activity vessels may appear from direct, unshielded light sources or through sky glow. Where direct light falls upon the ocean, this area of light is referred to as light spill. Sky glow is the diffuse glow caused by light that is screened from view, but through reflection and refraction creates a glow in the atmosphere. The distance at which direct light and sky glow may be visible from the source is dependent on the lighting on the vessel and environmental conditions.

Activity vessels will have external lighting to provide a safe working environment and to comply with relevant maritime navigation requirements at night. Activity vessels may also periodically require additional lighting for 24-hour operations in short durations at specific points along the pipeline. Construction or pipelay vessels are larger than those proposed for typical IMMR activities and are therefore a conservative worst-case estimate of light emission that may be visible for Activity vessels.

Figure 6-1 shows photographs of a typical pipelay vessel, *Audacia*, with lights on at dusk. Lights include:

- regular halogen light bulbs (60–75 watt [W]) and fluorescent lights (18–36 W) that illuminate various gangways throughout the vessel and will be on all night for safety reasons
- floodlights of various power ratings (250–500 W) that illuminate working areas
- helideck lights including floodlights (35 W) and light-emitting diodes (LEDs) (3 W) that provide lighting for the helicopter platform during night-time operations. Such lighting is obligatory, but the platform will only be lit for safe helicopter landing and take-off activities (e.g., medivacs or inspections). This lighting will be turned off during normal operations at night that do not involve helicopters

- navigation LEDs, which are installed at various locations around the vessel and are obligatory
- search lights, which are very bright but only used in emergency situations; these are turned off under normal operation.

Unless specifically required to support over the side activities, such as lifting, IMMR, or for navigational purposes, lighting is directed over the work area, which aids in limiting light spill to the marine environment.

Figure 6-1: Photographs of a typical pipelay vessel at dusk

Light modelling was undertaken for installing the pipeline (as described in the Barossa Gas Export Pipeline Installation EP, and the Darwin Pipeline Duplication Offshore Construction Environmental Management Plan. These vessels are larger (and therefore expected to produce a greater level of light spill) than those proposed for typical support and IMMR activities covered by this GEP Coastal Waters OEMP. The light spill modelling conducted is therefore conservative for typical support and IMMR activities (including USV) covered by this GEP Coastal Waters OEMP but representative for larger contingency campaign vessels that are less likely to be required.

Light modelling was undertaken for construction vessels to predict the extent of biologically relevant light spill. Specifics of the respective vessels' lighting design and luminaire specifications were applied to the ILLUMINA Artificial Light At Night (ALAN) model (Aubé et al., 2005). The ILLUMINA model is a three dimensional (3D) model

that accounts for both line of sight and atmospheric scattering, allowing the attenuation of light over distance and extent of light glow to be modelled.

Since light sources (i.e., individual luminaires) can be placed individually within the area of interest, the model can replicate specific lighting designs in terms of light type, spectral distribution, height and orientation of individual luminaires, including any shielding, thus increasing model accuracy. This information was extracted from lighting layout drawings and light manufacturer data sheets for the typical pipelay and construction vessels, *Audacia* and *Fortitude*, respectively. The model assumed that all vessel lights were turned on (apart from search lights, which are only used in an emergency) with no additional shielding other than that provided by the vessel structures. It also assumed vessels were orientated north–south and that cloud cover was zero (no contribution of light from cloud reflectance). Model outputs are provided in radiance (W/m²/sr, where W = watts, m² = square metres and sr = steradian). The cumulative impact of the construction and pipelay vessels working together was also modelled. Model results are independent of location-specific variables so are representative along the pipeline route in the OA.

In the absence of any published or generally accepted units of measure, or scale, for measuring the impact of artificial light at night on turtle hatchlings, moonlight was used as a proxy. Output from the light model (radiance, units of W/m²/sr) was converted to units of full moon equivalents to provide biological relevance to the radiance output.

Table 6-11 presents potential impact criteria for marine turtles related to the proportion of radiance of a full moon. This was derived by Pendoley (2022) using their extensive experience observing marine turtles and how they respond to light in field settings. The range of moon brightness across a whole lunar cycle provides a realistic scale representative of ambient light levels to which turtle eyes are adapted. The scale is logarithmic to represent the nature of light decay with distance (a function of the inverse square law). At the lower end of the scale, the radiant output is equivalent to no light in the sky (a new moon) while the upper limit is equivalent to the brightness of 10 full moons.

Table 6-11: Artificial light impact potential criteria (marine turtles)

Impact Leel	OFOV FME[45] ranges*	Impact potential to marine turtles
5	10 to 100	Light or light glow visible and impact likely
4	1 to 10	Light or light glow visible and impact likely
3	0.1 to 1	Light or light glow visible and behavioural impact possible, depending on ambient moon phase
2	0.01 to 0.1	Light or light glow visible but behavioural impact unlikely (i.e. not biologically relevant)
1	<0.01	Light or light glow is considered ambient, and no impact expected

Source: Pendoley (2022)

**Where 10 equals the radiance of 10 full moons and 0.01 equals 100th the radiance of one full moon.*

The Pendoley (2022) report provides ILLUMINA light modelling for an offshore pipelay vessel and construction vessel, as well as a cumulative assessment (combined light spill) of both vessels side-by-side.

Light emissions were predicted to reduce to below ambient levels (0.01 orientation field of view full moon equivalents [OFOV FME], or 1%, radiance of a full moon) at 14.8 km from the offshore pipelay vessel, 10.9 km from the construction vessel, and 21.6 km when both vessels are together (Pendoley, 2022). It is predicted that behavioural impacts on turtles are unlikely to occur. (0.01–0.1 OFOV FME, or 10%, radiance of a full moon) within 3.3 km of the offshore pipelay vessel, 2.5 km of the construction vessel, and 4.5 km when both vessels are together (see

Table 6-12). The closest regionally significant flatback turtle nesting site is located at Cape Fourcroy on the Tiwi Islands, NT (~31.5 km from the OA).

Therefore, since this modelling of larger pipelay vessels shows that light spill will not impact Cape Fourcroy, the light spill from smaller IMMR vessels is also expected to have no impact.

Table 6-12: Distance of equivalent moon radiances from the source (source: Pendoley, 2022)

[45] *orientation field of view full moon equivalents*

Proportion of radiance of a full moon*	Distance from source (m)		
	Pipelay vessel	Construction vessel	Cumulative
10-100	<160	<126	<202
1-10	160	126	202
0.1-1	724	557	957
0.01-0.1	3,274	2,469	4,542
<0.01	>14,804	>10,949	>21,559

Source: Pendoley (2022)

** Where 10 equals the radiance of 10 full moons and 0.01 equals 100th the radiance of one full moon.*

Continuous lighting may result in localised alterations to normal marine fauna behaviours that can alter foraging and breeding activity. Marine turtle and seabird species have the greatest sensitivity to light. Receptors within a 20 km buffer of the OA were considered as having potential for interaction with light emissions, as recommended in the NLPGW (DCCEEW, 2023c). The 20 km threshold provides a precautionary limit based on the observed effects of sky glow on marine turtle hatchlings (15 to 18 km) and fledgling seabirds grounded in response to artificial light 15 km away (DCCEEW, 2023c). A PMST search was conducted for a 20 km light assessment boundary around the OA. No additional species were identified within the light assessment boundary compared to the OA (Table 3-10). An internesting BIA and habitat critical area for flatback turtles, and the habitat critical to the survival of olive ridley overlaps the light assessment boundary. The specific impacts on different fauna groups are described below.

6.2.2.1 Marine mammals

No marine mammal BIAs occur within the 20 km light assessment boundary. Three threatened and migratory marine mammal species may be present in the area: the blue whale, fin whale, and sei whale. Light is not listed as a threat in the conservation advice or recovery plans for these species, nor in the Conservation Management Plan for the Blue Whale 2015–2025 (CoA, 2015a).

Marine mammals are not known to be attracted to light sources at sea. Cetaceans predominantly use acoustic senses to monitor their environment rather than visual cues (Simmonds et al., 2004). However, light glow may act as an attractant to light-sensitive prey species (e.g., squid and fish) that may alter predator-prey dynamics, particularly in dolphins.

Since mammals use variations in the length of day to anticipate environmental changes and time their reproduction, light emissions that affect the perception of day-length (e.g., 24-hour lighting on the Activity vessels) could impact biological functions. However, marine mammals will likely be transient in the OA; therefore, individuals are unlikely to be exposed to artificial light for durations sufficient to impact biological functions. The impact from light is considered negligible.

6.2.2.2 Marine reptiles

6.2.2.2.1 *Turtles*

The NLPGW (DCCEEW, 2023b) state that a 20 km buffer (based on sky glow) to important habitats for turtles should be applied when considering possible impacts. However, the demonstrated impacts on which this buffer is based were in response to light emissions associated with a liquefied natural gas (LNG) plant. The light modelling for GEP installation found that the spatial extent of a measurable change in ambient light from the pipelay and construction vessels is predicted to be approximately 14.8 km and 10.9 km, respectively (Pendoley, 2022). The cumulative impact of these vessels working together is predicted to reduce below ambient levels at approximately 24.6 km. Potential behavioural impacts to turtles is predicted within 3.3 km of the pipelay vessel, 2.5 km of the construction vessel and 4.5 km cumulative impact (Table 6-12) (Pendoley, 2022). These studies indicate that the spatial extent of a change to ambient light is less than the 20 km light assessment boundary used for impact assessment, based on the NLPGW (DCCEEW, 2023b).

An internesting BIA and nesting HC for flatback turtles overlaps the OA, and a nesting HC for olive ridley turtles overlaps the 20 km light assessment boundary. No other turtle BIA or nesting habitat overlap the light assessment boundary. Flatback and olive ridley turtles nest at beaches along the west coast of Bathurst Island approximately 30 km from the OA. Unlike other turtle populations (for example, on the northwest shelf of WA), the flatback and olive ridley turtles on Bathurst Island do not exhibit discrete nesting and hatching seasons. Rather, there is low level nesting year-round, with a peak in nesting, internesting and hatching during winter months. While artificial lighting on or near beaches is known to disrupt nesting behaviour (Witherington & Martin, 2003), the nearest nesting beaches are outside the light assessment boundary, thus behavioural impacts to nesting females at nesting beaches are not expected.

Suitable internesting habitat for flatback turtles is defined as water depths shallower than 16 m (Whittock et al., 2016; Pendoley, 2019). Similarly, internesting olive ridley turtles have been shown to remain relatively close to nesting beaches during the nesting period, in waters typically less than 30 m depth (Hamel et al., 2008). Given that water depths in the OA are between 47 m and 50 m, the flatback turtle BIA and HC areas extend > 800 km coastline, and the lack of foraging habitat in the OA, the number of individual turtles likely to be present is expected to be limited.

No evidence, published or anecdotal, suggests internesting turtles are impacted by light from either natural or anthropogenic sources, as they do not use light as a cue for this behaviour. Furthermore, nothing in their biology would indicate this as a plausible threat (Pendoley, 2019; Witherington and Martin, 2003). Individual turtles (green, olive ridley, loggerhead, leatherback, hawksbill) may transit the OA to forage or migrate to suitable habitat (e.g., nesting beaches and shoals). For the reasons set out above, similarly to interesting turtles, if individual turtles are present, light emissions from Activity vessels are unlikely to be of concern.

Hatchlings emerging from the sand are known to locate the ocean using a combination of topographic and brightness cues (Limpus, 1971; Limpus & Kamrowski, 2013; Pendoley & Kamrowski, 2016; Salmon et al., 1992). Once hatchlings enter the ocean, they are thought to employ a survival strategy that involves rapid dispersal away from predator-rich nearshore habitats to reach deeper waters where they develop into juveniles. An internal compass is set while crawling down the beach, and wave cues are used to reliably guide them offshore (Lohmann & Fittinghoff-Lohmann, 1992; Stapput & Wiltschko, 2005). In the absence of wave cues, however, swimming hatchlings have been shown to orient towards light cues (Lorne & Salmon, 2007; Harewood & Horrocks, 2008), and in some cases, wave cues were overridden by light cues (Thums et al., 2013, 2016). Currents substantially influence the speed and direction of at-sea dispersal. For example, the offshore trajectory of flatback hatchlings at Thevenard Island (WA) was displaced by tidal currents which ran parallel to the beach, an effect that increased as the hatchlings moved further offshore (Wilson et al., 2018).

However, when light was present, this effect was diminished, showing that hatchlings actively swam against currents and towards the light source, which slowed their offshore dispersal from 0.5 m/s when no light was present, to 0.35–0.44 m/s, depending on the type of light (Wilson et al., 2018). The mean swimming speeds of flatback hatchlings under natural light conditions (0.5 m/s) were similar to green turtle hatchlings (0.49 m/s) (Thums et al., 2016). The swimming speed of olive ridley hatchlings has not been measured; however, since they are smaller than flatback and green turtle hatchlings, swimming speeds are expected to be lower (Pendoley et al., 2022).

These results suggest that hatchlings can move in any direction when their swimming speed is greater than the speed of the nearshore current, although the speed at which currents can no longer be overcome is species-specific and related to swimming speeds. Wilson et al. (2018) reported that when flatback hatchlings were within 150 m of the beach, they were able to swim against currents up to 0.3 m/s, although 0.3 m/s was the maximum current speed recorded during the study. Therefore, whether flatback hatchlings can swim against stronger currents is currently untested. If an olive ridley hatchling has a similar response to light cues as flatback hatchlings, their smaller size suggests a reduced capability to swim against currents compared to flatback turtles.

The attraction of dispersing hatchlings to vessel light emissions and spill could result in two main impacts: increased energy expenditure as hatchlings swim against currents towards light sources and when entrapped in light spill, as well as increased risk of predation while silhouetted in areas of light spill.

The Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b) highlights artificial light as a threat to marine turtles. Specifically, the plan indicates that artificial light may reduce the overall reproductive output of a stock, and therefore recovery of the species by:

- inhibiting nesting by females
- disrupting hatchling orientation and sea-finding behaviour
- creating pools of light that attract swimming hatchlings and increase their risk of predation.

The most significant risk posed to marine turtles from artificial lighting is the potential disorientation of hatchlings following their emergence from nests by light spill on beaches, although breeding adult turtles can also be disoriented (Longcore and Rich, 2016). The NLPGW (DCCEEW, 2023b) states that within 15 km of the nesting beach, light impacts may affect flatback turtle hatchling behaviours. The nearest turtle nesting beach is approximately 30 km from the OA, and modelling predicts that light spill at an intensity that could lead to turtle behavioural effects are possible at distances less than 3.2 km for the pipelay vessel, 2.4 km for the construction vessel, and 4.5 km for both vessels together (Pendoley, 2022). Therefore, impacts to hatchlings are considered unlikely.

However, there is potential for hatchlings at sea to be attracted to light emissions if they are carried by currents to within these modelled limits. The likelihood of attraction would be lower during periods of full moon, reducing the potential impact of the Activity in these periods. If attraction did occur, it is likely individuals would remain entrapped in light for short periods (Wilson et al., 2018; Thums et al., 2016). At worst case, individuals would be trapped until

dawn. Further, since nesting occurs year-round, there will be a significant proportion of hatchlings originating from Bathurst Island that are not exposed to potential light sources.

In summary, vessel light emissions are not expected to impact nesting females or emerging hatchlings at nesting beaches since modelling predicts that light or light glow will not exceed intensities considered biologically relevant (Pendoley, 2022). Modelling results are conservatively based on light emissions from pipelay and construction vessels, which are assumed to be the worst-case for typical operational and IMMR activities. Additionally, vessel light emissions are not expected to impact individual internesting turtles since there is no evidence, published or anecdotal, to suggest internesting turtles are impacted by light from offshore vessels. Finally, the extent of biologically relevant light will not impact any one location for an extended duration, given the area of disturbance will be based on a vessel slowly moving along a defined pipeline route.

6.2.2.2.2 *Sea snakes*

Studies have shown that sea snakes display varying responses to light. For example, *Hydrophis* species appear to be attracted to light and have been observed floating on the sea surface and swimming up to light (pers. comm. M. Guinea, Charles Darwin University, 2014). However, the *Aipysurus* species of sea snake do not appear to be attracted to light and are not seen on the surface at night (pers. comm. M. Guinea, Charles Darwin University, 2014). Most sea snakes are likely to be associated with the shoals and banks, with the closest being Shepparton Shoal (23 km from the OA) and Afghan Shoal (24 km from the OA). It is recognised that some individuals (*Pelamis* genus) may occur in the OA and may be attracted to the light from Activity vessels; however, it is considered unlikely that they will stay within the area (pers. comm. M. Guinea, Charles Darwin University, 2014).

6.2.2.3 Sharks, rays and fish

Fish at the surface of the water have the potential to be impacted by artificial light. The response of fish to light emissions varies according to species and habitat. Experiments using light traps have found that some fish and zooplankton species are attracted to light sources (Meekan et al., 2001), with traps drawing catches from up to 90 m away (Milicich et al., 1992). Lindquist et al. (2005) concluded from a study that artificial lighting associated with offshore energy industry activities resulted in an increased abundance of clupeids (herring and sardines) and engraulids (anchovies). These species are known to be highly photopositive (i.e., tend to move towards light). The artificial light serves to focus their marine plankton prey and consequently leads to greater foraging success.

The area of impact is likely to be restricted to areas of light spill on the ocean surface. Fish may move toward and/or aggregate around light emissions from Activity vessels in the OA; however, the transitory presence of typical Activity vessels and the short duration of the Activities reduce the likelihood of this occurring.

Sharks and rays are not known to be significantly attracted to light sources at sea. However, they may be attracted to fish that are photopositive to light. Given the movement of typical Activity vessels short duration of the Activities and absence of critical habitats within the OA, light impacts will not result in population level effects and will not extend to any areas of biological importance for these species. Light has not been identified as a key threat for the whale shark (Section 3.2.13.6), and although whale sharks may forage around the Activity vessels if prey abundance is increased, this is unlikely to impede migration.

6.2.2.4 Seabirds and migratory shorebirds

Seabirds and shorebirds may be directly or indirectly attracted by artificial light. Structures in offshore environments tend to attract marine life at all trophic levels, creating food sources and providing artificial shelter for birds (Surman, 2002). Offshore light sources may also provide enhanced capability for seabirds to forage at night. Artificial light can disorient seabirds, disrupt natural foraging and migratory behaviours, and potentially cause injury through interaction with infrastructure.

The NLPGW recommend using a 20 km threshold, which provides a precautionary limit based on the observed effects of sky glow on fledgling seabirds grounded in response to artificial light 15 km away (DCCEEW, 2023b). No seabird BIAs occur within 20km of the OA. There are three threatened bird species that may occur in the OA: curlew sandpiper, eastern curlew, and red knot (Table 3-10). Conservation advice does not identify light as a threat to these species (Table 3-13); however, light pollution is identified as a low-risk threat in the Wildlife Conservation Plan for Seabirds (CoA, 2020).

Nocturnal species may pass through the area but are not expected in large numbers and are likely to be adults migrating or foraging, which are less vulnerable to light emissions than fledglings. Foraging species are unlikely to be disorientated by light emissions, given the scale of lighting required for typical IMMR vessels and the infrequent and relatively short-term duration of Activities.

6.2.2.5 Protected areas and key ecological features

The nearest protected area is the Oceanic Shoals AMP Habitat Protection Zone, approximately 67.5 km from the OA. Many of the values and sensitivities of the marine park are described above (e.g., turtles), and are outside of

the 20 km light assessment boundary. The nearest KEF is the Carbonate bank and terrace system of the Van Diemen Rise, approximately 9 km from the OA. However, this is a submerged receptor, and the majority of the KEF is outside the light assessment boundary.

6.2.2.6 Socioeconomic receptors and cultural features

No First Nations people feedback was provided about potential light impacts to any geographically specific cultural features (excluding marine fauna species) during consultation (refer to Section 4.8). Information provided by some Tiwi people during consultation for this GEP Coastal Waters OEMP and the D&C and GEP EPs, raised concerns about the potential impacts of lights on marine turtles from Barossa activities, and potential impacts to marine life generally, and that if totemic species (e.g. turtles) are impacted by the Barossa activities this can impact Tiwi people and make them sick.

Impacts to turtles from the Activity lighting are expected to be restricted to localised attraction and temporary disorientation, with no long-term or residual impact and no impact to nesting beaches given their distance from the OA. It is noted that the closest regionally significant flatback turtle nesting site is located at Cape Fourcroy on the Tiwi Islands, which is ~31.5 km from the OA.

In the 2022 Statement of Reasons Requests, the Tiwi clan members raised their concern regarding traditional hunting of marine species and totem species. First Nations people maintain a continuing spiritual connection with sea country, including marine fauna species with cultural significance, such as totems or as a cultural food source. The potential impacts to culturally significant marine fauna species (such as dreamings and totem species including marine mammals, marine reptiles, sawfish, sharks, rays and other fish) are assessed in Sections 6.2.2.1 to 6.2.2.4. The potential impacts to marine fauna is likely to be limited to localised, temporary behavioural impacts and is unlikely to result in significant impacts to marine species at the individual or population level. Consequently, it is anticipated that light emissions are unlikely to affect traditional hunting practices or resources.

Impacts to culturally significant marine fauna are likely to be limited to localised, temporary behavioural impacts and are unlikely to have long-term consequences at the individual or population levels. Impacts on marine turtles from lighting on Activity vessels are expected to be limited to localised attraction and temporary disorientation. Light emissions are not expected to impact nesting females or emerging hatchlings at nesting beaches, since modelling predicts that light or light glow will not exceed intensities considered biologically relevant (Pendoley, 2022) given their distance from the OA (see Section 6.2.2.2.1).

Other socio-economic receptors include commercial fisheries. The Northern Prawn Fishery (NPF) overlaps the OA and surrounding waters. Light emissions from Activity vessels are not expected to impact the NPF medium and high-intensity fishing areas.

Given the nature of typical IMMR activities and the minor consequence to culturally significant marine fauna and other socioeconomic receptors, impacts from light emissions from Activity vessels are expected to be limited.

6.2.3 Environmental performance outcomes and control measures

The EPOs relating to this event are:

- No injury of, or mortality to, EPBC Act 1999 listed marine fauna or marine fauna listed as threatened species and under the Territory Parks and Wildlife Conservation Act 1976 (NT) as a result of the Activity. (EPO-08)
- No light emissions from the Activity except as required for safe operations and working requirements (EPO-12)
- No significant impact to cultural features from the Activity (EPO-19)

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this Activity are described in Table 6-13 to demonstrate the potential impacts from this aspect are ALARP. Control measures that are adopted have associated EPSs and measurement criteria and are presented in Table 8-2. Rejected control measures have an ALARP evaluation provided to justify their rejection.

Table 6-13: Control measure evaluation for light emissions

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.1.2	Vessels equipped and crewed in accordance with Australian maritime requirements,	Light spill from unnecessary lighting reduced when vessels meet the minimum lighting requirements,	Lighting is required to ensure safe working conditions, and to alert other marine users to vessel presence.	**Adopted** – requirement to comply with maritime and safety regulations.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
	including Marine Order 30 (Prevention of Collisions) and Marine Order 21 (Safety and Emergency Arrangements) (administrative control)	further lowering potential additional light pollution to the environment, thus reducing the potential impacts to fauna.		
BAO-CM-6.2.1	Lighting limited to that required for safe work conditions and navigational purposes (isolation control)	Light spill from unnecessary lighting reduced, even further lowering the likelihood of impacts to fauna from vessel lighting. Lighting is assessed to only provide necessary lighting for safety and navigation during the Activity. Reduces the potential for additional light pollution to the environment, thus reducing the potential impacts to marine fauna.	Limited additional cost associated with compliance assurance only.	**Adopted** - requirement to comply with maritime and safety regulations.
BAO-CM-6.2.2	Additional lighting management (as recommended in the National Light Pollution Guidelines for Wildlife (DCCEEW, 2023c) implemented in the OA when undertaking activities within 3.3 km of turtle BIA or HC, where it does not impact the ability of light to safely illuminate the work area (administrative control)	Reduces light spill when operating vessels within 3.3 km of turtle HC.	Costs associated with lighting assessment and installation of additional shielding (if required).	**Adopted** – minimises the potential impact to turtles during critical life stages.
Additional control measures				
BAO-CM-6.2.3	Vessel searchlights will only be operated when retrieving AUVs at night or in the event of an emergency (administrative control)	Searchlights are the most significant source of light from Activity vessels. Not operating these lights during planned activities will reduce light spill.	Negligible costs	**Adopted**
N/A	Limit or exclude nighttime IMMR and vessel operations (elimination control)	Would reduce light emissions to the marine environment	Limiting or excluding Activities at night would result in greater impacts in other areas (e.g., waste, air emissions) and risks (e.g., vessel collision). Limiting or excluding typical IMMR Activities at night would significantly increase the Activity schedule and project costs. A minimal level of artificial lighting would	**Not adopted** - given the minimal risk of impacts to turtles and seabirds occurring, the financial and environmental costs of extending the Activity duration are not considered appropriate, as the extended duration may result in greater impacts from other activities (e.g., operational discharges

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
			still be required on IMMR vessels on a 24-hour basis for safety reasons.	and physical presence).
N/A	Identify highest intensity lights and replace with luminaire types considered appropriate for use near marine turtle nesting habitat (substitution control)	Would reduce light emissions to the marine environment. Existing luminaries are not expected to impact turtles. Light modelling was conducted assuming all vessel lights were on, with no significant effect on overall light emissions identified.	High cost to change vessel lights. Navigational lighting colours are stipulated by law. Working and egress areas must be lit to meet health and safety requirements.	**Not adopted** – the high financial cost would be grossly disproportionate to the negligible environmental benefits (if any). Lighting requirements are dictated by maritime regulations, and health and safety considerations.
N/A	Change the wavelength of outdoor lights to avoid wavelengths within the peak sensitivity of turtles and seabirds (substitution control)	Would reduce light emissions to the marine environment. The light modelling predicted that light or light glow will not exceed intensities considered biologically relevant to nesting females or emerging hatchlings at the closest nesting beaches (Pendoley, 2022).	High cost to change vessel lights. Navigational lighting colours are stipulated by law. Working and egress areas must be lit to meet health and safety requirements.	**Not adopted** – the high financial cost would be grossly disproportionate to the negligible environmental benefits. Lighting requirements are dictated by maritime regulations, and health and safety considerations.
N/A	Use dark, matte surfaces on Activity vessels (substitution control)	Would reduce reflection and scattering of light resulting in skyglow	Additional cost to repaint surfaces. Some areas may require lighter surfaces to manage heat conduction for health and safety. Unlikely to result in a material light reduction.	**Not adopted** – given the short duration of Activities, the high financial cost would be grossly disproportionate to negligible environmental benefits. May compromise health and safety in some circumstances.
N/A	Avoid any IMMR activities in the OA within peak turtle nesting and hatchling emergence seasons for both flatback and olive ridley turtles (elimination control)	Reduce potential for impacts on turtles during critical life stages caused by light emissions.	Scheduling constraints to avoid peak turtle seasons for planned IMMR activities may impact vessel contracting strategy and implementation.	**Not adopted** – unlike other turtle populations (for example, on the NWS of WA), the olive ridley and flatback turtles on Bathurst Island do not exhibit discrete nesting and hatching seasons. Rather, there is low-level nesting year-round, with a peak in nesting, internesting and hatching during winter months. Impacts to nesting females, emerging hatchlings and dispersing hatchlings at sea are not expected to result in changes at the individual, population or genetic stock level.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
				A seasonal exclusion would not avoid all turtle nesting, internesting and hatchling activity but may avoid the known peaks. The impact assessment determined the risk to hatchlings from light emissions is low and not inconsistent with the requirements of the Recovery Plan for Marine Turtles in Australia 2017–2027.
N/A	Restrict lighting to navigation lights only (administrative control)	Reduces light emissions to the marine environment.	Working and egress areas must be lit to meet health and safety requirements	**Not adopted** – lighting requirements are dictated by maritime regulations, and health and safety considerations.
N/A	Implement a seabird management plan to prevent seabird landings on offshore infrastructure e.g., vessels (administrative control)	A management plan to help manage birds appropriately is recommended in seabird foraging areas during breeding seasons to prevent significant impact on migration and breeding activities (CoA, 2020)	Significant costs associated with implementing controls, monitoring effectiveness, and ensuring appropriate training for personnel involved in implementing measures	**Not adopted** – the OA does not overlap any seabird BIAs. The closest seabird BIA is approximately 90 km from the OA at Seagull Island (for crested terns), and Activity vessels will typically be present in the OA for short durations only.

6.2.4 Environmental impact assessment

Receptor	Consequence level
Light emissions	
Threatened, migratory or local fauna	Sensitive receptors that may be impacted by light emissions include marine turtles, fish at the surface and seabirds. The NLPGW (DCCEEW, 2023c) recommends a 20 km threshold as a precautionary limit based on observed effects of sky glow on marine turtle hatchlings and fledgling seabirds. The 20 km light assessment boundary intersects the internesting BIA and habitat critical to the survival of the flatback, and the habitat critical to the survival of the olive ridley turtle. However, due to the OA water depths (greater than 50 m), the BIA extending across more than 800 km of coastline, and a lack of foraging habitat, the potential numbers of affected internesting turtles is expected to be limited to a small number of individuals. Internesting female turtles are not expected to be impacted by light emissions from either natural or anthropogenic sources, as they do not use light as a cue for this behaviour. Light modelling predicted a potential for behavioural impacts to turtles within 3.3 km of the pipelay vessel, 2.5 km of the construction vessel and 4.5 km cumulative impact (both vessels working together). In addition, the light from the cumulative impact will reduce to below ambient levels within 21.6 km. Therefore, direct light or light glow from Activity vessels in OA does not exceed intensities considered biologically relevant at the closest nesting beaches approximately 30 km distant (Pendoley, 2019). Impacts to nesting habitat or flatback hatchling behaviours are not expected. Impacts to turtles from operational activity lighting are expected to be restricted to localised attraction and temporary disorientation, but with no long-term or residual impact. Considering the distance from the nearest nesting beach, the density of post-dispersal turtle hatchlings in the OA is considered low. It is considered that the Activity will not compromise the objectives set out in the Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b). Fish (including sharks) have been shown to be attracted to artificial light sources; however, the Activity is unlikely to lead to large-scale changes in species abundance or distribution. Overall, a short-term localised increase in fish activity is expected to occur because of lighting from the

	Activity vessels, but with minor impacts to the local fish population. These behavioural responses are unlikely to significantly alter critical behaviours such as migration or spawning. Therefore, impacts to transient fish will be limited to short-term behavioural effects with no decrease in local population size or area of occupancy of species, loss or disruption of critical habitat, or disruption to the breeding cycle. There are no known BIA or nesting habitat for birds within the light assessment boundary. Considering the distance from the nearest wedge-tailed shearwater or noddy breeding colony, the density of wedge-tailed shearwater or noddy fledglings in the OA is considered to be low. Therefore, night-time lighting from the Activity is expected to have a negligible impact on breeding or fledging seabirds. Marine mammals are not known to be significantly attracted to light sources at sea. There is potential for opportunistic foraging should prey abundance increase; however, due to the nature and duration of typical IMMR activities, individuals are unlikely to be exposed to artificial light for durations sufficient to impact biological functions. The consequence level for threatened, migratory, or local fauna is considered to be II – Minor.
Physical environment or habitat	Not applicable – no impacts to physical environments or habitats from light emissions are expected
Threatened ecological communities	Not applicable – no threatened ecological communities identified in the area in which light emissions are expected
Protected areas	Not applicable – the light assessment boundary does not intersect any protected areas
Socioeconomic receptors	Impacts to fish stock are likely to be limited to localised, temporary behavioural impacts and will not result in significant impacts to fish at the individual or population level. Given the negligible consequence to fish, subsequent impacts to commercial fishing (Section 3.2.14.1) are not anticipated. Lighting from Activity vessels is not expected to cause an impact to other socioeconomic receptors other than to act as a visual cue for avoidance of the area (for safety purposes) by other marine users, including commercial fishers. The consequence level for socioeconomic receptors is considered to be I – Negligible.
Cultural features	An important outcome of Dr Corrigan's research is that no sacred sites or dreamings are shown to be directly impacted by the DPD project footprint (where this Activity OA is located), however some marine species are known to be associated with dreamings and songs (Corrigan, 2024). It is anticipated that light emissions are unlikely to affect traditional hunting practices or resources. For assessment of impacts to marine species that are of cultural significance and/or represent a traditional food source for First Nations groups (including marine mammals, marine reptiles, sawfish, sharks, rays and other fish), refer to the assessment for threatened, migratory or local fauna.
Overall worst-case consequence	II – Minor

6.2.5 Demonstration of as low as reasonably practicable

Artificial lighting on Activity vessels is required 24 hours a day for operational and navigational safety (e.g., Marine Order 30 – prevention of collisions). All reasonably practicable control measures were reviewed and those adopted are considered appropriate to manage the impacts such that the residual consequence is assessed to be II – Minor. The proposed management controls are in accordance with Santos' risk management criteria and are considered appropriate to reduce impacts to ALARP.

6.2.6 Acceptability evaluation

The consequence of light emissions is assessed as II – Minor. Based on an assessment of Santos' acceptability criteria, potential impacts are considered acceptable with the control measures in place.

Is the consequence ranked as I or II?	Yes – maximum consequence from light emissions is II – Minor
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available
Are the risks and impacts consistent with the principles of ecologically sustainable development (ESD)?	Yes – activity was evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline, which considers principles of ESD. The impacts associated with light emissions do not result in 'threats of serious or irreversible harm' as detailed within the EPBC Act, and biodiversity and ecological integrity will be maintained. • Conservative assumptions have been applied to the light emissions modelling

	• There are no identified health, diversity or productivity impacts that may affect the biodiversity or ecological function for future generations The consequence against this aspect is II – Minor; therefore, are consistent with the principles of ESD.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans and conservation advice and Australian marine park zoning objectives?	Yes – consistent with relevant species recovery plans, conservation management plans and management actions set out in Table 3-13, including: • National Light Pollution Guidelines for Wildlife (DCCEEW, 2023c) • Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b) • Wildlife Conservation Plan for Seabirds (CoA, 2020). For all the plans identified above, the objectives are achieved by adopting EPO-08 and control measures outlined in Table 6-13**.** Santos considers the impacts of light emissions as not inconsistent with these recovery plans. Recovery plans / conservation advice for other species that may occur in the light assessment boundary do not identify light emissions as a key threat or have explicit relevant objectives or management actions related to light emissions. The light assessment boundary does not overlap any AMP or protected place. The objectives and actions of these publications were considered during impact and risk assessments. The controls outlined in Table 6-13 are not inconsistent with the objectives of the material listed above and Santos considers the impacts of light emissions to be not inconsistent with these objectives.
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – management measures are consistent with SOLAS and the *Navigation Act 2012* (Cth). Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B. The GEP Coastal Waters OEMP is also compliant with the conditions of EPBC approval EPBC 2022/09372.
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health and Safety Policy (Appendix A)
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable EPs accepted by NOPSEMA were reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback?	Yes – Relevant Person feedback received during consultation for this Activity has been considered when evaluating EPO, CMs or EPSs. Where relevant, CMs implemented based on Relevant Persons feedback for other Barossa EPs have been adopted in this GEP Coastal Waters OEMP. Santos has adopted control measures which were informed by Dr Corrigan's recommendations and the suggestions of a number of senior and authoritative Tiwi Islanders about culturally appropriate responses (e.g. EPO-19 and BAO-CM-6.1.4.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – see ALARP assessment conducted, with no additional control measures adopted.

Lighting on activity vessels is industry standard and is required to meet relevant maritime and safety regulations. The potential consequences of the anthropogenic light sources in the OA are considered to be negligible and restricted to short-term behavioural impacts on individual fauna that may be present in the OA during the Activity. The 20 km light assessment boundary intersects the internesting BIA and habitat critical for the flatback turtle, and the habitat critical to the survival of olive ridley. However, due to the OA water depths (greater than 50 m), the flatback turtle BIA extending across more than 800 km of coastline and a lack of foraging habitat for the species, the potential numbers of affected internesting and nesting turtles are expected be limited to a small number of individuals. Potential behavioural impacts to turtles are predicted within 3.3 km of the Activity vessels, and 4.5 km cumulative impact (multiple vessels working together). Therefore, no nesting habitat will be impacted (closest turtle nesting beach is approximately 31.5 km distant) or flatback hatchling behaviours affected. Light emissions from the activity vessels are unlikely to attract and/or affect the behaviour of large numbers of seabirds, and the impact of lighting from Activity vessels on seabirds is considered minor. The potential consequence of light emissions on receptors is assessed as II – Minor. With the control measures in place, including compliance with navigational safety legislation, no significant impacts are expected. Therefore, the impacts of light emissions from Activity vessels are reduced to ALARP and are considered acceptable.

6.3 Atmospheric and greenhouse gas emissions

6.3.1 Description of event

Event

Santos has adopted a 'whole of project', conservative approach to the assessment of atmospheric and GHG emissions. There is some overlap between the quantification of, and assessment of impacts and risks associated with, atmospheric and GHG emissions across the Barossa Production Operations Environment Plan, the Barossa GEP Coastal Waters OEMP, and the Barossa GEP Internal Waters OEMP.

The Barossa Production Operations EP assesses impacts and risks of atmospheric and GHG emissions from the FPSO production operations, including direct GHG (Scope 1) and indirect GHG (Scope 3) emissions. Scope 1 GHG emissions are emissions released into the atmosphere as a direct result of the activities at a facility. Scope 1 GHG emissions from the Barossa production operations (inclusive of production from wells, the FPSO, Barossa GEP through to the upstream weld of the DLNG beach valve) are considered direct emissions and are derived from:

- fuel combustion – hydrocarbon-based fuels (primarily gas, with diesel used intermittently) are combusted to generate heat and power
- flaring – a vital safety feature in which hydrocarbons are combusted intermittently (in emergency or planned shutdown or maintenance circumstances) to prevent overpressure and/ or the creation of an explosive atmosphere. Flaring is also expected during commissioning and start up (well clean up and multi-rate testing)
- venting – reservoir CO_2 extracted from the gas is vented via a thermal oxidiser (primary) or acid gas flare (back-up)
- fugitive emissions – may occur from pressurised equipment, emitted by infrequent operational activities, or unplanned equipment leaks.

The GHG Protocol (World Resources Institute) defines indirect GHG emissions as emissions that are a consequence of the activities of the Activity but occur at sources owned or controlled by another entity. Indirect emissions from the Barossa production operations include those from onshore processing of gas at the Darwin Liquefied Natural Gas (DLNG) facility, vessel activities within the operational areas as well as the transport and end-use of Barossa sales products (condensate and LNG).

This OEMP includes Barossa GEP operations for the GEP section located within Coastal waters and assesses the associated fugitives (Scope 1 emissions) from pipeline transmission and the Scope 3 (indirect) emissions resulting from vessel activities along the GEP.

The impacts and risks of atmospheric and GHG emissions associated with operating the Coastal Waters section of the Barossa GEP are addressed below, noting there is some overlap between the atmospheric and GHG emissions assessed for the purposes of the Barossa Production Operations EP.

Atmospheric emissions

Air polluting emissions, such as sulphur oxides (SO_X), nitrogen oxides (NO_X) and volatile organic compounds (VOCs) are discharged to the atmosphere during operations, contributing to a localised reduction in air quality.

Atmospheric emissions may occur from:

- GEP fugitive emissions associated with gas transmission combustion emissions from vessel and helicopter activity within the Operational Area
- operation of vessel incinerators.

Activity vessels may use ozone-depleting substances (ODS), but in a closed rechargeable refrigeration system—there is no plan to release ODS to the atmosphere.

Greenhouse gas emissions

GHG emissions are gases that trap heat within the atmosphere through the absorption of longwave radiation reflected from the earth's surface. The emissions of CO_2, nitrous oxide (N_2O), CH_4, sulphur hexafluoride, hydrofluorocarbons and perfluorocarbons are recognised as GHG emissions. All GHG emissions will add to the atmospheric GHG load which is linked to global warming and climate change.

GHG emissions generated from the Activity include direct (Scope 1) and indirect (Scope 3) emissions.

- Scope 1 emissions include direct emissions from sources that Santos owns or controls. Scope 1 emissions sources associated with the Activity are fugitive emissions from pipeline transmission of dry gas, to the extent those fugitive emissions could occur in the part of the GEP within NT Coastal Waters.
- Scope 3 emissions include indirect emissions from IMMR vessel activities. The majority of Scope 3 emissions from activities associated with the Barossa Gas Project are emissions from the use of sold products, which is beyond the scope of this document and is addressed in the Barossa Production Operations EP.

The are no indirect (Scope 2) emissions associated with the Activity. Scope 2 emissions are indirect emissions from the generation of energy that Santos purchases for its operations including electricity purchased for ancillary activities such as office buildings.

Extent	The quantities of atmospheric emissions under normal operating conditions will quickly dissipate into the surrounding atmosphere of an open ocean environment. Direct and indirect GHG emissions will be generated within the OA. Indirect GHG emissions will also be generated outside the OA (as described above).
Duration	Generation of direct and indirect GHG emissions and atmospheric emissions will occur over the life of production operations (approximately 25 years). Planned IMMR vessel presence occurs typically for approximately 7 to 30 days in duration ranging every three to five years across the life of the Activity. If crew change via helicopter is needed, it will typically happen once per week during IMMR activities.

6.3.2 Nature and scale of environmental impacts

Potential receptors: physical environment (air quality); threatened, migratory or local fauna (seabirds); socioeconomic receptors; and cultural features.

The potential impacts from air emissions identified above include:

- Deterioration of local air quality
- Contribution to national and global GHG emissions.

The OA is in an offshore environment where there are no other permanent sources of air pollution.

Hydrocarbon combustion of non-GHG emissions (NO_X, SO_X and VOCs) may result in a temporary, localised reduction of air quality in the environment immediately surrounding the discharge point. A reduction in local air quality could affect threatened, migratory, or local fauna (seabirds), and the workforce. Atmospheric emissions may be harmful, odoriferous, or aesthetically unpleasing. Interactions with sensitive environmental receptors linked to air pollutants is not expected considering the OA is located offshore and not in the vicinity of populated regions.

VOCs can be harmful to human health and also to the environment, as they can be toxic; however, this is generally relevant to high concentrations of VOCs in closed environments. VOCs are not expected to be in large enough volumes to be harmful and will rapidly disperse, reducing their impacts.

ODSs are used in closed refrigeration systems. ODSs have the potential to contribute to ozone-layer depletion if accidentally released to the atmosphere. ODS air emissions would only occur in the event of damaged or faulty refrigeration equipment, or due to human error.

Possible effects are localised variations in air quality that are restricted to the campaign vessel/s location. It is anticipated that the effects of air emissions will disperse well in advance of the closest populated area (the nearest being the Tiwi Islands (approximately 30 km north from the OA) and will have negligible direct or cumulative effects on environmental receptors or exceed National Environmental Protection (Ambient Air Quality) measures (NEPM) standards. As the Activity will occur in open-ocean offshore waters, the combustion of fuels and incineration in such remote locations will not impact on air quality in coastal towns.

Greenhouse gas emissions estimates

To quantify potential GHG emissions, the metric CO_2-e is used to standardise the various GHGs, such as CO_2, CH_4, N_2O. This involves converting the quantities of emitted gases into an equivalent amount of CO_2 that would have the same global warming potential.

The calculation methodology models GHG emissions based on Activity input data and industry standard data. The methods used in this modelling align with the relevant Australian and international legislation, regulations, standards and guidelines, being:

- National Greenhouse and Energy Reporting (NGER) Act 2007 and associated (Measurement) Determination 2008, and SGM Rule 2015, and has substantially adopted Method 1
- International Organisation for Standardisation (ISO) 14064 Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals
- ISO 14040: 2006 Environmental management – Life Cycle Assessment – Principles and Framework.

Under the NGER regime, emissions are described as either Scope 1, 2 or 3, which relate to where the emissions occur (Clean Energy Regulator (CER), 2024):

- Scope 1 (direct) GHG emissions are the emissions released to the atmosphere as a direct result of an activity, or series of activities, at a facility level.

- Scope 2 GHG emissions are the emissions released to the atmosphere from the indirect consumption of an energy commodity. For example, 'indirect emissions' come from the use of electricity produced in another facility
- Scope 3 GHG emissions are indirect emissions (other than Scope 2 emissions) that are generated in the wider economy. They occur as a consequence of the activities of a facility, but from sources not owned or controlled by the operator of the facility.

During the operations phase authorised under this GEP Coastal Waters OEMP, the Barossa Joint Venture controls the export of the gas to the DLNG facility via the portion of the GEP covered under this GEP Coastal Waters OEMP.

Emissions from onshore processing is separate to the Activity and is not controlled by the Barossa JV. The DLNG joint venture is responsible for processing and liquefying the gas at the DLNG facility. This activity is not regulated under the OPGGS Act and associated Regulations, and is not part of the Activity authorised by this GEP Coastal Waters OEMP.

For the purposes of this OEMP, Scope 1 emissions from the Barossa GEP as a whole (385 km of pipeline from the FPSO to DLNG) have been estimated in accordance with approved methods in the NGER Measurement Determination. The Scope 1 emissions of the GEP will consist entirely of fugitive emissions associated with transmission of gas in the GEP from the FPSO to DLNG. Fugitive emissions are, by their nature, difficult to quantify and are estimated by application of methods from the NGER Measurement Determination. As much of the safe operation of the pipeline relies on the effective containment of hydrocarbons, the volume of fugitive emissions are expected to be negligible in comparison to GHG emissions from other sources for the Barossa Gas Project.

The section of pipeline which is the subject of this document (NT Coastal Waters) is 8.26 km and therefore comprises ~2% of the total 385km GEP from the FPSO to DLNG. Accordingly, the associated Scope 1 emissions of the Activity represent only a small fraction of total Scope 1 emissions associated with the GEP. Further, the section of GEP covered by this Activity does not have any valves thereby in applying a proportional allocation of emissions to this 8.26km pipeline segment is conservative.

Table 6-14 provides an estimate of the Scope 1 (direct emissions) for the 25 year lifecycle of Barossa GEP steady state operations for the 385 km of pipeline from the FPSO to DLNG.

Table 6-14: Estimated Direct (Scope 1) emissions estimate for the 25 year lifecycle of Barossa GEP operations

Operations	Scope 1 emissions ($MtCO_2$-e)
Steady State Operations and maintenance (total)	
GEP fugitive emissions for the 385km pipeline from FPSO to DLNG (total)	0.11

Australian and International carbon accounting rules mean each country and each emitter is responsible for reporting their own Scope 1 and Scope 2 emissions. The NGER Act does not require reporting of indirect (Scope 3) emissions. Notwithstanding, in order to support Santos' evaluation of potential risks and impacts of the Activity, an estimate of the indirect (Scope 3) emissions is provided in Table 6-15 for the 25 year lifecycle of Barossa GEP steady state operations, for the entirety of the 385km pipeline from the FPSO to DLNG. As for Scope 1 emissions, only a fraction of these GEP emissions are attributable to the Activity, which represents an 8.26 km section (~2%) of a 385 km pipeline.

Table 6-15: Indirect (Scope 3) emissions estimates for the 25 year lifecycle of Barossa GEP operations

Subcategory	Scope 3 Emissions ($MtCO_2$-e)
IMMR vessel mobilisation and transit for the total length of the Barossa GEP*	0.01

* Excludes emissions from business travel due to insignificant contribution to total indirect (scope 3) emissions for the Activity. It is noted that the Barossa Production Operations EP accounts for business travel as part of the Scope 3 emissions of the FPSO, which is expected to cover all business travel associated with Barossa operations.

Over the life of production operations, the 385km GEP from the FPSO to DLNG is estimated to be associated with approximately 104,963 t $CO_{2\text{-}e}$ of direct emissions and 10,272 t $CO_{2\text{-}e}$ of indirect emissions. An overview of the direct and indirect emissions for the entirety of the GEP is provided in Table 6-16. All estimates are sensitive to

production rate, which is subject to uncertainty associated with the development of the Barossa Gas Project and will change over the life of the GEP.

Table 6-16: Total emissions estimate for the 25 year lifecycle of Barossa GEP operations

Barossa Production Operations	Lifecycle Emissions ($MtCO_2$-e)
Direct - Scope 1	0.11
Indirect - Scope 3	0.01
Total	**0.12**

6.3.2.1 Emissions comparisons

Climate change is a global issue being managed by the international community of states under the United Nations Framework Convention on Climate Change (UNFCCC). Australia is a signatory to the UNFCCC and the Paris Agreement. Under the Paris Agreement, Australia must submit emissions reduction commitments known as Nationally Determined Contributions (NDCs). These commitments constitute Australia's contribution to global climate efforts and to meeting the temperature objectives of the Paris Agreement (to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit temperature increase to 1.5°C). Australia has legislated various measures to ensure these commitments are met. This legislation includes the Safeguard Mechanism which will require the Barossa Gas Project to be net-zero reservoir emissions from day one and to have an emissions baseline and reduction trajectory set by Australia's CER.

The international framework has been developed to facilitate an orderly approach to what is a global problem. The nature, quantity and timeframe of each country's contribution and the pathways to achieve UNFCCC obligations vary widely, including having regard to the particular circumstances of each country. This framework recognises, and is premised on, the fact that climate change is a global issue – there is no correlation between where GHG emissions are released and where climate change impacts are felt. For this reason, Australia sets and reports against its emissions reduction targets in 'net' terms, not by individual sectors or projects. The Australian Government is aware of planned production in the Barossa gas field. It has granted property rights for the production of gas from the Barossa field through the award of a production licence and has acknowledged the production of gas from the Barossa field in its latest emissions projections.

In this context, and at NOPSEMA's request, Santos has sought to contextualise the contribution of emissions from the Activity in this GEP Coastal Waters OEMP against Australian and global carbon budgets.

The contribution of estimated annual average CO_2-e emissions from the GEP to carbon budgets nationally and globally is presented in Table 6-17.

Australian Carbon Budget

As reflected in Australia's Nationally Determined Contributions (NDC) under the Paris Agreement and the Climate Change Act 2022, Australia is committed to a single year target to reduce greenhouse gas emissions to 43% below 2005 levels by 2030 and net-zero by 2050 – see Section 6.3.2.3.2 for description of Australia's greenhouse gas emissions framework.

Based on a 43% reduction by 2030, the net carbon budget for this period is 4,377 Mt CO_2-e (DCCEEW, 2024q). Assuming a further linear decline between 2030 and 2050 (the full activity lifecycle for the Barossa Facilities – as described in the Barossa Production Operations EP and this Coastal Waters OEMP), this creates a net carbon budget of 7262 Mt CO_2-e. The net carbon budget comprises gross economy wide emissions (additions) less total carbon sequestration volumes (subtractions).

Global Carbon Budget

The United Nations Intergovernmental Panel on Climate Change (IPCC) in its Sixth Assessment Report forecast the remaining net carbon budgets (from 1 January 2020) for a 50% likelihood to limit global warming to a specified range of temperature increase based on pre-industrialised levels (i.e. since 1850-1900) (IPCC, 2021). Section 6.3.2.3.1 describes the international framework for management of greenhouse gas emissions.

Global Surface Temperature Change	Estimated carbon budgets (50th percentile) $MtCO_2$
1.5°C	500,000
2.0˚C	1,350,000

Table 6-17: Barossa GEP operations greenhouse gas emissions in context

Stage	Lifecycle emissions ($MtCO_2e$)	GEP Operations Contribution (%)		
		Australian carbon budget (Mt CO_2e)[1]	Global carbon budget - 1.5° C ($MtCO_2e$)[1]	Global carbon budget - 2.0° C ($MtCO_2e$)[1]
Scope 1				
Fugitive emissions from pipeline transmission	0.11	0.0015%	0.00002%	0.000008%
Scope 3				
IMMR vessel activities	0.01	0.0001%	0.000002%	0.0000007%
Totals	**0.12**	**0.0017%**	**0.00002%**	**0.000009%**

[1] Out to 2050

Net GHG emissions (within Australia) from the 385km GEP from the FPSO to DLNG represent 0.0017% of Australia's net carbon budget to 2050.

Net GHG emissions (within Australia) from the 385km GEP from the FPSO to DLNG represent 0.00002% and 0.000009% respectively of net global carbon budgets under 1.5˚C and 2˚C temperature increase scenarios.

At 0.0017% of Australia's carbon budget to 2050, and 0.00002% and 0.000009% of net global carbon budgets for 1.5˚C and 2˚C temperature increases respectively, the net emissions from the 385km GEP from the FPSO to DLNG comprise a nominal amount in the overall scheme of the national and international carbon budgets and will not materially or substantially contribute to Australia's net GHG emissions or net global emissions levels. Emissions attributable to the Activity, representing ~2% of the total length of the GEP, are a fractional component of these contributions. In any event, net carbon budgets are made up of both additions and subtractions to cumulative GHG emissions. Accordingly, these are theoretical calculations for indicative purposes only.

6.3.2.2 Risks of climate change to the Australian environment

The IPCC (2021) have reaffirmed the near-linear relationship between cumulative anthropogenic CO_2 emissions and global warming, highlighting the basis for setting net-zero emissions targets. It is known that the physical impacts of climate change on environmental receptors are the result of global GHG emissions from a multitude of sources (minus the GHG sinks) that have accumulated in the atmosphere (IPCC, 2018).

The impacts on the climate cannot be attributed to one specific sector or activity. In the context of evaluating potential impacts and risks that may be associated with GHG emissions from all sources globally, including from this Activity, this GEP Coastal Waters OEMP has considered broader climate change issues. This section outlines the potential environmental impacts that could occur due to global climate change. Santos, in its capacity as an independent company, recognises the scientific consensus on climate change assessed by the IPCC.

The IPCC is the United Nations body for assessing the science related to climate change and finalised the Sixth Assessment Report (AR6) in 2023. This consists of three Working Group contributions and a Synthesis Report. A summary of outcomes of the working group's contributions comprises a range of matters, which amongst others include:

- The AR6 Working Group I (AR6-WG1) report stated that it is unequivocal that there is human-induced warming. It also stated that increased atmospheric carbon dioxide (CO_2) levels, generated by human activity, are the largest driver of warming over the longer term, and that there are a range of factors, including emissions of methane, which increase warming in the short-term.
- The AR6-Working Group II (AR6-WG2) report stated that human-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and related losses and damages to nature and people, beyond natural climate variability. It stated that global warming, reaching 1.5°C in the near-term, would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans. The report noted that societal choices and actions implemented in the next decade will determine the extent to which medium- and long-term pathways will deliver climate resilient development.
- The AR6 Working Group III (AR6-WG3) report provided an updated global assessment of climate change mitigation progress and pledges and examined the sources of global emissions. It explained developments in emissions reduction and mitigation efforts and assessed the impact of national climate pledges in relation to long-term emissions goals. More than 2000 quantitative emissions pathways were submitted to the IPCC, of which 1202 scenarios included sufficient information for assessing the associated warming. The report found that there are many pathways in the literature that likely limit global warming to 2°C with

no overshoot, or to 1.5°C with limited overshoot. These variations occur because, while climate science is able to calculate a 'carbon budget' of net emissions before any particular temperature outcome is reached, the allocation of this budget between different human activities requires additional judgements about for example technology, economics, consumer preferences and policy choices.

- The State of the Climate 2024 (Commonwealth of Australia, 2024) states that Australia is projected to experience the following in the coming decades:
  - continued warming, with more extremely hot days and fewer extremely cool days.
  - a further decrease in cool season rainfall across many regions of the south and east.
  - continued drying in the south-west of Western Australia, especially during winter and spring.
  - likely increases in the average duration of drought and aridity in regions within the south and east.
  - a longer fire season for the south and east, and an increase in the number of dangerous fire weather days
  - more intense short-duration heavy rainfall events, even in regions where the average rainfall decreases or stays the same.
  - fewer tropical cyclones, but a greater proportion projected to be of high intensity, with ongoing large variations from year to year. The intensity of rainfall associated with tropical cyclones is also expected to increase and, combined with higher sea levels, is likely to amplify the impacts from those tropical cyclones that do occur.
  - fewer east coast lows on average, particularly during the cooler months of the year
  - ongoing sea level rise through this century and beyond, at a rate that varies by region. Recent research on potential ice loss from the Antarctic ice sheet suggests that a scenario of larger and more rapid sea level rise can't be ruled out.
  - more frequent extreme sea levels linked to coastal inundation and coastal erosion. For most of the Australian coast, extreme sea levels that had a probability of occurring once in a hundred years are projected to become an annual event by the end of this century with lower emissions, and by the mid-21st century for higher emissions.
  - continued warming and acidification of surrounding oceans with consequent impacts on biodiversity and ecosystems.
  - increased and longer-lasting marine heatwaves, which will further stress marine environments, such as kelp forests, and increase the likelihood of more frequent and severe bleaching events in coral reefs around Australia, including the Great Barrier Reef and Ningaloo Reef.
  - an increase in the risk of natural disasters from extreme weather, including 'compound extremes', where multiple extreme events occur together or in sequence, thus compounding their impacts.
- The report also provides the following updated projections of Australia's average temperature over the next two decades:
  - the average temperature of each future year is now expected to be warmer than any year prior to the commencement of human-caused climate change.
  - ongoing climate variability means each year will not necessarily be hotter than the last, but the underlying probabilities are changing. This leads to less chance of cool years and a greater chance of repeatedly breaking Australia's record annual average temperature (e.g. record set in 2005 was subsequently broken in 2013 and then again in 2019).
  - while the previous decade was warmer than any other decade in the 20th century, it is likely to be the coolest decade for the 21st century.
  - the average temperature of the next 20 years is virtually certain to be warmer than the average of the past 20 years
  - the amount of climate change expected in the next decade is similar under all plausible global emissions scenarios. However, by the mid-21st century, higher ongoing emissions of greenhouse gases will lead to greater warming and associated impacts, while lower emissions will lead to less warming and fewer impacts
  - warming is generally expected to be greater in the interior of Australia than near the coast.

Ecosystems are particularly susceptible to adverse effects of climate change. The 'loss of climatic habitat caused by anthropogenic emissions of greenhouse gases' has been listed as a key threatening process under the EPBC

Act (DCCEEW, 2021), consisting of reductions in the bioclimatic range within which a given species or ecological community exists due to human induced emissions (DCCEEW, 2021). The process is considered to have a continental distribution, including both terrestrial and marine areas. Ecosystems in which the process occurs include: alpine habitats, coral reefs, wetlands and coastal ecosystems, polar communities, tropical forests, temperate forests, and arid and semi-arid environments (DCCEEW, 2021).

Redistribution and reorganisation of natural systems, driven by climate change, is a major threat to biodiversity (Chapman *et al*., 2020). A report by Australia's Biodiversity and Climate Change Advisory Group summarises the potential impacts of climate change to marine and terrestrial species, habitats and ecosystems across Australia (Steffen *et al*., 2009).

Extensive modelling and monitoring studies over the last 20 years provide considerable evidence that global climate change is already affecting and will continue to affect species (Hoegh-Guldberg *et al*., 2018). However, these impacts are likely to be highly species-dependent and spatially variable. Climate change may not only change species distribution patterns but also life-history traits, such as migration patterns, reproductive seasonality and sex ratios.

Increases in fire regimes will impact Australian ecosystems, altering composition structure, habitat heterogeneity and ecosystem processes. Changes in climate variability and averages could also be important drivers of altered species interactions, both native and invasive species (Dunlop *et al.*, 2012). Climate change could result in significant ecosystem shifts, as well as alterations to species ranges and abundances within those ecosystems (Hoegh-Guldberg *et al.,* 2018).

Climate variability and change has been identified as a threat to some EPBC Act protected species in relevant conservation management plans and recovery plans, including marine turtles mammals, sharks and seabirds and migratory shorebirds as per Table 3-13.

The North-west Marine Parks Network Management Plan 2018 (DNP, 2018a) identifies climate change as a pressure that may impact marine park values. The management plan states that “the impacts of climate change on the marine environment are complex and may include changes in sea temperature, sea level, ocean acidification, sea currents, increased storm frequency and intensity, species range extensions or local extinctions, all of which have the potential to impact on marine park values” (DNP, 2018a).

Within the Marine Bioregional Plan for the North-West Marine Region (NWMR) (DSEWPaC, 2012f), pressures related to climate change are assessed as ‘of potential concern’ for species of marine turtle, inshore dolphins, sawfish, sea snakes, whale shark, dugong, and seabird and shorebird, as well as the KEFs and shipwrecks known to occur in the NWMR.

Changes to climate can also result in impact to social receptors that have values which include the ecological receptors described above, including KEFs and Australian Marine Parks (AMPs). Climate change may also impact on the functions, interests or activities of other users which rely on these ecological values, including commercial and recreational fisheries and tourism. A temperature change of between 0.9°C to 2.0°C is forecast to reduce fisheries yield as the maximum catch potential around Australia by between 3% and 10% (IPCC 2023).

Impacts to cultural heritage sites and places of spiritual importance in coastal locations may also be experienced due to rising sea levels. Global mean sea level increased by 0.20 [0.15 to 0.25] m over the period 1901 to 2018, with a rate of rise that has accelerated since the 1960s to 3.7 [3.2 to 4.2] mm yr^{-1} for the period 2006 –2018. Human activities were very likely the main driver of observed global mean sea level rise since 1971 (IPCC, 2021).

6.3.2.3 Climate Change Management Frameworks

6.3.2.3.1 *International greenhouse gas emissions framework*

Paris Agreement (United Nations Framework Convention on Climate Change, 2021)

The United Nations Framework Convention on Climate Change (UNFCCC) came into force in 1994 and comprise of 198 parties. The convention established a goal of preventing dangerous anthropogenic interference with the climate system. Subordinate treaties and agreements have been ratified by parties to the convention, including the Paris Agreement, which was agreed under the convention at COP21 in 2015 and has been endorsed by 195 parties. The Paris Agreement is currently the world's most comprehensive climate action agreement underpinned by broad international support.

One of the key aspects of the Paris Agreement (the agreement) is Article 2 which, in seeking to strengthen the global response to climate change, reaffirms the goal of limiting global temperature increase to well below 2°C, while pursuing efforts to limit the increase to 1.5°C. This was reaffirmed in December 2023 in the COP28 decision (UNFCCC 2023).

The Paris Agreement also calls on Parties to contribute to global efforts, in a nationally determined manner, taking into account the objectives of the Paris Agreement and their different national circumstances, pathways and approaches, to transition away from fossil fuels in energy systems is to be done in a just, orderly and equitable

manner, accelerating action in this critical decade, so as to achieve net-zero by 2050 in keeping with the science (UNFCCC 2023). The text also recognises that transitional fuels can play a role in facilitating the energy transition while ensuring energy security (UNFCCC 2023).

Australia is a signatory to the agreement. In support of meeting the aims of the agreement, the Australian Government has legislated a target of reducing emissions to 43% below 2005 levels by 2030 and committing to net zero emissions by 2050 (refer to 'Australia's Nationally Determined Contributions' below).

The Paris Agreement requires all parties to put forward their best efforts through NDCs to reduce GHG emissions and to strengthen these efforts in the years ahead. The NDCs represent national action for each country individually. As such, countries will choose to implement their NDCs in a variety of ways, consistent with their domestic policies and strategies. Countries are required to transparently and regularly report their climate actions and support, including whether they have met or are on schedule to meet the goals per their NDCs. As at February 2025, there are 195 parties to the Paris Agreement that have put forward NDCs.

The participating Paris Agreement parties aim to reach global peaking of GHG emissions as soon as possible to achieve a climate-neutral world by 2050, recognising developing country parties' peaking emissions may occur later than developed countries. After the peak in GHG emissions, it is expected there will be rapid reductions in accordance with best available science, to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHG in the second half of this century, on the basis of equity and in the context of sustainable development and efforts to eradicate poverty (UNFCCC, 2021).

The convention recognises that to achieve the Paris Agreement's long-term goals, climate action will need to get more ambitious over time. To sustain this rising ambition, the agreement establishes a continuous improvement cycle through which countries plan and communicate their NDCs, then implement their plans, and finally review individual and collective progress to inform future planning and updates to their next NDCs. This process provides the foundation for countries to fully bring the objectives of the Paris Agreement to fruition (World Resources Institute, 2021).

Effective interaction between climate science and policy underpins the Paris Agreement. Scientific observations, research and assessment continue to inform the international climate regime, as well as national and regional climate policies. The United Nations climate change process, under the Paris Agreement, relies on scientific information about climate change.

This continuous improvement cycle supports the agreement's commitment to comprehensively take stock of collective progress every five years (global stocktake – Article 14 of the Paris Agreement), a key element of the process that is sometimes referred to as the agreement's 'ambition mechanism'. The global stocktake process assesses the collective progress towards achieving the purpose of the agreement and its long-term goals, evaluating both the performance of countries in meeting their NDCs and contemporary climate and environmental scientific literature. The Intergovernmental Panel on Climate Change assesses the scientific, technical and socioeconomic information relevant for understanding the risk of human-induced climate change and prepares comprehensive assessment reports and special reports to support the global stocktake process.

The Paris Agreement is underpinned by the international environmental legal principle of common but differentiated responsibilities. The principle holds that all states are responsible for addressing global environmental degradation yet are not equally responsible. On the one hand, the principle balances the need for all countries to take responsibility for global environmental problems and, on the other hand, the need to recognise the wide differences in levels of economic development between countries. Australia, for example, has a more ambitious target than developing countries because of this principle.

The enhanced transparency framework established within the Paris Agreement (Article 13) requires that, starting in 2024, countries report transparently on actions taken and progress in climate change mitigation, adaptation measures and support provided or received. It also provides international procedures for reviewing submitted performance reports and contemporary climate and environmental scientific literature. The information gathered through the enhanced transparency framework is intended to then feed into five-yearly global stocktakes and review and updates to NDCs.

To facilitate implementation of the Paris Agreement, the Katowice climate change package (UNFCCC, 2018) sets out the essential procedures and mechanisms that bring the Paris Agreement into operation and contains operational guidance on:

- the information about domestic mitigation and other climate goals and activities that governments will provide in their NDCs
- how to communicate about efforts to adapt to climate impacts
- the rules for functioning of the transparency framework for action and support (referred to in Article 13 of the agreement), which will show what countries are doing about climate change

- the need to establish a committee to facilitate implementation of the Paris Agreement and promote compliance with the obligations undertaken under the agreement
- how to conduct the global stocktake (the first stocktake was in 2023) of overall progress towards the aims of the Paris Agreement
- how to assess progress on the development and transfer of technology
- how to provide advance information about financial support to developing countries and the process for establishing new targets on finance from 2025 onwards.

The Katowice package provides countries with detailed guidance for performing the continuous improvement cycle of the agreement, guidance on how to prepare their NDCs (clear and transparent information about how GHG emissions are calculated and timeframes for contributions commitments), and what types of information participating countries should share concerning adaptation priorities, plans and actions.

To inform further planning for meeting the global Paris Agreement targets, countries must review their efforts, individually and collectively. The review of individual countries' progress will aim to verify data quality and assess progress against each country's targets, while the global stocktake review will assess the collective progress toward the agreement's long-term goals and identify the remaining gaps, challenges and opportunities for further action. The agreement has also set up an expert committee focused on facilitating implementation and promoting compliance to help countries address barriers to implementation and further climate action.

The countries to which Barossa LNG and condensate will be exported are anticipated to report their associated GHG emissions from processing, refining and use of the Barossa LNG and condensate as their Scope 1 and 2 GHG emissions, within the context of their own NDCs and associated emissions reduction policies and regulations, as parties to the Paris Agreement (or having their own mid-century net-zero commitments). These emissions are described and accounted for within the indirect emissions estimates in the Barossa Production Operations EP.

Australia's nationally determined contributions (United Nations Framework Convention on Climate Change, 2022)

Australia has ratified the Paris Agreement and has adopted NDCs that can be monitored and reported on as part of the five-year stocktake. At the Paris conference in 2016, Australia announced its first NDC to reduce GHG emissions to 26 to 28% below 2005 levels by 2030. Further commitments were made by the then elected government in 2021 to reach Net Zero Emissions (NZE) by 2050.

In May 2022, the Government announced a goal of reducing Australia’s GHG emissions by 43% below 2005 levels by 2030 and reaffirmed Australia’s commitment to NZE by 2050. This was lodged with the UNFCCC as an updated NDC as part of Australia’s obligations under the Paris Agreement. The procedures around NDCs under the Paris Agreement (obligations to prepare, communicated and maintain NDCs) are legally binding though the NDCs themselves are not. Australia mainly focuses on Article 10, with a low-emissions technology-led approach. Australia’s NDCs are implemented through schemes such as the Safeguard Mechanism and the Emissions Reduction Fund, in addition to continuous monitoring and focusing on alternatives to lower overall emissions. The *Climate Change Act 2022* (Cth) (section 6.3.2.3.2) was subsequently enacted to enshrine into law Australia’s 2030 emissions reduction target of 43% below 2005 levels.

Under the Paris Agreement, a country must update its NDC every 5 years. Australia’s updated NDC is anticipated to be submitted ahead of COP30 in September 2025, and it is expected to include an emissions reduction target to 2035. Each new target is to be more ambitious than the last, to support the global goals under the Paris Agreement.

6.3.2.3.2 *National greenhouse gas emissions framework*

Australia has a well-established legislative framework under which certain GHG emissions from Barossa production operations will be regulated or managed to further Australia's Paris Agreement commitments. This includes:

- GHG emissions reporting under the *National Greenhouse and Energy Reporting Act 2007* (NGER Act) (Cth) and the *National Greenhouse and Energy Reporting (Measurement) Determination 2008*
- the Emissions Reduction Fund (Australian Carbon Credit Units Scheme)
- the Safeguard Mechanism to keep net emissions below an established baseline and require net-zero reservoir emissions for new gas fields that feed LNG projects. The Safeguard Mechanism currently applies to facilities that emit more than 0.1 $MtCO_2$-e per annum.

Key elements of the mechanism include:

- Safeguard facilities must meet the reporting and record-keeping requirements of the NGER Act, including the Clean Energy Regulator’s requirements for audits prior to baseline setting and annual audits for

facilities that emit over 0.1 $MtCO_2$-e per annum. In its capacity as the Operator of the Barossa facility, Santos will report audited Scope 1 and 2 GHG emissions from Barossa in accordance with the NGER Act.

- If a safeguard facility is likely to exceed its baseline, the responsible emitter must act, including by purchasing and/or surrendering Australian Carbon Credit Units, to offset excess emissions
- Penalties apply for non-compliance.

National Greenhouse and Energy Reporting Act

The NGER Act is a single national framework for reporting and disseminating company information about GHG emissions, energy production, energy consumption and other information otherwise specified under the legislation (DISER, 2022). The objectives of the NGER Act are to:

- inform government policy
- inform the Australian public
- help meet Australia's international reporting obligations
- assist Commonwealth, State and Territory government programmes and activities
- avoid duplication of similar reporting requirements in the states and territories.

Activity Scope 1 emissions will be reported under the NGER Act. There are no Scope 2 GHG emissions related to the Activity. Scope 3 emissions associated with the Activity are not required to be reported, given that these emissions constitute the Scope 1 and 2 emissions of other emitters. This includes the GHG emissions associated with processing at the DLNG facility, which are regulated in accordance with the Safeguard Mechanism and an approved Operations Environmental Management Plan (EMP). It also includes GHG emissions from customer use of condensate and LNG that will occur in Asia, predominately Japan and Korea, with the emissions being regulated as Scope 1 and 2 GHG emissions under the frameworks of those countries. All consuming countries will be signatories to the Paris Agreement or have mid-century net-zero emissions commitments. Further detail about the Scope 3 emissions and measures that will be implemented in that regard are detailed in the Barossa Production Operations EP.

The Safeguard Mechanism is also administered under the NGER Act. The Clean Energy Regulator (CER) administers the NGER Act, its legislative instruments, and related policies and processes. The CER administers the scheme by:

- registering and deregistering corporations for reporting
- receiving reports
- monitoring and enforcing compliance
- applying the audit framework
- publishing reported data.

Emissions Reduction Fund (Australian Carbon Credit Units Scheme)

The purpose of the *Carbon Farming Initiative Amendment Act 2014* (Cth) was to amend the *Carbon Credits (Carbon Farming Initiative) Act 2011* (Cth) to include and establish the Emissions Reduction Fund (now referred to as the Australian Carbon Credit Units Scheme). The Emissions Reduction Fund (Australian Carbon Credit Units Scheme) is a voluntary scheme that aims to provide incentives for a range of organisations and individuals to adopt new practices and technologies to reduce their emissions. Through the Emissions Reduction Fund, participants in the Australian Carbon Credit Units Scheme can earn Australian Carbon Credit Units (ACCUs) for every tonne of carbon dioxide equivalent they store or avoid emitting. ACCUs can be sold and can generate an income for participants. A number of activities are eligible under the ACCU scheme.

Safeguard Mechanism

One of the key statutory instruments for regulating Australia's emissions in line with its NDCs under the Paris Agreement is the *NGER (Safeguard Mechanism) Rule 2015* (Cth) (the Safeguard Mechanism), made under the NGER Act and administered by the Clean Energy Regulator. The Safeguard Mechanism was developed to ensure Australia's largest industrial GHG emitters keep their net emissions below an emissions limit (a baseline). The Safeguard Mechanism currently applies to facilities that emit more than 0.1 Mt CO_2-e per annum and requires annual emissions to be reported against a designated emissions 'baseline'.

The Safeguard Mechanism is one element of a whole-of-economy approach, implemented to achieve Australia's NDCs, and is complementary to a range of programs that measure, manage, reduce or offset Australia's GHG emissions.

Emissions from the Activity would not, absent the Barossa FPSO, be regulated under the Safeguard Mechanism, given the annual Scope 1 emissions associated with the GEP do not exceed the 0.1 $MtCO_2$-e per annum threshold. The GEP, nor that component of the GEP which comprises the Activity, will not be a 'facility' to which the Safeguard Mechanism applies. However, as stated above, the Scope 1 emissions of the GEP are considered to be the Scope 1 emissions of the Barossa Gas Project as a whole, which considers the Barossa FPSO and GEP to be a single facility for the purposes of the Safeguard Mechanism. Therefore, the Safeguard Mechanism will apply to emissions from the Activity through the establishment of a cap (baseline) on Barossa facility emissions. Under the Safeguard Mechanism, annual emissions are reported under the NGER Scheme and compared against the facility baseline. Santos is required to generate or procure and surrender Australian Carbon Credit Units (ACCUs) or Safeguard Mechanism Credits for any emissions above the baseline for the compliance period, to ensure net emissions for the facility remain under the prescribed baseline. In 2022, the Australian government proposed Safeguard Mechanism reforms to require a greater contribution to Australia's climate targets from large industrial facilities. Under these reforms, and as a new-build facility, the Barossa facility Safeguard Mechanism baseline will be set in accordance with global best practice benchmarks by the CER. The emissions baselines for both the Barossa facility and the DLNG facility will gradually decline to limit Scope 1 emissions and achieve net zero by 2050. The decline rates have been set at 4.9% each year to 2030. After 2030, decline rates will be set in predictable five-year blocks, consistent with updates to Australia's NDC under the Paris Agreement. Decline rates for 2030-31 to 2034-35 will be set by 1 July 2027. The process for setting the future decline rates will involve consultation, and advice from the Climate Change Authority (CCA) and the latest Annual Climate Change Statements to Parliament. To assist industry planning for achieving net zero by 2050, an indicative annual decline rate has been set in the Safeguard Rules at 3.3% per annum from 2030-31 to 2049-50. The actual rate will be confirmed through the five-year baseline setting process.

Compliance with the Safeguard Mechanism is of primary importance in ensuring that GHG emissions associated with the Barossa facility, which includes the GEP, are kept to acceptable levels. GHG emissions at or below the baseline and the Safeguard Mechanism's future decline rates will assist in keeping Australia's emissions under its NDCs in accordance with the Paris Agreement.

The coming online of the Activity has been acknowledged by the Australian Government in its latest emissions projections. For example, the Commonwealth DCCEEW in *Australia's emissions projections 2024* (November 2024) discusses emissions from LNG production and the role of the Safeguard Mechanism in reducing and controlling fugitive and on-site emissions, including the role of safeguard facilities such as the implementation of leak detection and repair measures and reduced flaring (see pages 68 and 69 of the report). The report expressly addresses the proposed resumption of gas production at the Darwin LNG facility with gas from the 'Barossa field'.

The above report is informed by DCCEEW's *Methodology for Australia's emissions projections* (November 2024). The report identifies major new oil and gas development for which production is anticipated to start in 2025 and beyond, and the Barossa Development is expressly referenced in Table 7 (see pages 25-26) of the report.

Compliance with obligations under the Safeguard Mechanism may be achieved through (among other things) the purchase or surrender of ACCUs or Safeguard Mechanism Credits (SMCs). In 2023, Santos in its capacity as an independent company, entered into forward contracts for the purchase of 2.5 million ACCUs at fixed prices to be delivered and paid between December 2023 and January 2027. Santos is also generating some of its own emissions reduction units (including ACCUs and SMCs) at the portfolio level.

The Safeguard Mechanism baseline will be set in accordance with global best practice benchmarks by the CER, and calculated taking into account a number of production variables which may result in changing baseline requirements from one reporting period to the next.

In 2022, the ACCU scheme was independently reviewed, including the integrity of ACCUs, and recommendations for improvements were made, which are in the process of being implemented, but the scheme was otherwise found to be sound and fundamentally well-designed (*Independent Review of Carbon Credit Units: Final Report*, December 2022).

The responsible Commonwealth minister has communicated to the Barossa joint venture partners on a number of occasions that he anticipates there being ACCUs available for this project. Natural gas remains an integral part of the energy mix out to 2050 (AEMO 2024, IEA 2023c) and, with ACCUs being part of the national carbon management framework, it is reasonable to assume the availability of ACCUs for gas projects would have been contemplated in setting Australia's NDCs. In this regard, the projected ACCU demand and issuance for the period 2025-2040 is set out in Figure 17 of *Australia's emissions projections 2024 chart data*, which was released with the DCCEEW reports released in November 2024, as referenced above. This data has been derived by reference to the emissions projection information in these reports and it is therefore reasonable to assume that the number of ACCUs anticipated by the Barossa Development have been considered with relation to Australia's anticipated ACCU issuance. Santos' reliance on ACCUs will form part of its reporting to the CER and will continue to be monitored by the CER.

The availability of ACCUs over the next decade is supported by analysis of the balance between supply, holdings, and cancellation rates (RepuTex Energy, 2024). Throughout the decade, ACCU supply is projected to steadily increase, surpassing 30 million annually by 2030, alongside rising cancellation rates to meet Safeguard Mechanism requirements. By 2027, supply is forecasted to fall into deficit due to growing annual cancellations, which will force ACCUs to be withdrawn from inventory until new supply comes into the market. Modelling shows ACCU holding inventory will continue to rise from approximately 36 million in 2024 to around 50 million by 2027, providing sufficient coverage for the deficit. Additionally, growing demand will send price signals to incentivise new ACCU supply. As noted above, Santos is already generating some of its own emissions reduction units (including ACCUs and SMCs) at the portfolio level. The Moomba CCS project completed commissioning in 2024 and is now operating and storing CO_2 in depleted reservoirs of the Cooper Basin. This project has been registered with the CER as an ACCU generating project and is anticipated to commence generating ACCUs within 12 months as at February 2025.

Ultimately, it is a matter for Santos to manage its compliance with its emissions baseline. The surrender of ACCUs is just one available option. The Safeguard Mechanism is administered by the CER and any failure to comply would result in the CED imposing penalties. The CER is constituted under different legislation than NOPSEMA. The CER was established by the *Clean Energy Regulator Act 2011*. It is a non-corporate Commonwealth entity under the *Public Governance, Performance and Accountability Act 2013*. It is therefore reasonable for NOPSEMA to rely on the CER's administration of the law, including the Safeguard Mechanism scheme and the ACCU scheme in relation to this EP.

Management of the emissions of the Barossa Gas Project in accordance with the Safeguard Mechanism will ensure that this Activity which is a very small component part, does not have an unacceptable impact on climate change, as the Activity emissions are being considered as part of Australia's NDC and, therefore, also into the global trajectory to limit global warming in line with the Paris Agreement targets. Sectoral pathways to achieve "net-zero" will necessarily differ and this is why this goal is expressed as a net-zero emissions target and not a "zero" emissions target. This reality has been recognised most recently in the Climate Change Authority's Electricity and Energy Sector Pathway Review released on 5 September 2024.

Climate Change Act 2022

The Climate Change Act 2022 (Cth) enshrines into law Australia's emissions reduction target of 43% from 2005 levels by 2030 and net-zero emissions by 2050. In addition, this Act ensures accountability through an annual update to Parliament by the Climate Change Minister on the progress made towards the target and empowers the Climate Change Authority to provide advice to government on future targets.

6.3.2.3.3 *Corporate greenhouse gas emissions management*

The Barossa Gas Project, including the GEP, is structured as a Joint Venture (JV) and emissions management therefore needs to be considered in the context of Santos being not only a standalone corporate entity, but also a Barossa JV partner. As a titleholder and the nominated operator of Barossa, Santos is in a position to apply to the Barossa Development those aspects of its corporate policies, strategies and initiatives relating to emissions management as are appropriate having regard to its joint venture arrangements and Barossa operations.

Scope 1 GHG emissions will be regulated under the NGER regime and the Safeguard Mechanism, which accords with Australia's NDC under the Paris Agreement.

Unlike Scope 1 emissions, there is no compliance framework for Scope 3 emissions management in Australia. This is because Scope 3 emissions are the Scope 1 and Scope 2 emissions of upstream suppliers and downstream users. The international system for GHG regulation, underpinned by the UNFCCC and Paris Agreement, recognises that responsibility lies with the countries in which those emissions are generated. NDCs, including that of Australia, are consistent with this approach. Accordingly, Scope 3 emissions commitments made by companies are generally voluntary.

Santos, in its capacity as an independent company, has set commercial carbon storage and Scope 3 equivalent targets at a corporate level. Santos' commercial carbon storage and Scope 3 equivalent targets at 31 December 2024, as outlined in Santos' Annual Report 2024 including the Climate Report, are:

- **2030**: Reduce customers' emissions, Santos' Scope 3, by at least 1.5 $MtCO_2$-e from the supply of low carbon fuels and carbon management services
- **2040**: Build and operate a commercial carbon storage business, safely and permanently storing approximately 14 Mtpa of third-party CO_2-e per annum
- **Long-term**: Aspiration to store more carbon than we emit across Scope 1, 2, and 3 equivalent emissions

These targets are supported by a range of strategies and actions, as outlined in Santos' Annual Report 2024 including the Climate Report, and Climate Transition Action Plan. Actions implemented may change year-on-year as pathways to these targets evolve, but in 2024 included, at the corporate level:

- Directly approached approximately 180 Santos suppliers (including Barossa suppliers) and requested Scope 1 and 2 emissions data to verify our Scope 3 emissions estimates and better understand how our suppliers' emissions and emissions reduction targets support our emissions reduction efforts.
- Collaborated with an LNG vessel owner in a trial of additional cooling technology on vessels, which delivered a 16 per cent emissions reduction for the LNG vessel in the initial trial.
- Explored opportunities though engagement with our customers, such as CCS studies with multiple steel and fertiliser manufacturers, low carbon fuel joint studies with international energy consumers, and negotiations for third-party CCS solutions for LNG customers.
- Expanded customer engagement to better understand how our products are used and processed, how our products contribute to reaching customer emissions targets and how customer emissions reduction pathways support Santos' downstream Scope 3 equivalent medium and long-term targets
- Participation in the Climate Leaders Coalition 'Artificial Intelligence for Scope 3' workstream

As discussed in Section 8.5.6, each Santos Regional Business Unit (including the WA NA and TL region where Barossa is located) is required to submit a decarbonisation plan for the business unit as part of the annual corporate Long Term Planning Process. These plans outline decarbonisation opportunities to achieve regulatory compliance, including with Australia's Safeguard Mechanism, and set out pathways that each asset (including Barossa) may follow to contribute to the company-level Scope 1 and 2 emissions reduction targets. The long-term plans, including the decarbonisation opportunities, are consolidated by the corporate planning group and then reviewed and discussed with executive leadership to determine the best way to achieve compliance and targeted emissions reduction. Section 8.5.6 discusses implementation of these plans in greater detail.

The collection of information via the Barossa decarbonisation plan (which outlines emissions sources of the Activity) and through engagement with customers and suppliers will be undertaken for the purposes of corporate climate-related disclosure, under Australia's climate-related financial disclosure regime. The AASB Australian Sustainability Reporting Standard necessitates the disclosure of Scope 3 emissions data that considers the entire value chain, reflects changed circumstances, is based on a robust measurement approach and reasonable assumptions, and is verified (see Australian Sustainability Reporting Standard AASB S2, at B38-B57).

As the operator of the Barossa Development, Santos will apply its corporate targets and adopt its associated strategies and initiatives to Barossa, as appropriate having regard to its joint venture arrangements and Barossa operations. This will support the achievement of the EPOs for GHG emissions outlined in Section 6.3.3. Santos' Scope 3 equivalent targets and associated strategies and initiatives are directed to achieving reductions in Scope 3 emissions via a proactive and collaborative approach which involves engagement with both suppliers and contractors. Specific control measures have been adopted for the Activity in line with this approach (refer to BAO-CM-6.3.21 and 6.3.22, and 6.3.24). These are appropriate and practicable given that Santos does not have operational control over third party GHG emissions. Given the dynamic conditions in which the industry operates, Santos' strategies and targets will change and adapt over time.

6.3.3 Environmental performance outcomes and control measures

Assuming that emissions from the Activity will cause an equivalent net increase in cumulative Australian and global GHG emissions, this increase constitutes a nominal amount in the overall scheme of the national and international carbon budgets. Santos has adopted environmental performance outcomes and control measures directed to minimising the GHG emissions from the Activity and therefore the potential contribution of these emissions to net cumulative GHG emissions globally. A range of controls have been considered for both direct (Scope 1) and indirect (Scope 3) GHG emissions in the design and for the Operations phase, as well as a system of continual review and improvement during operations

In setting the environmental performance outcomes and control measures regarding GHG emissions, it is important to recognise the global consensus of the Paris Agreement under which countries have agreed to manage and reduce their own emissions with the aim to limit the global temperature increase in this century to 2°C, while pursuing efforts to limit the increase even further to 1.5°C. Santos has developed its EPOs and control measures having regard to the UNFCCC framework which sets out the responsibility of each country to manage and reduce its emissions and the autonomy of each country in determining its pathway to achieve its emissions reduction targets.

Accordingly, the acceptable levels of GHG emissions are defined as follows:

- Acceptable levels of direct (Scope 1) emissions from the Activity are set by the Safeguard Mechanism Baseline on Barossa facility emissions, in line with the Australian Government's NDCs under the Paris Agreement.
- Scope 3 emissions associated with the Activity are limited to IMMR vessel activities and are estimated to be nominal to negligible in the overall context of national and international carbon budgets. Acceptable

levels of indirect (Scope 3) emissions from the Activity are those estimated to result from IMMR vessel activities, provided that the control measures relating to indirect emissions as outlined in this OEMP are also implemented

Indirect (Scope 3) emissions that result from the Barossa Gas Project and are emitted outside Australia, caused by the production and sale of LNG and condensate to downstream, international consumers, are beyond the scope of the Activity the subject of this document and are properly addressed in the Barossa Production Operations EP.

The EPOs, consistent with the Barossa Production Operations EP and relating to this Activity are:

- Atmospheric emissions associated with the Activity will meet all regulatory source emission standards [EPO-09]
- Manage indirect GHG emissions associated with the Activity consistent with the temperature objectives of the Paris Agreement, including by implementing company-wide targets and strategies for Scope 3 emissions reduction at the Barossa Gas Project as appropriate (having regard to joint venture arrangements and Barossa operations) and supporting customers and suppliers to reduce their GHG emissions. [EPO-10]
- Undertake the Activity in a manner that is compliant with the requirements of the Safeguard Mechanism (EPO-11)

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this activity are described in Table 6-18 to demonstrate the potential impacts from this aspect are ALARP. Control measures that are adopted have associated EPSs and measurement criteria and are presented in Table 8-2. Rejected control measures have an ALARP evaluation provided to justify their rejection.

It is noted that further control measures regarding engagement with Barossa LNG customers around Scope 3 emissions management are included in the Production Operations EP. As there are no LNG customers for the purposes of this Activity, such control measures were not considered relevant for inclusion in this OEMP.

Table 6-18: Control measures evaluation for atmospheric and greenhouse gas emissions

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.1.2	Vessels equipped and crewed in accordance with Australian maritime requirements, including Marine Order 30 (Prevention of Collisions) and Marine Order 21 (Safety and Emergency Arrangements) (administrative control)	Ensures contracted vessels are operated, maintained, and crewed in accordance with industry standards and regulatory requirements. Ensures vessels meet Marine Assurance Standards to reduce the likelihood of vessel collision (such as minimum and working lighting for maritime safety).	No additional costs, as this is an industry standard requirement.	**Adopted –** benefit of assuring vessels outweighs procedure compliance costs.
BAO-CM-6.3.1	Monitoring of vessel fuel consumption and vessel speed management to reduce fuel use (administrative control)	Active monitoring of fuel consumption informs opportunities to optimize support vessel fuel use efficiencies to reduce fuel use emissions e.g. vessel speed management depending on operational requirements	Administration costs for monitoring and opportunity evaluation activities.	**Adopted -** Optimised support vessel fuel consumption has emissions reduction and cost reduction benefits.
BAO-CM-6.3.9	Reporting of GHG emissions as per the NGER Scheme (administrative control)	This is a regulatory requirement under the NGER Act with which Santos and its contractors must comply.	Cost associated with implementing.	**Adopted –** NGER reporting is a Commonwealth regulatory requirement.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
BAO-CM-6.3.11	The purchase and/or surrender of Australian carbon credit units (ACCUs) or Safeguard Mechanism Credits (SMCs) required under the NGER (Safeguard Mechanism) Rule 2015 for any non-reservoir emissions from the Barossa facility above the annual baseline, as determined by the Clean Energy Regulator (administrative control)	Emissions from the Barossa facility (FPSO and GEP) are managed in accordance with baselines set by the Commonwealth government under the Safeguard Mechanism, which supports achievement of the Commonwealth Government's emissions reduction targets under the Climate Change Act 2022 and Australia's Paris Agreement NDCs.	Cost of ACCUs/SMCs. Availability of ACCUs in 2023, Santos, as an independent company, entered into forward contracts for the purchase of 2.5 million ACCUs at fixed prices to be delivered and paid between December 2023 and January 2027. As discussed in Section 6.3.2.3.2, the responsible Commonwealth minister has communicated to the Barossa JV on a number of occasions that he anticipates there being ACCUs available for this project. The availability of ACCUs over the next decade is supported by analysis of the balance between supply, holdings, and cancellation rates undertaken by RepuTex Energy, 2024.	**Adopted** – in line with regulatory requirements, noting that Santos is committed to reducing emissions to ALARP regardless of regulatory requirements.
BAO-CM-6.3.12	Implement an Operations GHG Emissions Management Plan (GHGEMP) as described in Section 8.3.2.12 to manage facility direct GHG emissions to ALARP over the life of the Activity, inclusive of: • Emissions Performance target setting (Section 8.2.4) • Critical Equipment Maintenance (Section 8.3.2.3.1) • Methane emissions management (Section 8.3.2.11) • Decarbonisation opportunity management (Section 8.5.6) (administrative control)	Managing uncertainty and reduction of GHG emissions to ALARP over the life of the Activity.	Best practice. Opportunity cost between emissions reduction and production impact.	**Adopted –** benefit outweighs cost. Ongoing reduction of direct (Scope 1) facility GHG emissions to ALARP over the life of the Barossa Gas Project (both the FPSO and the GEP) will be governed under the Operations GHG Emissions Management Plan (GHGEMP).
BAO-CM-6.3.16	MARPOL-compliant (Marine Order 97) fuel oil will be used by vessels to reduce atmospheric emissions (substitution control)	Reduces emissions through use of low sulphur fuel in accordance with MARPOL Annex VI (and Marine Order 97).	None identified.	**Adopted** – it is a legislated requirement.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
BAO-CM-6.3.17	Pursuant to Marine Order 97, relevant vessels will have a current International Air Pollution Prevention (IAPP) Certificate or equivalent and Ship Energy Efficiency Management Plan (SEEMP) (administrative control)	Reduces emissions by ensuring compliance with MARPOL Annex VI (and Marine Order 97).	Cost of maintaining certification.	**Adopted –** benefit of ensuring vessel is compliant outweighs the minimal costs and it is a legislated requirement.
BAO-CM-6.3.21	GHG emissions reduction initiatives of suppliers for the Barossa Gas Project will be evaluated in the tender evaluation process via development and implementation of a framework for identifying, assessing and implementing emissions reduction opportunities for all Barossa Gas Project supplier contracts of $30m+ value. Through the data collection and tender evaluation process, opportunities to collaborate on emissions reduction initiatives and low carbon alternatives will be sought, including the potential to support suppliers in respect of: • investments in innovations in technology. • research programs. • education and training relating to the adoption of emissions reduction policies and processes and/or • monitoring programs The tender evaluation framework will be reviewed and refined to ensure it is adaptive to advancements in technology, data collected and other opportunities to encourage reductions in GHG emissions. (administrative control)	Engaging with suppliers and collaborating on initiatives will support suppliers to reduce their own GHG emissions. Review and refinement of the approach will continue to encourage entrepreneurialism and the take up of GHG reduction initiatives. The materiality threshold of $30m+ for supplier contract value has been selected on the basis that it represents approximately 65% of current and budgeted Barossa Gas Project supplier contracts, representing around 85% of the forecast Barossa Gas Project emissions for the first 5 years of Barossa operations. It also aligns with existing executive level delegation procedures that will ensure an additional level of rigour is applied at the procurement phase.	There are potential costs associated with implementing initiatives.	**Adopted** – Collaborating with suppliers on initiatives will be adopted subject to a feasibility analysis, the willingness of suppliers to collaborate and value to the environment. Ongoing review of the threshold spend will be conducted to ensure the most emissions intensive activities for the Barossa Gas Project are captured.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
BAO-CM-6.3.22	Annual engagement with suppliers with Barossa Gas Project supplier contracts of $30m+ value to request GHG emissions data for Barossa activities. Data sought would include: • quantitative and qualitative climate-related targets (including for Scopes 1, 2 and 3 emissions) • information about the supplier's approach to setting, reviewing and monitoring progress against each target • information about the supplier's performance against each climate-related target, including GHG emissions data and measurement approach, inputs and assumptions, over the past year • the supplier's use over the past year, and planned use, of carbon credits to offset GHG emissions • information regarding the supplier's climate-related risks and opportunities, including information regarding the supplier's emissions reduction initiatives (if any). Data will be used to verify GHG emissions estimates associated with our suppliers and track performance against Santos' Scope 3 equivalent climate targets and Climate Transition Action Plan. (administrative control)	Ensures estimates for these emissions are aligned with best practice approach and are within the bounds of this OEMP. The materiality threshold of $30m+ for supplier contract value has been selected on the basis that it represents approximately 65% of current and budgeted Barossa Gas Project supplier contracts, representing around 85% of the forecast Barossa Gas Project emissions for the first 5 years of Barossa operations It also aligns with existing executive-level delegation procedures that will ensure an additional level of rigour is applied at the procurement phase.	There are potential challenges associated with procuring actual emissions data from third parties.	**Adopted** – Collaborating with suppliers will be subject to the willingness of suppliers to engage. Ongoing review of the threshold spend will be conducted to ensure the most emissions intensive activities for the Barossa gas project are captured.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
BAO-CM-6.3.24	Supporting Barossa Gas Project suppliers to reduce GHG emissions by: • promoting global measurement and reporting standards by participating in relevant industry associations and collaboration initiatives; and • advocating for policy frameworks that enable a consistent approach to carbon emissions management. (administrative control)	There are collective benefits to standardised, transparent and effective measurement and reporting standards, along with stable policy frameworks, which will promote GHG emissions reduction globally.	Nil. Santos will engage in these efforts and initiatives as part of its routine business endeavours.	**Adopted**
BAO-CM-6.4.1	Ozone depleting substance (ODS) and lower global warming potential (GWP) refrigerants use and handling procedures (administrative control)	Reduces probability of potential impacts to air quality due to ODS emissions.	Personnel cost of maintaining ODS record book/ recording system.	**Adopted –** benefits of ensuring no ODS release outweighs the minimal costs
BAO-CM-6.4.3	Vessel waste incineration management (engineering control)	Reduces the potential for emissions/ particulates by ensuring only permissible waste is incinerated as per Marine Order 97.	Cost associated with onshore waste disposal.	**Adopted –** impact on air quality outweighs the costs and impacts associated with transporting waste to shore for landfill.
BAO-CM-6.4.4	National Pollution Inventory (NPI) Reporting (administrative control)	Collects information about emissions across Australia.	Administrative costs of recording and collating information and reports	**Adopted –** legislated requirement.
BAO-CM-6.4.5	HSE inductions will include applicable environmental requirements (administrative control)	Ensures that crew are aware of the stringent EP, Santos and legislative requirements.	Administrative costs to update existing Santos procedure and induction materials and train personnel.	**Adopted –** benefits considered to outweigh costs
BAO-CM-6.4.10	Barossa Facilities and vessels planned maintenance system to confirm equipment integrity is maintained in accordance with manufacturers guidelines. (administrative control)	Reduces emissions by ensuring vessels are operated, maintained and crewed in accordance with industry standards and regulatory requirements.	Personnel costs of implementing.	**Adopted** – benefits of operating equipment within Operational parameters will help control emissions created by equipment.
Additional control measures				
BAO-CM-6.3.18	Santos' vessel vetting process to include evaluation of vessel emissions and the potential for use of alternative fuels (substitution control)	Reduces total emissions associated with engines.	Consideration to be made but potentially limited by required specifications and vessel availability.	**Adopted** –. The vessels selected will comply with Santos' vessel vetting process.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
N/A	Removal of all ODS containing equipment from contracted vessels (elimination control)	Eliminates potential of ODS emissions occurring.	ODS is rarely found on vessels and there is a low potential for ODS releases. If there is ODS-containing equipment (such as refrigerators), it will be managed as per Marine Order 97: Marine Pollution Prevention – Air Pollution.	**Not adopted** – based on cost to replace all equipment and the low potential for ODS releases.
N/A	Require vessel contractors to install / use incinerators and engines with higher environmental efficiency (administrative control)	Improves air quality by more efficient burning or fuel combustion.	Significant cost in changing vessel equipment.	**Not adopted –** cost grossly disproportionate to low environmental benefit (impact rated Negligible).
N/A	Using lower emissions vessels	Reduces total emissions associated with engines.	Not practically feasible at present. The contracted vessels required are specialised and have limited availability. The vessels selected will comply with Santos' vessel vetting process.	**Not adopted –** Not practically feasible at present. The contracted vessels are specialised and have limited availability. The vessels selected will comply with Santos' vessel vetting process.

6.3.4 Environmental impact assessment

Receptor	Consequence level
Atmospheric and GHG emissions	
Threatened, migratory or local fauna	The following recovery and conservation plans listed in Table 3-13 identify climate change as a threat. Conservation Advice: • Approved Conservation Advice for *Rhincodon typus* (whale shark) (2015) • Approved Conservation Advice for *Balaenoptera physalus* (fin whale) (2015) • Approved Conservation Advice for *Balaenoptera borealis* (sei whale) (2015) • Commonwealth Conservation Advice on *Dermochelys coriacea* (Leatherback turtle) (2008) • Approved Conservation Advice for *Calidris canutus* (Red knot) (2016) Recovery and management plans: • Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017) • Recovery Plan for the White Shark (*Carcharodon carcharias*) (CoA, 2013) • Wildlife Conservation Plan for Seabirds (CoA, 2020) • Wildlife Conservation Plan for Migratory Shorebirds (CoA, 2015c) • Conservation Management Plan for the Blue Whale 2015–2025 (CoA, 2015a). **Atmospheric emissions** Short-term behavioural impacts (e.g. avoidance) to seabirds could be expected if they fly in the vicinity of the location of the Activity in NT Coastal Waters. No decrease in local population size or area of occupancy of species, loss or disruption of critical habitat or disruption to the

Receptor	Consequence level
	breeding cycle. The consequence level for threatened migratory or local fauna (seabirds) is considered to be I – Negligible. **GHG emissions** Considering that: • In any event, even assuming that emissions from the Activity will cause an equivalent net increase in cumulative Australian and global emissions, this increase comprises a nominal amount in the overall scheme of the national and international carbon budgets; and • In any event, there is no correlation between where GHG emissions are released and where climate change impacts are felt, It is not possible to draw a link between GHG emissions from the Activity and any specific climate related impact on threatened, migratory or local fauna which may result from any net increase to cumulative GHG emissions globally. By keeping the Project emissions under the Safeguard Mechanism baseline, the Project's incremental contribution to global warming is within acceptable limits as determined by reference to Australia's NDC under the UNFCCC. Conservatively, the associated potential environmental impacts to Threatened, Migratory or local fauna (e.g. seabirds) is assessed as I – Negligible.
Physical environment or habitat	**Atmospheric emissions** The activity vessels will generate atmospheric emissions in the open ocean and offshore waters, enabling emissions to dissipate into the surrounding atmosphere quickly. The consequence level for physical environment/habitat is assessed as I – Negligible. **GHG emissions** The physical environment and associated habitats are susceptible to the effects of climate change. Marine and coastal environments (including those within the EMBA such as shoals and banks, coral reefs, seagrass and algal habitat and mangrove communities) are susceptible to climate change effects such as ocean warming, ocean acidification, rising sea level and changes to ocean current and storm regimes and associated changes to coastal processes. Terrestrial communities are susceptible to changes to temperature, changes to rainfall patterns and changes to the frequency and severity of fire and severe weather events. Considering that: • In any event, even assuming that emissions from the Activity will cause an equivalent net increase in cumulative Australian and global emissions, this increase comprises a nominal amount in the context of Australian and global carbon budgets; and • In any event, there is no correlation between where GHG emissions are released and where climate change impacts are felt, It is not possible to draw a link between GHG emissions from the Activity and any specific climate related impact on the Australian environment which may result from any net increase to cumulative GHG emissions globally. By keeping the Barossa Gas Project's emissions under the Safeguard Mechanism baseline, the Project's (of which the Activity is a small component part) incremental contribution to global warming is within acceptable limits as determined by reference to Australia's NDC under the UNFCCC. Conservatively the associated potential environmental impacts to the physical environment and habitat is assessed as I – Negligible..
Threatened ecological communities	**Atmospheric emissions** Not applicable – no threatened ecological communities were identified in the area over which air emissions are expected, therefore no impacts associated with atmospheric emissions. **GHG emissions** Threatened ecological communities are susceptible to the effects of climate change. Coastal / terrestrial communities are susceptible to climate change effects such as rising sea level, changes to ocean current and storm regimes, changes to temperature and rainfall patterns and changes to the frequency and severity of fire events. Considering that: • In any event, even assuming that emissions from the Activity will cause an equivalent net increase in cumulative Australian and global emissions, this increase comprises a nominal amount in the context of Australian and global carbon budgets; and • In any event, there is no correlation between where GHG emissions are released and where climate change impacts are felt, It is not possible to draw a link between GHG emissions from the Activity and any specific climate related impact on the Australian environment which may result from any net increase to cumulative GHG emissions globally. By keeping the Barossa Gas Project's emissions under the Safeguard Mechanism baseline, the Project's (of which the Activity is a small component part) incremental contribution to global warming is within acceptable limits as determined by

Receptor	Consequence level
	reference to Australia's NDC under the UNFCCC. Conservatively the associated potential environmental impacts to threatened ecological communities is assessed as I – Negligible.
Protected areas	**Atmospheric emissions** Not applicable – no protected areas over which atmospheric emissions are expected. **GHG emissions** The values of protected areas associated with threatened and migratory fauna are described above (Threatened, Migratory or local fauna). Protected areas, include Australian Marine Parks, World Heritage Properties, Commonwealth Heritage Places, Ramsar and nationally important wetlands and key ecological features (KEFs). The Australian Marine Park network supports natural, cultural, heritage and socio-economic values, including habitats (e.g. coral reefs), listed EPBC Act and culturally important species and high species diversity. These values are susceptible to the effects of climate change such as ocean warming, ocean acidification, rising sea level and changes to ocean current and storm regimes. The Australian Marine Parks within the EMBA include the Oceanic Shoals Marine Park and the Joseph Bonaparte Gulf and contain natural, cultural, heritage and socio-economic values (refer Section 3.2.12) that are susceptible to effects of climate change. The Garig Gunak Barlu Marine National Park (refer 3.2.12.1) is within the EMBA and susceptible to the same climate change effects as Australian Marine Parks. KEFs are Commonwealth marine areas important for biodiversity and ecosystem function and integrity. Similar to Australian Marine Parks, KEFs have values that are susceptible to effects of climate change. The KEFs that occur in the EMBA are typically geomorphic features (e.g. tributaries, carbonate bank and terrace system, pinnacles) (refer 3.2.12.3). They can support marine fauna that use the surface waters above the features, including plankton, pelagic invertebrates and fish, marine mammals, marine reptiles and seabirds. Ramsar and nationally important wetlands are critical for biodiversity and ecological balance and provide habitat for EPBC Act listed species (e.g. species of seabirds and shorebirds). Wetlands are susceptible to the effects of climate change such as sea level rise, increased temperatures and increased intensity and frequency of storms and fires. Within the EMBA, Ramsar and nationally important wetlands includes the Coburg Peninsula (refer Section 3.2.12.2). These wetlands provide key habitats that support a high diversity and abundance of migratory birds and various wetland habitats. Considering that: • In any event, even assuming that emissions from the Activity will cause an equivalent net increase in cumulative Australian and global emissions, this increase is de minimis in the context of Australian and global carbon budgets; and • In any event, there is no correlation between where GHG emissions are released and where climate change impacts are felt, it is not possible to draw a link between GHG emissions from the Activity and any specific climate related impact on protected area which may result from any net increase to cumulative GHG emissions globally. By keeping the Project emissions under the Safeguard Mechanism baseline, the Project's (of which the Activity is a small component part) incremental contribution to global warming is within acceptable limits as determined by reference to Australia's NDC under the UNFCCC. Conservatively the associated potential environmental impacts to protected areas is assessed as I – Negligible.
Socioeconomic receptors	**Atmospheric emissions** Gaseous emissions are relatively small, will quickly dissipate into the surrounding atmosphere, and are not considered to be a potential source of impact to socioeconomic receptors. As the Activity occurs in offshore waters, the air quality in coastal towns or settlements will not be affected. **GHG emissions** Changes to climate can result in impacts to social receptors that have values which include the ecological receptors described above, including KEFs and Australian Marine Parks (AMPs). Climate change may also impact on the functions, interests or activities of other users which rely on these ecological values, including commercial and recreational fisheries and tourism. Considering that: • In any event, even assuming that emissions from the Activity will cause an equivalent net increase in cumulative Australian and global emissions, this increase is de minimis in the context of Australian and global carbon budgets; and • In any event, there is no correlation between where GHG emissions are released and where climate change impacts are felt, It is not possible to draw a link between GHG emissions from the Activity and any specific climate related impact on the Australian environment which may result from any net increase to

Receptor	Consequence level
	cumulative GHG emissions globally. By keeping the Barossa Gas Project's emissions under the Safeguard Mechanism baseline, the Project's (of which the Activity is a small component part) incremental contribution to global warming is within acceptable limits as determined by reference to Australia's NDC under the UNFCCC. Conservatively the associated potential environmental impacts to socioeconomic receptors is assessed as I – Negligible.
Cultural features	For assessment of impacts to marine species of cultural significance, refer to the assessment for threatened, migratory or local fauna. For assessment of impacts to the physical environment to which First Nations people are connected and have raised concerns, refer to the assessment for the physical environment/ threatened ecological communities / protected areas.
Overall worst-case consequence	I – Negligible

6.3.5 Demonstration of as low as reasonably practicable

Based on the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision, Santos considers the adopted control measures to have reduced the impacts and risks of GHG and atmospheric emissions from this Activity to ALARP through the following measures:

- Facilities design measures to reduce emissions to ALARP.
- Implementation of an Operations GHGEMP (that applies across all Barossa Gas Project Facilities including the GEP) to reduce Scope 1 emissions from facility operations to ALARP over the life of the Project (Section 8.3.2.12). The GHGEMP has been adopted as a specific control measure for the Barossa Gas Project (BAO-CM-6.3.12) and will apply to the Production Operations EP and this OEMP. It is recognised that the majority of Barossa direct (Scope 1) emissions are associated with sources from FPSO processing activities, with the operation of the GEP a minor component. In adopting the GHGEMP the corresponding environmental performance standards are incorporated across the Barossa Production Operations EP and this OEMP. The following protocols, procedures, systems and measures, as detailed further within the implementation strategy at the sections cross-referenced below, will be incorporated in, and form part of, the GHGEMP:
  - Emissions Performance target setting (Section 8.2.4)
  - Critical Equipment Maintenance (Section 8.3.2.3.1)
  - Methane Emissions Management (Section 8.3.2.11)
  - Decarbonisation Opportunity Management (Section 8.5.6)

  Adaptive management, to address areas of uncertainty, is integral to emissions performance target setting, methane emissions management and decarbonisation opportunity management.
- Engagement with Barossa Gas Project suppliers at the tender stage and on an annual basis via control measures and performance standards (see BAO-CM-6.3.21, 6.3.22 and 6.3.24). This engagement will:
  - enable Santos to verify its own Scope 3 emissions estimates associated with the Barossa Gas Project via data collection
  - assist Santos in tracking performance against its Scope 3 equivalent climate targets and Climate Transition Action Plan
  - facilitate support being provided to suppliers to reduce their own GHG emissions, thereby reducing the indirect GHG emissions associated with the Barossa Gas Project
- Promoting global measurement and reporting standards and advocating for policy frameworks that enable a consistent approach to carbon emissions management.

For this Activity, atmospheric and greenhouse gas emissions are largely unavoidable due to operational and health and safety considerations. The use of vessels and thereby fuel emissions cannot be eliminated. Alternative fuels (biofuels) have not been commercially proven at scale.

All reasonably practicable control measures were reviewed and those adopted are considered consistent with maritime/energy industry standards and appropriate to manage the impacts such that the residual consequence is assessed to be I – Negligible. The proposed management controls are in accordance with Santos' risk management criteria and are considered appropriate to reduce impacts to ALARP.

6.3.6 Acceptability evaluation

Is the consequence ranked as I or II?	Yes – maximum consequence from atmospheric and greenhouse gas emissions is I – Negligible. As outlined in Section 6.3.3 the acceptable levels of GHG emissions are defined as follows: • Acceptable levels of direct (Scope 1) emissions from the Activity are set by the Safeguard Mechanism Baseline on Barossa facility emissions, in line with the Australian Government's NDCs under the Paris Agreement. • Scope 3 emissions associated with the Activity are limited to IMMR vessel activities and are estimated to be nominal to negligible in the overall context of national and international carbon budgets. Acceptable levels of indirect (Scope 3) emissions from the Activity are those estimated to result from IMMR vessel activities, provided that the control measures relating to indirect emissions as outlined in this OEMP are also implemented. . Compliance with the Safeguard Mechanism is of primary importance in ensuring that Scope 1 GHG emissions associated with the Barossa Gas Project are kept to acceptable levels. The emissions associated with the Activity represent an incremental component part of the Scope 1 emissions of the Barossa Gas Project. GHG emissions at or below the baseline and the Safeguard Mechanism's future decline rates are already anticipated and thus accounted for under Australia's NDCs under the Paris Agreement. As outlined in Table 6-17, GHG emissions (within Australia) from the GEP represent 0.0017% of Australia's 2050 net carbon budget. • GHG emissions from the GEP represent 0.00002% and 0.000009% respectively of global net carbon budgets under 1.5˚C and 2˚C temperature increase scenarios. At 0.0017% of Australia's carbon budget to 2050, and 0.00002% and 0.000009% of net global carbon budgets for 1.5˚C and 2˚C temperature increases, the emissions from the GEP, of which the section of the pipeline comprising the Activity represents ~2% of the total GEP, comprise a nominal amount in the overall scheme of the national and international carbon budgets and will not materially or substantially contribute to Australia's net GHG emissions or net global emissions levels. Santos has adopted environmental performance outcomes and control measures directed to minimising GHG emissions from the Activity and therefore the potential contribution of these emissions to net cumulative GHG emissions globally. A range of controls have been considered and adopted for both direct (Scope 1) and indirect (Scope 3) emissions.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available and Relevant Persons consultation. The predicted atmospheric and GHG emissions associated with the Activity comprise a nominal amount in the overall scheme of the national and international carbon budgets and will not materially or substantially contribute to existing and future predicted Australian and global GHG emissions, having regard to the acceptability criteria as outlined in the preceding row.
Are the risks and impacts consistent with the principles of ecologically sustainable development (ESD)?	Yes – activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline, which considers principles of ESD. Ensuring that GHG emissions are consistent with the principles of ESD requires balancing economic, social and environmental considerations. The Activity will be regulated under the Safeguard Mechanism under the NGER Act, which plays a critical role in achieving adherence to the principles of ESD. It does this by setting emissions baselines and requiring facilities to implement measures that minimise emissions over time, consistent with Australia's NDCs under the Paris Agreement. Implementation of the proposed control measures will reduce GHG emissions from the Activity to within baseline emissions levels. The GHG emissions of the Barossa Gas Project as a whole are appropriately and comprehensively addressed in the Barossa Production Operations EP, including a detailed assessment of how the impacts and risks of GHG emissions of the whole Development are consistent with the principles of ESD.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans and conservation advice and Australian marine park zoning objectives?	Yes –maximum consequence from atmospheric and GHG emissions is I – Negligible. The Marine Bioregional Plan for the North Marine Region (CoA, 2012) includes consideration of the effects of air quality on species. The implementation of EPO-09 and the control measures outlined in Table 6-18 will ensure the atmospheric emissions from the Activity will not compromise this conservation effort. At 0.0017% of Australia's carbon budget to 2050, and 0.00002% and 0.000009% of net global carbon budgets for 1.5˚C and 2˚C temperature increases, the emissions from the GEP are de minimis and will not materially or substantially contribute to Australia's net GHG emissions or net global emissions levels. The emissions attributable to the Activity are an even smaller portion of the GEP's emissions. In any event, net carbon budgets are made up of both additions and subtractions to cumulative GHG emissions. Whether or not a net increase in cumulative Australian GHG emissions will occur is subject to multiple variables outside of Barossa JV's' control, other than its responsibility to manage the Activity's emissions to keep them under the Safeguard Mechanism baseline. For all the recovery plans identified in Table 3-13, the objectives are achieved through the adoption of EPO-09, EPO-10 and EPO-11 and the control measures outlined in Table 6-18.

Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – management consistent with the Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 (and associated regulations), MARPOL VI/Marine Order 97 and Protection of the Sea (Prevention of Pollution from Ships) Act 1983, MARPOL VI/Marine Order 97, National Environment Protection (Ambient Air Quality) Measure and National Pollutant Inventory, OPGGS Act, OPGGS(E) Regulations, National Environmental Protection Council Act 1994 (Cth) and Environment Protection (National Pollutant Inventory) Objective 2004 (NT). Management measures are consistent with the *Climate Change Act 2022* (Cth), *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989* (Cth) (and associated regulations), *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) (and associated regulations), and MARPOL VI/Marine Order 97. Performance outcomes, control measures and associated performance standards to manage the impacts and risks from GHG emissions associated with the Activity, being emissions that are a component of the overall emissions of the Barossa Gas Project, are consistent with relevant global agreements and frameworks and Australian legislation and regulations, including: • the NGER (Safeguard Mechanism) Rule 2015, the regulatory mechanism of primary relevance to Barossa production operations in Commonwealth waters GHG emissions, which requires net-zero reservoir emissions, and Scope 1 emissions above a facility-specific baseline to be offset. The Safeguard Mechanism is the appropriate performance standard for Scope 1 emissions from the Activity. This legislation reflects Australia's pathway to meet its obligations under the Paris Agreement. • the *National* Greenhouse *and Energy Reporting Act 2007* • GHG emissions are globally managed through the implementation of the Paris Agreement agreed under the United Nations Framework Convention on Climate Change at COP21 in 2015, which has established a global framework under which countries individually manage and reduce their emissions in accordance with their Nationally Determined Contributions (NDCs). This sets an ambitious climate-related goal (Article 2) and establishes a global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change (Article 7). The Paris Agreement commits individual signatory countries to define their nationally determined contributions, reach peak GHG emissions as soon as possible (Article 4), adopt rules and procedures to mitigate GHG emissions and adopt a compliance and reporting mechanism, as well as adaptive management and continuous improvement: • Under a range of different potential future scenarios where global temperature increase is limited to 1.5 degrees Celsius, natural gas remains an integral part of the energy mix out to 2050 and plays a critical role in the transition to a lower carbon future, able to flexibly fill market supply gaps as alternative energy sources emerge. Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B.
Are performance outcomes, control measures and associated performance standards consistent with relevant Santos policies?	Yes – Performance outcomes, control measures and associated performance standards align with relevant Santos policies, including Santos': • Santos' Environment, Health and Safety Policy (Appendix A) • Climate Report 2024 (part of the Santos Annual Report 2024) and the emissions reductions targets outlined therein • Climate Transition Action Plan. The environmental performance outcomes and the controls that will be implemented are consistent with Santos' internal requirements in its capacity as an independent company. Direct emissions from this Activity will be incorporated into the total emissions reporting undertaken by Santos with respect to the Barossa Gas Project once the project becomes operational. Further details regarding Santos' emissions reporting under NGERs and the Safeguard Mechanism are outlined in the Production Operations EP for the Barossa Gas Project. Climate change management is embedded within Santos' business strategy, including lowering operating emissions, in its capacity as an independent company.
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – Consideration and adoption of controls described in relevant best practice industry standards including: • Environmental management in the upstream oil and gas industry – IOGP- IPIECA, 2020. • OGCI: Aiming for Zero Methane Emissions Initiative • IPIECA Flaring Management Guidance • IPIECA Sustainability Guide The GEP Coastal Waters OEMP is also compliant with the conditions of EPBC approval EPBC 2022/09372.
Have performance outcomes, control	Yes – Issues, objections / claims and measures discussed with Relevant Persons during consultation for this activity, including with the ACF, the ECNT and the Clean Energy Regulator,

measures and associated performance standards taken into consideration Relevant Person feedback?	have been considered when evaluating performance outcomes, control measures and associated performance standards (see Section 4.7 for further information). It is acknowledged that GHG emissions associated with the Activity, and the impacts of climate change, were noted as a material issue for Relevant Persons consulted in the course of preparing the Barossa Production Operations EP and this GEP Coastal Waters OEMP. EPOs and control measures have been adopted to ensure that GHG emissions associated with the Activity are ALARP and acceptable. In developing and determining these EPOs and control measures, specific control measures proposed by Relevant Persons (including the ACF and ECNT) were evaluated. Where relevant, control measures implemented based on consultation with Relevant Persons for other Barossa EPs were also evaluated in developing the EPOs and control measures for this GEP Coastal Waters OEMP. The final form of the EPOs and control measures adopted have been determined and adopted for the reasons set out in this GEP Coastal Waters OEMP.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, one additional control measure adopted.

The consequence of atmospheric and GHG emissions on receptors is assessed as I – Negligible. Based on an assessment of Santos' acceptability criteria and with the control measures in place, there is expected to be no substantial contribution to global GHG emissions or change in air quality that may adversely impact the environment and the potential impacts are considered acceptable.

6.4 Seabed and benthic habitat disturbance

6.4.1 Description of event

Event	Disturbance to the seabed in the OA will occur as a result of: • temporary placement and set down of equipment and subsea infrastructure on the seabed (e.g. ROV, tooling baskets and equipment) • temporary seabed and sediment disturbance during IMMR activities, such as: – cleaning requiring marine growth removal, which results in resuspension of sediment – stabilisation of subsea infrastructure requiring the placement of material such as rocks, grout and gravel bags or mattresses on the seabed – span rectification of subsea infrastructure requiring the placement of material such as rocks, grout and gravel bags on the seabed – the replacement, maintenance, and repair of subsea equipment components – subsea infrastructure (including sections of the GEP) repair and replacement – sediment relocation required to gain access to subsea infrastructure – environmental monitoring activities such as sampling of seabed material (i.e. sediment) or biotic material (i.e. marine growth) for environmental studies as and if required The approximate seabed disturbance footprint is detailed in Table 6-19. Seabed disturbance may also cause a localised temporary increase in water turbidity.
Extent	Seabed disturbance will be localised within the OA, with the worst-case disturbance being the (unplanned) replacement of a section of GEP.
Duration	Temporary disturbances and placements for the duration of the Activity, being approximately 7 to 30 days, every three to five years, or as needed.

6.4.2 Nature and scale of environmental impacts

Potential receptors: physical environment (benthic habitat), threatened, migratory or local fauna (benthic fauna), socioeconomic (commercial fisheries and underwater cultural heritage), and cultural features.

The approximate seabed footprint from the Activity is provided in Table 6-19. Section 2 describes the Activity in detail.

6.4.2.1 Physical environment

The Activity will involve direct and indirect disturbance to the sea floor and will inevitably result in localised impacts to benthic habitats (and associated fauna) within the OA.

The GEP route in the OA is in water depths of approximately 47 – 50 m and in an area of high turbidity, limiting photosynthetically active radiation and benthic primary producer habitats. The seabed within the OA is characterised as featureless silty, shelly sand, with very sparse (<1%) epibiota (mainly soft corals and crinoids) (RPS, 2023). Shepparton Shoal is the closest shoal or bank, 23 km west of the OA (see Section 3.2.9). The benthic habitats and fauna assemblages that are expected to be impacted are considered widespread throughout the region.

Seabed and benthic habitat disturbance will be confined to the OA, within the footprint of subsea infrastructure or materials placed on the seabed. The typical footprint of seabed disturbance is defined in Table 6-19. Materials are placed in localised areas close to the subsea infrastructure and usually over areas of previous disturbance, such as within the GEP corridor. Disturbance to sediment habitat may result in epifauna removal or a reduction in the abundance and diversity of infauna.

The GEP and supporting structures are expected to sink or become partially buried over time, with localised soft sediment accumulation around the pipeline. Localised scouring may also occur around the infrastructure due to strong currents and subsurface waves. Scouring may necessitate IMMR activities, such as span rectification or the placement of grout and gravel bags or mattresses on the seabed. Subsea infrastructure (including replacement segments of the GEP or mattresses and grout bags for span rectification) will be lowered onto the seabed in a controlled manner with minimal disturbance to the sediment. Habitat directly beneath installed infrastructure will most likely be replaced by the hard substrate of the structures.

Given the mobile nature of sediments and high current speeds in the OA, the seabed is expected to infill naturally with sediments and detrital matter, returning to near its original state over a short time (weeks to months). Benthic habitats would remain viable and are expected to recolonise through the recruitment of new colonists from planktonic larvae in adjacent undisturbed areas (Guerra-Garcia & Garcia-Gomez, 2006).

Furthermore, the GEP or any additionally installed IMMR infrastructure will create a hard substrate in an otherwise featureless and soft seabed. It can be reasonably expected that this substrate would serve as an anchor for benthic organisms, such as sponges and gorgonians like those present on hard substrates at equivalent depths within the region. These organisms may create more complex habitats, supporting a localised increase in biodiversity over time.

Table 6-19: Description and approximate footprint of seabed disturbance

Activity	Description	Footprint of disturbance
ROV use	Seabed disturbance from temporary placement of ROV, tooling baskets and equipment on the seabed.	4.25 m^2
	Seabed disturbance from placement of tooling baskets on the seabed, required for maintenance and repair of subsea equipment and infrastructure.	<3 m^2
Cleaning of infrastructure and equipment requiring marine growth removal	Seabed disturbance from removed marine growth settling on the seabed.	<1 m^2
Environmental monitoring	Seabed disturbance from removal from small amount of sediment removal.	<1 m^2
Placement of stabilisation or rectification materials, such as rocks, grout and gravel bags or mattresses, on the seabed	Seabed disturbance is typically limited to areas around subsea infrastructure at small sections of GEP within the OA. The exact details and requirements are made after inspections and surveys. Span rectification and placement of stabilisation materials is typically required very infrequently.	<1 m^2 up to approximately 50 m^2
Replacement, maintenance and repair of subsea infrastructure	Seabed disturbance from the replacement, maintenance and repair of subsea equipment components, as well as subsea infrastructure, which is typically required very infrequently. Within the OA, the largest infrastructure that could potentially be replaced is a section of the GEP, resulting in seabed disturbance in a localised area of the GEP corridor. In this unplanned scenario, four pipe lift frames are typically deployed along a distance of approximately 100 m, each with a footprint of approximately 400 m^2.	1,600 m^2
Sediment relocation	Seabed disturbance from sediment relocation, which may be required to gain access to subsea infrastructure during IMMR. Seabed disturbance is localised to the GEP corridor.	<250 m^2

6.4.2.2 Water quality

Impacts on water quality are expected to be limited to increased turbidity (suspended sediments) and subsequent sediment deposition resulting from placing materials and infrastructure on the seabed, or from the relocation of sediment to gain access to infrastructure. IMMR activities may create a localised and temporary plume of suspended sediment over the area of seabed disturbance, which subsequently settles on the seabed after a period in the water column. Localised areas of the seabed and the associated fauna may be smothered by these sediments.

Turbidity effects are expected to be localised and short-term while the water column returns to its original state over a period of days. The impact on water quality is predicted to be negligible, with no substantial adverse effects on biodiversity, ecological integrity, social amenity, or human health.

6.4.2.3 Threatened, Migratory or local fauna

Habitat modification is identified as a potential threat to several marine fauna species in relevant recovery plans and conservation advice (Table 3-13), some of which have cultural significance as totems or cultural food sources. However, area of expected seabed disturbance from the Activity represents a negligible portion of the habitat available for threatened, migratory or local fauna, and is not inconsistent with relevant recovery plans and conservation advice.

6.4.2.3.1 *Sharks, rays and fish*

The seabed in the OA is predominantly bare sediment in water depths of approximately 47 – 50 m and supports a relatively low abundance and diversity of fish assemblages compared to more complex habitats (e.g., reefs). Seabed disturbance from the Activity may temporarily increase the availability of infauna prey for predatory demersal fish, which may result in the short-term attraction of demersal fish to the area.

The GEP and any additionally installed IMMR infrastructure will provide hard substrate to support benthic organisms, such as sponges and gorgonians (see Section 6.4.2.1), creating more complex habitats that may serve as artificial reef. Recent surveys on the North West Shelf have identified increased abundance and species richness of fish associated with subsea pipelines (Bond et al., 2018; McLean et al., 2017). These studies noted that the fish assemblages associated with pipelines tended to have a relatively high portion of large, commercially important fish species that preferred complex habitats (Bond et al., 2018; McLean et al., 2017). The predicted increase in fish assemblages is not expected to have any adverse environmental consequences.

The PMST report identified eleven shark species that may occur in the OA, including seven species listed as threatened under the EPBC Act: the northern river shark (endangered), dwarf sawfish (vulnerable), freshwater sawfish (vulnerable), green sawfish (vulnerable), whale shark (vulnerable, migratory), white shark (vulnerable, migratory), and scalloped hammerhead (conservation dependent) (Appendix C, summarised in Table 3-10). Seabed disturbance from the Activity is unlikely to adversely affect these shark species given their mobile nature, the wide representation of similar habitats in the region, the small size of the OA, and the localised scale of expected seabed disturbance.

Sawfish typically inhabit shallow coastal and estuarine waters and are unlikely to be present in notable numbers given the location and water depth of the OA (47 m – 50 m). However, it is recognised that individuals may occur within the OA, including three species listed as vulnerable under the EPBC Act: the dwarf sawfish, freshwater sawfish, and green sawfish (Appendix C, summarised in Table 3-10). Seabed disturbance from the Activity is unlikely to adversely affect these sawfish species given their mobile nature of sawfish species and preference for shallow habitat, the wide representation of similar habitats in the region, the small size of the OA, and the localised scale of expected seabed disturbance. Additionally, the GEP is expected to become partially or fully buried over time with a low profile above the seabed and is considered unlikely to prevent the movement of sawfish over the pipeline.

6.4.2.3.2 *Marine reptiles*

An internesting BIA and nesting HC for flatback turtles overlaps the OA, while a nesting HC for olive ridley turtles is 11 km from the OA. The southern and western coastline of Bathurst Island hosts flatback, olive ridley and green turtle nesting beaches (Figure 3-9) (Pendoley, 2022). Other species of marine reptiles, such as sea snakes and saltwater crocodiles, are not expected to be present in notable numbers within the OA and are not considered further.

Unlike other turtle populations (for example, on the northwest shelf of WA), the flatback and olive ridley turtles on Bathurst Island do not exhibit discrete nesting and hatching seasons. Rather, there is low level nesting year-round, with a peak in nesting, internesting and hatching during winter months. Flatback turtles forage in soft-bottom sub-tidal environments, feeding opportunistically on a range of benthic invertebrates such as molluscs, crustaceans, soft corals and holothurians, as well as pelagic prey such as jellyfish (Limpus, 2007). Suitable internesting habitat for flatback turtles is defined as water depths shallower than 16 m (Whittock et al., 2016; Pendoley, 2019). Similarly, internesting olive ridley turtles have been shown to remain relatively close to nesting beaches (within 50 km) during the nesting period, in waters typically <30 m depth (Hamel et al., 2008).

As such, internesting flatback and olive ridley turtles are expected to be concentrated in relatively shallow coastal waters (<30 m) around nesting beaches. Given that water depths in the OA are between 47 and 50 m, the wide representation of similar habitats in the region (flatback turtle BIA and HC areas extend > 800 km coastline), and the lack of foraging habitat in the OA, the number of individual turtles likely to be present is expected to be limited. Therefore, seabed disturbance within the OA is unlikely to affect internesting turtles.

6.4.2.3.3 *Marine mammals*

The PMST report identified nine marine mammal species that may occur in the OA, including three species listed as threatened under the EPBC Act: the blue whale (endangered), Sei whale (vulnerable), and fin whale (vulnerable). Several migratory marine mammals may also occur in the OA, including the humpback whale, Bryde's whale, and dolphins (Appendix C, summarised in Table 3-10). The closest significant features are dolphin breeding BIAs (spotted bottlenose, Australian humpback, Australian snubfin), which are over 46 km from the OA (Table 3-12), while the nearest whale BIA (pygmy blue, migration) is 373 km away. Therefore, marine mammals are unlikely to aggregate within the OA. Cetaceans and sirenians may transit the area, but individuals are unlikely to be exposed to the effects of seabed disturbance for durations sufficient to impact biological functions.

Seabed disturbance from the Activity is unlikely to adversely affect marine mammal species given their mobile nature, the wide representation of similar habitats in the region, the small size of the OA, and the localised scale of expected seabed disturbance.

6.4.2.4 Socioeconomic

6.4.2.4.1 *Commercial fisheries*

Potential impacts to benthic habitats, and subsequently to associated 'fish' species of commercial importance, will be localised and the potential impact to, and displacement of, fish is expected to be insignificant at a stock level. In addition, studies noted that the fish assemblages associated with pipelines tended to have a relatively high portion of large, commercially important fish species that preferred complex habitats (Bond et al., 2018; McLean et al., 2017).

6.4.2.4.2 *Underwater cultural heritage*

There is one known and protected underwater cultural heritage (UCH) feature within the OA; the *I-124* Japanese submarine wreck. During the design phase of the DPD Project, the pipeline route was deviated to avoid the *I-124* Japanese wreck and its 800 m radial exclusion zone, with the pipeline route passing 100m to the east of the exclusion zone at its closest point.

As per an Archaeological Scope of Works provided by the Heritage Branch of the NT Department of Territory Families, Housing and Communities (DTFHC), Santos engaged the services of a maritime archaeologist to undertake an underwater heritage assessment of the pipeline route, including within NT Coastal Waters (Cosmos Archaeology, 2022).

Along the pipeline corridor, Cosmos Archaeology (2022) analysed data collected during a geophysical survey conducted by Fugro in 2021. The study found three seabed anomalies representing potential cultural objects (i.e. not natural in origin) in the vicinity of the pipeline route, between pipeline kilometre point (KP) 25 to KP 28 (Cosmos Archaeology, 2022). Two of these objects, which could not be determined as natural or cultural, were identified between 143 and 214m away from the pipeline route and another single high-relief feature was located 68m from the pipeline route. This latter anomaly was considered only a remote chance of being associated with the I-124 wreck given its distance of over 2.5km away from the centre point of the wreck (Cosmos Archaeology, 2022). Given the distance of these anomalies from the Barossa GEP route and the nature of IMMR activities, these anomalies are not considered likely to be impacted.

Santos engaged OzArk to conduct a desktop First Nations archaeological assessment for the DPD Project Area, based on a detailed geomorphological assessment, including the NT Coastal Waters (Section 3.2.14.7). No known First Nations UCH sites were identified by OzArk (2024).

6.4.2.4.3 *Cultural features*

Santos has applied for, and received on 23 December 2022, an Authority Certificate (C2022-098) from the Aboriginal Areas Protection Authority (AAPA), which covers potential seabed disturbance along the pipeline route in NT waters and a nominal 1,000m buffer each side of the pipeline route, including the pipeline route in the NT Coastal Waters OA. There were no registered or recorded sacred sites, protected under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT) (NTASS Act), identified in the OA, nor any specific certificate conditions related to activities within the OA.

No First Nations people feedback was provided about potential seabed impacts to any geographically specific cultural features during consultation (refer to Section 4.8). The potential impacts to tangible cultural features from seabed disturbance are likely to be associated with any direct or indirect impacts to culturally significant marine fauna habitat and species (refer to Section 6.4.2.3).

Items raised in the 2022 Statement of Reasons Requests from the Tiwi clan members included traditional hunting of marine species and totem species. There is no known traditional hunting or gathering areas within OA, however as the spatial extent is undefined it may be possible traditional hunting and gathering could occur within the OA. Section 6.4.2.3 assesses the potential direct or indirect impacts to culturally significant marine fauna species such as dreaming / songs and totem species (i.e. marine mammals, marine reptiles, sawfish, sharks, rays and other fish). Consequently, it is anticipated that the proposed seabed and benthic habitat disturbance is unlikely to impact traditional hunting practices or resources.

As presented in Section 3.2.15, some First Nations people cultural beliefs place significance on culturally important spiritual beings and the protection they afford First Nations communities from natural disasters and sickness. Dr Corrigan concluded that both the Tiwi Islanders and Larrakia Peoples' cultural and spiritual values within the OA are geographically indeterminate (Corrigan, 2024), based on the materials able to be considered. As part of his study, Dr Corrigan spoke directly with, and obtained information from, many First Nations people including Larrakia, Tiwi Islanders and members of the Belyuen community. Engagement with Tiwi Islanders undertaken by Dr Corrigan also shows that spiritual beings (e.g., crocodile man and Ampitji) are not widely thought to travel to and within the OA due to the distance from the Tiwi Islands, as expressed by some relevant and senior Tiwi people. Of direct relevance to this GEP Coastal Waters OEMP, these sorts of Tiwi cultural and spiritual values were tested in

the Federal Court and were found not to be consistently spread amongst relevant Tiwi Islanders, and in any event, do not represent a particular 'place' of cultural and spiritual significance[46].

As presented in Section 3.2.15, some First Nations people believe that damaging songlines may have the potential to interfere with ability for First Nations people to reproduce cultural knowledge and continue to provide cultural education of their children.

During consultation for the operation of the Barossa pipeline, the Croker Island people did not identify any sacred sites or songlines within the OA, and no objections or claims were raised.

Santos recognises that some First Nations people remain concerned about the potential for adverse consequences to First Nations people and natural environment, that may arise as a result of disturbance from GEP operations to spiritual dreaming and culturally important spiritual beings. Santos understands the spiritual protection believed to be afforded to the First Nations people is broadly maintained by protecting the features of the natural environment and through ceremonial practices alerting the spiritual beings to the presence of people travelling through country and the like (Corrigan, 2023).

For the DPD project, Dr Corrigan (2024) documented input from Larrakia people and relevant First Nations persons from Belyuen and Wagait, who advised the presence of a range of ancestral beings and dreaming stories of relevance to the Darwin Harbour, surrounding seas and the DPD Project footprint. None of these cultural features are known to be associated with any specific or particular places in the GEP footprint, but rather have a more general association with the wider area, as well as having associations with particular and specific places outside of the GEP footprint.

While Dr Corrigan's assessment concluded that there are no places of specific cultural heritage value in existence in the general area along the GEP route, Santos recognises the general heritage values and cultural and spiritual beliefs and connections to First Nations people.

Santos has determined that the Activity will have low impact and risk to cultural and/or spiritual beliefs because:

- no specific UCH places have been identified by Dr Corrigan, which is consistent with the conclusions of consultation with First Nations people and through the examination of relevant records in the course of preparing this GEP Coastal Waters OEMP
- these intangible cultural and spiritual heritage interests and connections have co-existed with other seabed disturbance activities in the region (including the area surrounding the Tiwi Islands) with no evidence to support actual adverse effects from the actions of spiritual beings in response to impacts on the environment. Regional activities that disturb the seabed include fish trawling, drilling of nearly 900 offshore wells, and subsea infrastructure placement including the Bayu-Undan pipeline (since approximately 2006), the Ichthys Pipeline (since approximately 2016), the North West Cable System (since approximately 2016) and the GEP (since 2023).
- on the views of some Tiwi Islanders who provided information to Dr Corrigan, there were no cultural impediments to the laying of the GEP
- even when considering the most concerned views of Tiwi Islanders (those expressed by the EDO's clients), the impact and risk is expected to be low as the Activity will not meaningfully add to the current level of seabed disturbance in the area.

Santos considers that control measures based on Dr Corrigan's recommendations will allow intangible impacts and risks to be reduced to ALARP and an acceptable level and has adopted these recommendations as BAO-CM-6.1.4.

6.4.3 Environmental performance outcomes and control measures

The EPOs relating to this event include:

- Seabed disturbance to be limited to planned activities and impacts described as part of the Activity and will not occur outside the Operational Area (EPO-04)
- No anchoring or mooring of vessels on shoals/banks (EPO-05)
- No significant impact to cultural features from the Activity (EPO-19)
- No impacts to underwater cultural heritage from the Activity (EPO-20)

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this Activity are shown in Table 6-20 to demonstrate the potential impacts from this aspect are ALARP. Control

[46] *The concepts of places, sites and similar are used in various places of legislation that contain mechanisms to protect First Nations cultural heritage (including the ATSIHP Act, ALR Act and NTASS Act), to describe specific items or places that should be protected.*

measures that are adopted have associated EPSs and measurement criteria that are presented in Table 8-2. Rejected control measures have an ALARP evaluation provided to justify their rejection.

Table 6-20: Control measures evaluation for seabed and benthic habitat disturbance

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.4.5	HSE inductions will include all applicable environmental requirements (administrative control)	Ensures that crew are aware of the stringent Coastal Waters OEMP, Santos and legislative requirements.	Administrative costs to update existing Santos procedure and induction materials, and train personnel.	**Adopted** – benefits considered to outweigh costs.
BAO-CM-6.5.2	Maintain a subsea infrastructure inventory (administrative control)	Enables Santos to fulfil future decommissioning and removal responsibilities.	Cost of surveys, maintaining equipment and records.	**Adopted** – benefits considered to outweigh costs.
BAO-CM-6.5.4	Vessels will not anchor under routine operations within the OA however may anchor during emergency conditions	No planned vessel anchoring within the OA reduces seabed disturbance area as no anchor or anchor chain drag/placement will occur.	Cost of contracting activity vessels with DP equipment. Using DP requires continuous engagement of thrusters, which will increase noise emission.	**Adopted -** environmental benefits of ensuring vessels are compliant outweigh the associated costs.
Additional control measures				
BAO-CM-6.1.4	Inductions for all site-based workforce will include information on cultural heritage to raise awareness about the cultural and spiritual belief of First Nations people (administrative control)	Addresses concerns raised (during consultation for the Barossa Project construction activities) of some First Nations people about the potential impacts of the Activity on their spiritual beliefs in a culturally appropriate manner.	Cost to engage First Nations representatives to perform cultural ceremony. Administrative cost to deliver cultural heritage training.	**Adopted** – benefits considered to outweigh costs.
BAO-CM-6.5.3	Span correction procedures to be developed, if required (administrative control)	Provides clear direction on how spans shall be rectified and surveyed to minimise seabed disturbance.	Costs are expected as part of standard procedure.	**Adopted** - benefits considered to outweigh costs
N/A	Eliminate IMMR activities, including rectification and stabilisation	Eliminates seabed disturbance from IMMR activities, such as subsea infrastructure replacement, and rectification and stabilisation activities. IMMR is typically undertaken on identified scour and subsea infrastructure movement. Span rectification and stabilisation activities would further limit	Eliminating IMMR may result in more severe environmental impacts (e.g., hydrocarbon leak), compromising safety requirements. Regular IMMR of subsea infrastructure cannot be eliminated, as it is a requirement to maintain subsea equipment and property in good condition, in accordance with PSL Act Section 98.	**Not adopted** – increased (transferred) risk disproportionate to environmental benefit.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
		seabed disturbance from scour.		
N/A	Monitor seabed and benthic habitats surrounding subsea infrastructure	Some limited environmental benefit (e.g., data collection) from monitoring benthic habitat.	Costs associated with collecting and reviewing footage.	**Not adopted** – cost outweighs environmental benefit.
N/A	Use divers for subsea inspections instead of ROV	Reduces seabed disturbance from ROV use and temporary placement of ROV on the seabed.	The use of divers to inspect subsea infrastructure may present unacceptable health and safety risks.	**Not adopted** – increased (transferred) risk disproportionate to environmental benefit.

6.4.4 Environmental impact assessment

Receptors	Consequence level
Seabed and benthic habitat disturbance	
Physical environment and habitat	Localised sediment (silty, shelly sand) disturbance and turbidity caused by the Activity is expected to be minor in nature and limited to within the OA. Infrastructure placed on the seabed will provide hard substrate for benthic organisms, which may support a localised increase in biodiversity. Therefore, the consequence level is considered to be II – Minor.
Threatened, Migratory or local fauna	Given the limited scale of seabed disturbance and location of the OA, potential impacts to threatened, migratory or local fauna species are unlikely. Habitat modification is identified as a potential threat to several marine fauna species in relevant recovery plans and conservation advice (Table 3-13). However, the benthic habitat within the OA is well represented in the wider surrounds and there are no known significant marine fauna BIAs within the OA. Marine invertebrates that may inhabit disturbed soft sediment benthic habitats are expected to occur elsewhere within the OA and surrounds. Therefore, the disturbance is not expected to negatively affect prey availability for protected fauna species. Seabed disturbance is not expected to cause a significant decrease in local population size, area of occupancy of species, loss or disruption of critical habitat, and disruption to the breeding cycle of any threatened or migratory marine fauna. Therefore, the consequence level is considered to be I – Negligible.
Threatened ecological communities	Not applicable – no threatened ecological communities were identified in the area where seabed disturbance could occur
Protected areas	Not applicable – no protected areas were identified in the area where seabed disturbance could occur
Socioeconomic receptors	The consequence level for Socioeconomic receptors is considered to be I – Negligible. Given the relatively small scale of seabed disturbance and knowledge of the existing environment, significant impacts to threatened/migratory/local marine fauna species are not expected. Seabed disturbance is not expected to impact commercial fisheries based on the small size of disturbance compared with the total available fishing area. There are no known heritage sites or clear evidence of shipwrecks or aircraft wrecks within the OA. There is one UCH site, the Japanese submarine wreck *I-124*, located <1 km away from the OA and protected under the UCH Act. Santos has deviated the pipeline route around the *I-124* 800 m radial exclusion zone, with the closest point passing 100 m east of the exclusion zone, to ensure seabed disturbance does not encroach into this zone. A maritime archaeology assessment (Cosmos Archaeology, 2022), assessing geophysical data collected along the route, did not identify any cultural heritage objects likely to be impacted by seabed disturbance associated with the Activity within the OA.

Receptors	Consequence level
Cultural features	There are no sacred sites registered or recorded under the NTASS Act or protected under the ATSIHP Act, UCH Act, ALR Act or EPBC Act that overlap the OA. All of the culturally important sites (including underwater sites) identified by First Nations peoples are outside the OA. For the assessment of impacts to marine species of cultural significance, refer to the assessment for threatened, migratory or local fauna. In relation to seabed disturbance, Santos notes that existing subsea infrastructure has previously been placed on the seabed in the region, such as the Bayu-Undan pipeline (since approximately 2006), the Ichthys Pipeline (since approximately 2016), and the North West Cable System (since approximately 2016). The region also has a history of significant historic and ongoing industrial shipping, fish trawling and drilling of almost 900 offshore wells. There is no evidence to support actual adverse effects from spiritual beings in response to impacts on people or the environment from these activities. Notwithstanding, a control measure (BAO-CM-6.1.4) relating to cultural heritage training has been adopted. Santos considers the adoption of EPO-19, EPO-20, BAO-CM-6.1.4 and Table 8-2, practicable and appropriate.
Overall worst-case consequence	II – Minor

6.4.5 Demonstration of as low as reasonably practicable

There are no reasonably practicable alternatives for conducting regular subsea IMMR activities. All reasonably practicable control measures were reviewed and those adopted are considered appropriate to manage the impacts such that the residual consequence is assessed to be II – Minor. The proposed control measures are in accordance with Santos' risk management criteria and are considered appropriate to manage the impacts to ALARP.

In relation to spiritual and/or cultural heritage beliefs and connections to sea country and related concerns of some First Nations people, Santos has been implementing cultural heritage training and ceremony while undertaking activities authorised pursuant to the GEP EP since November 2023, with broad support of First Nations communities as a culturally appropriate practice and response to cultural concerns. Santos considers that the adopted control measure BAO-CM-6.1.4 will reduce environmental impacts and risks to ALARP, as relevant to First Nations individuals who hold these concerns in relation to their beliefs.

6.4.6 Acceptability evaluation

Is the consequence ranked as I or II?	Yes – maximum consequence to seabed and benthic habitats is II – Minor.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available. Extensive marine studies have been completed within the OA to inform the assessment.
Are the risks and impacts consistent with the principles of ecological sustainable development (ESD)?	Yes – Activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline, which considers principles of ESD.

Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans, conservation advice, wildlife conservation plans and Australian marine park zoning objectives?	Yes – while several plans identify habitat modification as a threat to marine fauna, significant impacts are not predicted for this Activity. **Conservation advice:** • Approved Conservation Advice for *Pristis clavata* (Dwarf Sawfish) (DEWHA, 2009) • Approved Conservation Advice for Green Sawfish (DEWHA, 2008c) • Approved Conservation Advice for *Pristis pristis* (largetooth sawfish) (TSSC, 2014b) • Approved Conservation Advice for *Glyphis garricki* (northern river shark) (TSSC, 2014a) • Approved Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g) **Recovery plans:** • Recovery Plan for the White Shark (*Carcharodon carcharias*) (Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC, 2013) • Sawfish and River Sharks Multispecies Recovery Plan (CoA, 2015b) For the identified plans, the objectives of those plans are achieved through the adoption of performance outcomes and the control measures outlined in Section 6.4.3. Santos considers that the level of impact of Activity seabed and benthic habitat disturbance is not inconsistent with these recovery plans.
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B. On 6 December 2023 and 10-11 January 2024, DCCEEW UCH Branch—responsible for administering the UCH Act—was consulted regarding the notification and management of potential UCH for the SURF EP. Feedback on BAO-CM-6.1.4 was affirmative and as a result also adopted for this GEP Coastal Waters OEMP. The GEP Coastal Waters OEMP is also compliant with the conditions of EPBC approval EPBC 2022/09372.
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable EPs accepted by NOPSEMA have been reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback?	Yes – no objections or claims were specifically raised by Relevant Persons for this Activity. However, feedback received from the Corrigan 2024 Report, GEP EP and D&C EP has been considered, and where applicable, additional EPOs, CMs and EPSs were adopted (EPO-19, EPO-20 and BAO-CM-6.1.4).
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, with additional control measures adopted.

The consequence of seabed and benthic habitat disturbance is assessed as II – Minor. Based on an assessment of Santos' acceptability criteria and with the control measures in place, potential impacts are considered acceptable.

6.5 Interactions with other marine users

6.5.1 Description of event

Event	Sources of impact to other marine users may occur as a result of: • planned vessel activities in the OA • unplanned and non-routine vessel activities in the OA (e.g., post major cyclone inspections) • ROVs and AUVs operating within the OA • the ongoing presence of the GEP and associated seabed infrastructure in the OA which may pose a snag hazard) Activity vessels may include: • IMMR vessels, which operate 24/7 for a period during the Activity • support and supply vessels, which will transit to and from the IMMR vessel • ad-hoc survey and other support vessels including USVs operated by a Vessel Master from a remote operations centre. Other marine users within the OA may include commercial shipping and fishing, tourism (including fishing charters), recreational fishing, defence, and traditional fishing.
Extent	Contained within the OA. A temporary 500 m exclusion zone will be established around the Activity vessels to safeguard them while they are unable to manoeuvre. All Activity vessels will be limited to ≤8 knots within the OA.
Duration	**Continuous:** Continuous presence of the GEP on the seabed throughout field life. **Intermittent:** • Temporary and intermittent interaction with third-party vessels and helicopters when transiting the OA for the duration of the field life • Support vessel presence is required for day-to-day operations during routine IMMR. The duration of IMMR vessel presence will be approximately 7 to 30 days, every three to five years Vessels for unplanned activities, including USV, would be less frequent.

6.5.2 Nature and scale of environmental impacts

Potential receptors: socioeconomic (commercial fisheries, traditional fishing, tourism, recreation, shipping, and defence).

Other marine users may be inhibited by the presence of Activity vessels and a 500 m radius exclusion zone that is maintained around the vessels during temporary operations in the OA, such as IMMR. The GEP inspection frequency will be every three to five years, and findings of the IMMR campaigns will be used to inform the future frequencies of IMMR activities. Activity vessels involved in routine IMMR are expected to operate for a period of weeks during these regularly scheduled periods. Helicopter operations within the OA will be short-term and are unlikely to interfere with other marine users due to the access restrictions around Activity vessels.

The physical presence of the GEP in the OA may also present a hazard to marine users due to the potential for snagging. Potential interactions with other marine users are described below.

6.5.2.1 Commercial fishing

The management area of ten commercial fisheries (four Commonwealth, six NT) overlap the OA. Table 3-15 provides a summary of commercial fisheries and Santos' understanding of fishing effort based on publicly available information and consultation with Relevant Persons. However, as described in Section 3.2.14.1 no active commercial fishing occurs in five of the fisheries that overlap the OA. Four commercial fisheries may actively operate in the OA: the Northern Prawn Fishery (NPF), Spanish Mackerel Fishery (SMF), Offshore Net and Line Fishery (ONLF), and the Demersal Fishery (DF). In the NPF, medium and high fishing effort is concentrated to the west and north of the Tiwi Islands, as well as south of the OA. Fishing effort in the SMF is concentrated at nearby shoals and banks within the EMBA, particularly in waters off Bathurst Island. In the ONLF, fishing effort is concentrated within 12 NM of the coast, and immediately offshore in the Gulf of Carpentaria. Fishing effort in the DF is concentrated to the north-east of the OA, along the eastern boundary of the Timor Reef fishery in water depths of 80-100 m.

6.5.2.2 Traditional subsistence fishing

The OA is approximately 30 km south-west of the Tiwi Islands. First Nations fishing activity in NT waters predominately occurs within inshore tidal waters, with approximately 93% of effort concentrated within coastal

waters up to 3 NM (approximately 5.6 km) from the NT coast and the Tiwi Islands (Section 3.2.15.9). In Tiwi Island waters traditional fishing effort is greatest near the larger communities of Wurrumiyanga on Bathurst Island, and Pirlangimpi and Milikapiti on Melville Island (DPIF 2014). Tiwi people continue to undertake the customary harvesting of sea turtles and dugongs. Green turtles are the main species harvested, while eggs of all turtle species are taken periodically (Tiwi Land Council, 2022). Dugongs are occasionally harvested. In 2014, the Blue Mud Bay Settlement Deed was signed by NT Government, Tiwi Land Trust, and the Tiwi Land Council. Tiwi People are proposing to establish a Marine Indigenous Protected Area that extends to 3 NM around the Tiwi Islands (Tiwi Land Council, 2021).

6.5.2.3 Tourism and recreation

Tourism and recreational vessels may transit the area infrequently. Tourism, recreation, and traditional fishing are not expected in the OA given the distance to the Tiwi Islands (~30 km) and Darwin (~95 km), the lack of seabed features, and water depths between 47 and 50 m. The seabed within the OA is characterised as silty, shelly sand, with very sparse (<1%) epibiota and no known seabed sites of recreational interest, such as fishing areas, shipwrecks or coral reefs. The closest areas that support site attached fish and a varied benthic community are Shepparton Shoal (23 km from the OA) and Afghan Shoal (24 km from the OA).

6.5.2.4 Defence, infrastructure, and commercial shipping

The OA intersects a designated defence practice area. The closest operational offshore production facilities and infield subsea infrastructure are the Eni operated Blacktip Gas, approximately 250 km south-west from the OA, and the Santos operated Bayu–Undan platform, approximately 370 km north-west from the OA. There are two existing pipelines within the vicinity: Bayu-Undan (runs adjacent to the GEP) and Ichthys (18 km distant from the OA).

The presence of Activity vessels may cause temporary disruption to commercial shipping. Darwin Port is a major shipping port located 95 km southeast of the OA. In 2022–2023, there were 1,569 vessel calls to port (Landbridge Darwin Port, 2024). Additionally, Port Melville in the Tiwi Islands is located 83 km north-east of the OA and 125 km north of Darwin. Based on AMSA vessel traffic data, commercial shipping and other marine traffic in the OA is expected to be relatively low (AMSA, 2024).

6.5.3 Environmental performance outcomes and control measures

The EPO relating to this event is:

- No vessel collisions or adverse interactions with other marine users (EPO-01).
- No significant impacts to cultural features from the Activity (EPO-19)
- No impacts to underwater cultural heritage from the Activity (EPO-20)

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this activity are described in Table 6-21 to demonstrate the potential impacts from this aspect are ALARP. Control measures that are adopted have associated EPSs and measurement criteria and are presented in Table 8-2. Rejected control measures have an ALARP evaluation provided to justify their rejection.

Table 6-21: Control measures evaluation for interaction with other marine users

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.1.2	Vessels equipped and crewed in accordance with Australian maritime requirements, including Marine Order 30 (Prevention of Collisions) and Marine Order 21 (Safety and Emergency Arrangements) (administrative control)	Ensures contracted vessels are operated, maintained, and crewed in accordance with industry standards and regulatory requirements. Ensures vessels meet Marine Assurance Standards to reduce the likelihood of vessel collision (such as minimum and working lighting for maritime safety).	Regulatory requirement and therefore the cost is not identified as an issue.	**Adopted** – it is a regulatory requirement.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
BAO-CM-6.4.5	HSE inductions will include applicable environmental requirements (administrative control)	Ensures that crew are aware of the stringent Coastal Waters OEMP, Santos, and legislative requirements.	Administrative costs to update existing Santos procedures and induction materials, and train personnel	**Adopted** – benefits considered to outweigh costs.
BAO-CM-6.6.1	Notify AHS and AMSA MSI prior to relevant Activity (administrative control)	Maritime notifications ensure identified marine users are informed of the proposed activities, reducing the likelihood of unplanned interactions. Subsea infrastructure will be clearly marked on Australian nautical charts published by the Australian Hydrographic Office (AHO) alerting other marine users to the presence of Activity vessels and exclusion zones and restrictions, thus reducing the likelihood of vessel collision and fishing gear snagging.	Cost and time to perform notifications.	**Adopted** – benefits considered to outweigh costs.
BAO-CM-6.6.4	Activity undertaken in accordance with Santos HSE management and marine vessel vetting processes (Santos' Offshore Marine Assurance Procedure) (administrative control)	Santos marine vetting process ensures vessel lighting, radios and equipment are inspected and maintained so that other marine users are aware of the vessel's physical presence, thus reducing the potential for interaction and collision.	Standard maritime safety and navigational equipment; regulatory requirement and therefore the cost is not identified as an issue.	**Adopted** – benefits considered to outweigh costs and regulatory requirements mandate some equipment standards.
Additional control measures				
BAO-CM-6.6.6	Vessel speed restrictions within 500m around the IMMR vessels and campaign vessels (administrative control)	Restricting vessel speeds within the OA to ≤8 knots reduces the likelihood and consequence (causing harm) of vessel-to-vessel collisions by providing vessels with more time to detect and maneuver to avoid each other.	Administrative costs to update existing Santos procedures and induction materials, and train personnel.	**Adopted** – benefits considered to outweigh costs.
BAO-CM-6.6.7	Communications plan will be implemented for engagement prior to and during the Activity that may impact marine users to raise awareness of the activity (administrative control)	Communications plan will improve awareness of the Activity, encourage engagement with stakeholders, and provide up-to-date information regarding key activities.	Cost associated with implementing procedures	**Adopted** – benefits considered to outweigh costs.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
BAO-CM-6.6.8	Charting of infrastructure on nautical charts	Subsea infrastructure clearly marked on Australian nautical charts published by the AHO alerts other marine users to the presence of activity vessels and exclusion zones and restrictions, thus reducing the likelihood interactions with marine users such as fishing gear snagging.	Cost and time to prepare and distribute information	**Adopted** - benefits considered to outweigh costs
BAO-CM-6.1.4	Inductions for all site-based workforce will include information on cultural heritage to raise awareness about the cultural and spiritual belief of First Nations people	Addresses concerns raised (during consultation for the Barossa Project construction activities) of some First Nations people about the potential impacts of the Activity on their spiritual beliefs in a culturally appropriate manner.	Cost to engage First Nations representatives to perform cultural ceremony. Administrative cost to deliver cultural heritage training.	**Adopted** - benefits considered to outweigh costs
N/A	Manage the timing of the Activity to avoid peak marine user periods (e.g., fishing) (elimination control)	Would reduce potential impacts to fisheries and other marine users	Significant costs and increase in Activity duration to demobilise/remobilise the vessels. It also increases the risk profile of the operation.	**Not adopted** – marine users may be present within the OA at any time of the year. Given this, avoiding peak fishing periods is not considered justified, and is disproportionate to the cost and delay it would cause.
N/A	Installation of protection structures on pipeline infrastructure (engineering control)	Protects trawling vessels against loss of containment from subsea infrastructure.	Installation of protection structures for the pipeline to protect trawling vessels against loss is disproportionate to the cost and delay it would cause.	**Not adopted** – During design and installation Santos has undertaken trenching and rock dumping along zones of the pipeline route where there is a higher risk of dragged or dropped anchors. An engineering based risk assessment demonstrates that fishing equipment would fail before the pipeline was damaged in the event that trawling gear became stuck on the pipeline.

6.5.4 Environmental impact assessment

Receptor	Consequence level
Interaction with other marine users	
Threatened, migratory or local fauna	Not applicable – related to socioeconomic receptors only

Receptor	Consequence level
Physical environment or habitat	
Threatened ecological communities	
Protected areas	
Socioeconomic receptors	The OA does not overlap any areas of moderate to high fishing effort. This is primarily due to the seabed being characterised as silty, shelly sand, with very sparse (<1%) epibiota and a lack of seabed features such as shoals, reefs and banks. Given the low fishing effort within the OA and the distance from the coastline, interactions with commercial fishers are likely limited to fishers transiting through the region. While 500 m exclusion zones around Activity vessels may impose minor restrictions on where fishing effort can occur, no substantial adverse effects are considered likely given the small OA and the short-term nature of typical IMMR activities. Therefore, the impacts and risks are deemed acceptable. The physical presence of subsea infrastructure may present an ongoing hazard to marine users due to the potential for snagging. The control measures outlined in Table 6-21, together with the engineering design of the GEP and support structures (proud to the seabed) prevents snagging of trawling equipment. The risk of snagging was assessed during a fishing interactions survey undertaken for the Darwin Pipeline Duplication (DPD) (Intecsea, 2018). Based on the frequency of trawling vessels crossing the pipeline and the location of snagging hazards (e.g., pipeline spanning structures), it was concluded that there is very low likelihood of trawling equipment becoming snagged on the installed pipeline. On an ongoing basis, it is not credible for any snagging of trawling equipment to result in a loss of containment of the GEP infrastructure (Intecsea, 2018; 2022). Based on AMSA vessel traffic data, commercial shipping and other marine traffic in the OA is expected to be relatively low (AMSA, 2024), as the OA is not located in a shipping fairway. Given all shipping and Activity vessels are required to comply with the COLREGS and associated Marine Orders, it is expected navigational and communicative aids are sufficient to prevent any negative interactions beyond basic avoidance of Activity vessels. Activity vessels are typically only present in the OA for infrequent, short-duration IMMR activities. During these periods, should other vessels need to deviate from planned routes to avoid 500 m exclusion zones, it is unlikely to increase transit times and fuel consumption. Therefore, impacts to commercial shipping or fishing vessels are not expected. Tourism, recreation, and traditional fishing are not expected in the OA given the distance to the Tiwi Islands (~30 km) and Darwin (~95 km), the lack of existing seabed sites of interest (e.g., fishing areas, shipwrecks, or coral reefs), and water depths between 47 and 50 m. Any interactions with recreational or traditional fishers, scuba diving operators, or tourism vessels are expected to be limited to temporary avoidance of Activity vessels while transiting through the OA. Based on Santos' experience with the Bayu-Undan pipeline, the GEP may become a site of future interest once marine growth becomes established and attracts fish and fishers. Given the small OA and temporary duration of exclusion zones around the Activity vessels, interactions with commercial fishing, shipping, defence, and other incidental marine traffic are expected to be infrequent. Other marine users have previously coexisted in the OA with other nearby restricted areas in place (e.g., defence areas). Communication before and during the Activity will reduce the likelihood of unplanned interactions with other commercial marine users. Therefore, the consequence level for potential interaction with other marine users is considered to be I – Negligible.
Overall worst-case consequence	I – Negligible

6.5.5 Demonstration of as low as reasonably practicable

There are no alternatives to using vessels to undertake the Activity. Activity vessels must have a 500 m exclusion zone in place to ensure the safety of these vessels and other marine users. Santos' consultation process is described in Section 4. Throughout the consultation period, Relevant Persons were made aware of the proposed exclusion zones around the Activity vessels, and the implications to other marine users including the indicative schedule. No concerns have been raised by Relevant Persons regarding the potential exclusion zone. Notice to Mariners will be issued that detail the location, nature of activities, and confirmation that vessels will maintain navigation aids.

All reasonably practicable control measures were reviewed and those adopted are considered appropriate to manage the impacts such that the residual consequence is assessed to be I – Negligible. The proposed control measures are in accordance with Santos' risk management criteria and are considered appropriate to reduce impacts to ALARP.

6.5.6 Acceptability evaluation

Is the consequence ranked as I or II?	Yes – maximum consequence from interaction with other marine users is I – Negligible.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available and Relevant Person consultation.
Are the risks and impacts consistent with the principles of ecologically sustainable development (ESD)?	Yes – Activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline, which considers principles of ESD.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans and conservation advice and Australian marine park zoning objectives?	Not applicable. The OA does not intersect any AMP or protected areas. Interaction with other marine users is not a relevant threat identified in the species recovery plans, threat abatement plans, conservation advice and wildlife conservation plans set out in Table 3-13.
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – management measures are consistent with the SOLAS and various Commonwealth Acts, such as the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012,* the *Navigation Act 2012*. Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B. The GEP Coastal Waters OEMP is also compliant with the conditions of EPBC approval EPBC 2022/09372.
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable EPs accepted by NOPSEMA were reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback?	Yes – Relevant Person feedback indicated no recommendations for revising the EPO, CMs or EPSs.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, with additional control measures adopted.

The consequence of interaction with other marine users is assessed as I – Negligible. Based on an assessment of Santos' acceptability criteria and with the control measures in place, potential impacts are considered acceptable.

6.6 Operational discharges

6.6.1 Description of event

Event	Within NT waters, including the NT Coastal Waters OEMP OA, there are restrictions on permissible vessel discharges to the marine environment under the *Navigation Act 2012* (Cth), *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) (and subordinate Marine Orders), *Marine Pollution Act 1999* (NT) and *Marine Pollution Regulations 2003* (NT). Collectively, these instruments give effect to various MARPOL Annexes, including Annexes I, II, III, IV and V relating to oil, noxious liquids, harmful packaged substances, sewage and garbage). Potential impacts may occur in the OA from near-surface IMMR vessel discharges, where permitted under relevant legislation. **Near-surface discharges from Activity vessels** • deck drainage/run-off • treated sewage and greywater • cooling water • bilge water • brine (if a reverse osmosis unit is used for water treatment) • ballast water The Activity vessels are the largest and primary vessels that may operate within the OA. IMMR, support and supply vessels will also operate in the OA. Vessel presence in the OA will be short-term during IMMR campaigns. As a result, it is reasonable to base the worst-case vessel discharge calculations on total maximum persons on board (POB) of 100 across all IMMR vessels operating in the OA concurrently. **Deck drainage** Deck drainage discharge may potentially contain small residual quantities of oil, grease and detergents if present or used on the decks. Assessment of the unplanned release of hydrocarbons and other environmentally hazardous liquids is discussed in Section 7. **Treated sewage and greywater** The volume of sewage and greywater is directly proportional to the number of POB. Up to 30–40 L of sewage/greywater may be generated per person per day and is discharged in accordance with Marine Order 96 and applicable legislation. The estimated maximum sewage and greywater discharged is up to4,000 L/day. **Cooling water** Sea water will be used as a heat exchange medium for cooling machinery engines. Sea water is drawn from the ocean and flows counter current through closed-circuit heat exchangers, transferring heat from engines and machinery to the sea water. The sea water is then discharged to the ocean (i.e., it is a once-through system). Cooling water temperatures may vary depending on engine workload and activity. **Bilge water** While in the OA, vessels may discharge oily bilge water after treatment to less than 15 mg/L oil in water content via an approved oily water filter system, in accordance with Marine Order 91 and applicable legislation. **Brine** Brine generated from the water supply systems on each vessel will be discharged to the ocean at a salinity of approximately 10% higher than sea water. The volume of the discharge depends on the requirement for fresh (potable) water and will vary between vessels and the number of POB. The effluent may contain scale inhibitors to control inorganic scale formation, such as the formation of calcium carbonate and magnesium hydroxide in water-making plants. Other water purification and plant cleaning chemicals may be used and discharged to sea after the cleaning process is completed. **Ballast water** Ballast water could potentially be discharged to the marine environment from vessel ballast tanks. Refer to Section 7.2 for the ballast water risk assessment. Note: Vessel firefighting systems will not be tested when within the OA. **Discharges from IMMR activities** Chemicals and residual hydrocarbons may be released during IMMR activities.
Extent	The small volumes of vessel discharges may cause localised nutrient enrichment, organic and particulate loading, ecotoxicological effects, and increased water temperature and salinity around discharge points and in the direction of the prevailing current. The environment that may be affected by operational discharges is likely to be within approximately 50 m of the Activity vessel and contained within the OA.
Duration	IMMR vessel discharges will occur periodically across the duration of the Activity. IMMR operations will occur for approximately 7 to 30 days in duration every three to five years, or as needed. Discharges will

	result in localised changes to water quality; however, conditions will likely return to normal within minutes to hours after discharges cease.

6.6.2 Nature and scale of environmental impacts

Potential receptors: physical environment (water quality, benthic habitats), threatened, migratory or local fauna (marine mammals, marine turtles, seabirds, rays, sharks and other pelagic fish); socioeconomic and cultural features.

6.6.2.1 Physical environment

Small volumes of vessel discharges will be released to the marine environment and result in a reduction in water quality. Discharges will be temporary (minutes to hours), localised and limited to surface waters. The discharges are expected to disperse and dilute rapidly.

Specifics of potential impacts to water quality from vessel discharges are as follows.

6.6.2.1.1 *Eutrophication impacts from sewage and greywater*

Discharges of treated sewage and greywater can result in localised increases in nutrient concentrations (e.g., ammonia, nitrate, nitrite, and orthophosphate), organics (e.g., volatile and semi-volatile organic compounds, oil and grease, phenols and endocrine-disrupting compounds), and inorganics (e.g. hydrogen sulphide, metals and metalloids, surfactants, phthalates and residual chlorine). Nutrient inputs may facilitate localised increases in phytoplankton, while organic carbon inputs may facilitate localised increases in bacterial activity. This could subsequently impact higher order predators.

However, the discharges are expected to disperse and dilute rapidly in the OA given the water depths, strong currents and wave action. There may be a localised and temporary (minutes to hours) reduction in water quality in the immediate vicinity of the release. However, low volume and short duration discharges are expected to rapidly disperse below levels that would cause adverse impacts.

The organic components of discharges biodegrade through bacterial action, oxidation and evaporation. In a study of sewage discharge in deep ocean waters, Parnell (2003) reported no appreciable differences in the inorganic nutrient levels between the outfall area and background concentrations, suggesting rapid uptake of nutrients and/or rapid dispersion and dilution within hours of discharge.

6.6.2.1.2 *Salinity increases*

The desalination of sea water results in a discharge of brine with a slightly elevated salinity (around 10% higher than sea water). When discharged to the sea, the desalination brine, being of greater density than sea water, is expected to sink and rapidly disperse in the currents. The volume of the discharge depends on the requirement for fresh (potable) water and the number of POB.

Most marine species can tolerate short-term fluctuations in salinity around 20–30% (e.g., Walker and McComb, 1990). It is expected that most pelagic species would be able to tolerate short-term exposure to minor increases in salinity caused by discharged brine.

6.6.2.1.3 *Changes in temperature*

Cooling water will be discharged at a temperature above that of the ambient sea water. Upon discharge it will be subjected to turbulent mixing and transfer of heat to the surrounding waters. Cooling water discharge to the marine environment may result in a localised and temporary increase in the ambient water temperature, which could cause alteration of the physiological processes (particularly enzyme-mediated processes) in marine biota (Wolanski, 1994).

Cooling water discharge points vary for each vessel. However, they are all designed to discharge cooling water to above the water line to help cool and oxygenate the wastewater stream before it mixes with the surrounding sea water.

6.6.2.1.4 *Contamination from releases of bilge water*

Discharged oily water is treated to an OIW limit of 15 ppm in accordance with MARPOL Annex I (as enacted by Australian legislation) and Marine Order 91. Discharges of oily bilge water could result in a localised reduction in water quality and has the potential to create an oil sheen in surface waters, with impacts on protected marine fauna and plankton. Small amounts of dissolved hydrocarbons in treated oily water drainage may be toxic to marine organisms. However, potential impacts are considered unlikely due to the low concentrations of oil and grease residues in oily water drainage, together with the water depths, strong currents and wave action in the OA.

6.6.2.1.5 *Toxicity*

Discharges from vessels may include typical chemicals used within standard maritime sewage systems, desalination systems, and residues of those used for cleaning decks. Discharges are expected to be intermittent and similar to other permitted discharges from vessels.

Chemicals and hydraulic fluids will be risk-assessed and selected for their discharge suitability and low toxicity and bioaccumulation potential using the Santos Operations Chemical Selection Evaluation and Approval Procedure. Upon discharge, these types of chemicals (e.g., MEG and methanol) are expected to disperse and dilute rapidly in the OA given the water depths, strong currents and wave action. There may be a localised and temporary (minutes to hours) reduction in water quality in the immediate vicinity of the release. However, low volume and short duration discharges are expected to rapidly disperse below levels that would cause adverse impacts to marine fauna.

Residual hydrocarbons and inert gasses (e.g., methane) may be infrequently discharged during IMMR; however, are not readily water soluble and will rise rapidly through the water column and release into the atmosphere.

6.6.2.1.6 *Chemical use during contingency GEP repair activities*

Leak testing of the GEP may occur if contingency repair activities are required, in which case a small volume (estimated <5 L) of non-toxic dye may also be used to assist in visually detecting leaks in the GEP by ROV. These discharges would only occur in the event of an unplanned repair activity.

As described in Section 2.5.2, residual hydrocarbons and residual inert gas may be present in the GEP and discharged to the marine environment during contingency repair activities. The isolated equipment will be at ambient seabed pressure; therefore, any inert gas will be displaced through natural seawater ingress into the equipment.

All chemicals that are planned for discharge to the environment will be selected in accordance with Santos' Offshore Division Operations Chemical Approval Procedure to ensure that environmentally acceptable products are used, or that risks from the use of other chemicals are demonstrated to be ALARP (Section 2.7).

6.6.2.2 Threatened, migratory or local fauna

As discussed in the sections above, the extent of impact for planned discharges is localised, and rapid dilution is predicted to occur within the OA. An internesting buffer for flatback turtles (BIA and habitat critical) overlaps the OA. Due to the water depths in the OA (47 - 50 m), the BIA extending across more than 800 km of coastline, and a lack of foraging habitat, the potential numbers of affected internesting turtles is expected to be limited to a small number of individuals. Marine fauna within the OA, some of which may have cultural significance as totems (such as marine mammals, marine reptiles, rays and fish) or cultural food sources, are likely to be transient. If contact does occur with marine fauna, it will be for a short duration and likely not sufficient to cause a toxic effect.

Discharges may cause changes to the behaviour of marine fauna (i.e., avoidance or attraction). However, such discharges would be infrequent and no prolonged influence on fauna behaviour is expected.

6.6.2.3 Cultural features

No First Nations people feedback was provided about potential impacts from vessel discharges to cultural features during consultations for the Activity (refer to Section 4.8). The potential impacts to culturally significant marine fauna species (such as dreaming and totem species including marine mammals, marine reptiles, rays, other fish and birds) are assessed in Section 6.6.2.2.

Tiwi clan members raised concerns—during consultation on the D&C EP and in the 2022 Statement of Reasons Requests—regarding potential impacts from the Drilling Activity on totemic species and culturally significant marine species that provide a food source for traditional fishing and hunting. The potential impact to marine fauna is likely to be limited to localised, temporary behavioural impacts and is unlikely to result in significant impacts to marine species at the individual or population level (Section 6.6.2.2). As a result, Activity discharges are not anticipated to affect traditional hunting practices or resources.

In addition, some Tiwi people informed Santos that impacts to totemic species could also affect Tiwi people by making them sick. First Nations people maintain a continuing spiritual connection with sea country, including marine fauna species with cultural significance, such as totems or as a cultural food source.

6.6.3 Environmental performance outcomes and control measures

The EPOs relating to this event include:

- No injury, or mortality to, EPBC Act 1999 listed marine fauna or marine fauna listed as threatened species under the Territory Parks and Wildlife Conservation Act 1976 (NT) as a result of the Activity (EPO-08)

- Planned discharges will meet relevant maritime obligations and Santos chemical assessment and approval process (EPO-14)
- Zero unplanned discharge of hazardous and non-hazardous wastes into the marine environment from the Activity (EPO-16)
- Zero unplanned discharge of hydrocarbons or chemicals to the marine environment from the Activity (EPO-18)

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this Activity are described in Table 6-22 to demonstrate that the potential impacts from this aspect are ALARP. Control measures that are adopted have associated EPSs and measurement criteria and are presented in Table 8-2. Rejected control measures have an ALARP evaluation provided to justify their rejection.

Table 6-22: Control measures evaluation for operational discharges

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.4.5	HSE inductions will include all applicable environmental requirements (administrative control)	Ensures that crew are aware of the stringent Coastal Waters OEMP, Santos and legislative requirements.	Administrative costs to update existing Santos procedure and induction materials, and train personnel.	**Adopted** - benefits considered to outweigh costs.
BAO-CM-6.4.10	Barossa Facilities and vessels planned maintenance system to confirm equipment integrity is maintained in accordance with manufacturers guidelines. (administrative control)	Ensures vessel and equipment integrity is maintained through routine checks.	Cost of implementing procedures.	**Adopted** – benefit of assuring vessels outweighs procedure compliance costs.
BAO-CM-6.7.2	Routine discharges of treated sewage and grey water, in accordance with Marine Order 96 (Marine Pollution Prevention – Sewage)	Managing treated sewage and grey water discharges to applicable legislative requirements ensures no substantial change in water quality will occur.	MARPOL requirement.	**Adopted** – environmental benefits of ensuring vessels are compliant outweigh the potential costs. Discharge of treated sewage is a permissible maritime discharge.
BAO-CM-6.7.3	Deck cleaning product selection according to MARPOL Annex V (and Marine Order 93: Noxious liquid) (substitution control)	Ensures deck cleaning products are not harmful to the marine environment.	Cost associated with implementing the procedure. Limits deck cleaning products available for use.	**Adopted** – environmental benefits of ensuring vessels are compliant outweigh the potential costs.
BAO-CM-6.7.5	Apply the Santos chemical selection process for all chemicals planned to be discharged (Section 2.7) (administrative control)	Under the procedure, CHARM-rated gold/silver and non-CHARM Group E/D chemicals managed under the OCNS, or OSPAR PLONOR list, or chemicals risk assessed by Santos and deemed	Cost of implementing procedures. Range of chemicals reduced with potentially higher costs for alternative products.	**Adopted** – environmental benefits of using environmentally acceptable chemicals outweigh procedural implementation and operational costs.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
		environmentally acceptable, will be selected (Section 2.7). Therefore, the chemicals will pose little or no risk to the environment.		
BAO-CM-6.7.6	Routine discharges of treated bilge and deck water from vessels will comply with Marine Order 91 and *Marine Pollution Act 1999* (NT), as applicable (administrative control)	Managing bilge and deck drainage discharges to applicable legislative requirements ensures no substantial change in water quality will occur. Ensures vessel oily water is treated and discharged in accordance with MARPOL Annex I (and Marine Order 91: Marine pollution prevention – oil).	MARPOL requirement.	**Adopted** - environmental benefits of ensuring vessels are compliant outweigh the potential costs. The proposed discharge is a permissible maritime discharge.
BAO-CM-6.7.11	Contractor contingency pipeline preservation procedure and specification (administrative control)	This control is effective in reducing potential impacts from contingency pipeline preservation activities by: • selecting a seawater treatment product that is Gold rated through OCNS CHARM rating or through a pseudo CHARM rating, which is recognised as the least environmentally hazardous chemical rating • Minimising the concentration of treatment chemicals required for the required preservation period	Cost of implementing procedures.	**Adopted**
Additional control measures				
BAO-CM-6.7.12	Contractor contingency pipeline major repair procedure to be developed in the event a major repair is required (administrative control)	This control effectively reduces the likelihood of an unplanned treated seawater release during the pipeline repair activities.	Cost of implementing procedures.	**Adopted**

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
N/A	Zero discharge of sewage from vessels (elimination control)	Eliminates treated sewage from being discharged to sea.	Significant health risks from storing sewage onboard. Costs associated with containment and onshore disposal of sewage. Storing sewage would create an additional hazard for working on deck.	**Not adopted** – health and safety considerations outweigh the environmental benefit. Any discharge will occur in accordance with applicable legislation.
N/A	Zero discharge of bilge water from vessels (elimination control)	Would eliminate treated oily water from being discharged to sea.	Issues include vessel stability comprised, potential fire hazard and flooding risk.	**Not adopted** – safety and environmental considerations outweigh the environmental benefit. Any discharge of bilge water will comply with applicable legislative requirements..
NA	Capture or eliminate use of chemicals used during IMMR (elimination control)	Eliminates or reduces the chemicals discharged to the marine environment.	Capturing chemicals used during IMMR is not practical. Chemicals are assessed to ensure the discharge is environmentally acceptable in accordance with the Santos chemical selection process. Excessive use of chemicals is restricted.	**Not adopted** – safety and operational considerations outweigh the environmental benefit, given small volumes and low toxicity of the discharges.
N/A	Zero discharge of deck water from vessels (elimination control)	Would eliminate potential contaminants being discharged to sea.	Increased safety risks from inadequate draining of wet decks. Large amounts of water on a vessel's deck can also cause stability issues (free surface effect).	**Not adopted** – safety considerations outweigh the environmental benefit. Any discharge will occur in accordance with applicable legislation..
N/A	Zero discharge of cooling water from vessels (elimination control)	Eliminates potential impacts of cooling water (elevated temperature) being discharged to sea.	Technically not an available option, given the volumes of cooling water that would need to be stored on the vessels to meet operational cooling water needs.	**Not adopted** – not technically feasible to operate vessels without cooling water. Any discharge will occur in accordance with applicable legislation.
N/A	Restrict use of desalination plant; or zero discharge of brine water from vessels (administrative control)	Would eliminate or reduce brine from being discharged to sea.	Cost associated with transporting freshwater offshore. Health risks associated with limited supply of freshwater. Costs associated with containment and onshore disposal of brine. Storage of brine would create an additional hazard for working on deck.	**Not adopted** – health and safety considerations outweigh the environmental benefit. Use of 'water making' system and discharge of waste brine will comply with applicable legislative requirements..
N/A	Mandatory closed drain system on vessels (administrative control)	Would eliminate untreated deck drainage from being discharged to sea.	Increased cost of the treatment system and vessel modification requirements.	**Not adopted** – costs significantly outweigh the environmental benefit given the minor impacts expected from planned discharges.

6.6.4 Environmental impact assessment

Receptor	Consequence level
Operational discharges	
Physical environment or habitat	Vessel discharges are predicted to quickly dilute and disperse in the marine environment. Impacts of eutrophication and changes in salinity and temperature are expected to be localised and of short duration. Discharge of chemicals may cause be a localised and temporary (minutes to hours) reduction in water quality in the immediate vicinity of the release. However, low volume and short duration discharges are expected to rapidly disperse below levels that would cause adverse impacts. Any impacts on water quality will be restricted to surface waters only and have no impact on seabed receptors. Impacts from chemicals and fluids discharged near the seabed (for example, from IMMR activities) are also expected to be localised and of short duration. It is expected that discharges would have a negligible impact on benthic habitats. Given the nature and limited volumes of planned discharges, the high levels of dilution, and the nature of the marine environment in the OA and surrounds, the consequence level for physical environment or habitat is considered to be II – Minor.
Threatened, migratory or local fauna	Sensitive receptors that may be impacted include plankton, fish at the sea surface, marine turtles, marine mammals, and seabirds. Discharges will be temporary and impacts to water quality will be localised, with recovery measured in hours (no sustained impacts). An internesting buffer for flatback turtles (BIA and habitat critical) overlaps the OA. However, marine fauna within the OA are likely to be transient, and if contact does occur, it will likely be for a short duration and not sufficient to cause a toxic effect. Discharges may cause changes to the behaviour of marine fauna (i.e., avoidance or attraction). However, as discharges will be infrequent and small volume, no prolonged influence is expected. Consequently, impacts are expected to be short-term with no decrease in local population size, the area of occupancy of species, loss or disruption of critical habitats, or disruption to breeding cycles. Given the nature and limited volumes of planned vessel discharges, the high levels of dilution, and the nature of the marine environment in the OA and surrounds, the consequence level for threatened, migratory or local fauna is considered to be II – Minor.
Threatened ecological communities	Not applicable – no threatened ecological communities were identified in the area over which vessel discharges are expected.
Protected areas	Not applicable – no protected areas were identified in the area over which vessel discharges are expected.
Socioeconomic receptors	Given the controls in place to manage vessel discharges in accordance with regulatory requirements, impacts to marine fauna (including targeted fishery species) are not expected. Given the minor consequence to marine fauna, subsequent impacts to socioeconomic receptors, including commercial fishing and cultural features, are not anticipated. Vessel discharges will be infrequent, relatively small scale and will become highly diluted. Therefore, the consequence to socioeconomic receptors is assessed as I – Negligible.
Cultural Features	An important outcome of Dr Corrigan's research is that no sacred sites or dreamings are shown to be directly impacted by the DPD project footprint (where this Activity OA is located), however some marine species are known to be associated with dreamings and songs (Corrigan, 2024). It is anticipated that vessel discharges are unlikely to affect traditional hunting practices or resources. For potential impacts to marine species of cultural significance, or that provide a traditional food sources (such as dreaming and totem species including marine mammals, marine reptiles, rays, other fish and birds), refer to the assessment for threatened, migratory or local fauna.
Overall worst-case consequence	II – Minor

6.6.5 Demonstration of as low as reasonably practicable

There are no reasonably practicable alternatives to using vessels to undertake the Activity. Onboard treatment of most wastes and their subsequent discharge to the marine environment is consistent with legislative requirements (enacting MARPOL) and is considered environmentally acceptable. Given there are no concurrent activities in the OA and the nature and volumes of expected operational discharges, no cumulative impacts can reasonably be expected.

All reasonably practicable control measures were reviewed and those adopted are considered appropriate to manage the impacts such that the residual consequence is assessed to be II – Minor. The proposed control

measures are in accordance with Santos' risk management criteria and are considered appropriate to reduce impacts to ALARP.

6.6.6 Acceptability evaluation

Is the consequence ranked as I or II?	Yes – maximum planned vessel discharge consequence is rated II – Minor.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available.
Are the risks and impacts consistent with the principles of ecologically sustainable development (ESD)?	Yes – activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline, which considers principles of ESD.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans and conservation advice and Australian marine park zoning objectives?	Yes – the following material published in relation to threatened and migratory species that may occur within the OA identifies habitat degradation/modification and pollution as a threat (Table 3-13): **Conservation Advice:** • Approved Conservation Advice for *Pristis* clavata (Dwarf Sawfish) (DEWHA, 2009) • Approved Conservation Advice for Green Sawfish (DEWHA, 2008c) • Approved Conservation Advice for *Pristis pristis* (largetooth sawfish) (TSSC, 2014b) • Approved Conservation Advice for *Glyphis garrick*i (northern river shark) (TSSC, 2014a) • Approved Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g) • Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015c) • Conservation Advice for *Balaenoptera borealis* (sei whale) (TSSC, 2015b) • Approved Conservation Advice for *Numenius madagascariensis* (Eastern Curlew) (TSSC, 2015f) • Conservation Advice for *Calidris canutus* (red knot) (DCCEEW, 2024c) • Conservation Advice for *Calidris acuminata* (sharp-tailed sandpiper) (DCCEEW, 2024b) **Recovery Plans:** • Recovery Plan for the White Shark (*Carcharodon carcharias*) (Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC, 2013) • Conservation Management Plan for the Blue Whale - A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 2015–2025 (CoA, 2015a) • Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b) • Sawfish and River Sharks Multispecies Recovery Plan (CoA, 2015b) Habitat degradation or modification is identified in many conservation advices, however the nature of Activity operational discharges will not result in habitat degradation. Pollution is identified in a number of plans but pertains to more toxic discharges and therefore is not considered applicable here given the discharges are allowable in accordance with legislation or are of low toxicity. Recovery plans / conservation advice for other species that may occur in the OA do not identify habitat degradation / modification or pollution as a key threat or have explicit relevant objectives or management actions. The objectives of these publications were considered during impact and risk assessments. The controls outlined in Table 6-22 are consistent with the objectives of the material listed above. Santos considers the potential impacts from vessel discharges to be consistent with these objectives.
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Vessel discharges comply with the requirements of the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth), *Marine Pollution Act 1999* (NT), *Navigation Act 2012* (Cth), and the following Marine Orders and is enacted by: • Marine Order 91 (Marine pollution prevention – oil) • Marine Order 95 (Marine pollution prevention – garbage) • Marine Order 96 (Marine pollution prevention – sewage). These instruments give effect to MARPOL Annexes I, II, III, IV and V.

	Vessel discharges are consistent with the general duty of the *Waste Management and Pollution Control Act 1988* (NT) (WMPC Act). The Coastal Waters OEMP is also compliant with the conditions of EPBC approval EPBC 2022/09372.
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable EPs accepted by NOPSEMA were reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback?	Yes – Relevant Person feedback was considered and indicated no recommendations for revising the EPO, CMs or EPSs. However, feedback received during the development of other Barossa Gas Project EPs has been considered and EPO-20 was adopted. Santos has adopted control measure (BAO-CM-6.4.5) for HSE induction to be conducted that includes environmental requirements.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – see ALARP above.

The consequence of operational discharges is assessed as II – Minor. Based on an assessment of Santos' acceptability criteria and with the control measures in place, potential impacts are considered acceptable.

7. Unplanned events risk assessment

OPGGS(E)R 2023 Requirements
Section 21. Environmental assessment
Evaluation of environmental impacts and risks (5) The environment plan must include: a. details of the environmental impacts and risks for the activity; and b. an evaluation of all the impacts and risks, appropriate to the nature and scale of each impact or risk; and c. details of the control measures that will be used to reduce the impacts and risks of the activity to ALARP and an acceptable level. (6) To avoid doubt, the evaluation mentioned in paragraph (5)(b) must evaluate all the environmental impacts and risks arising directly or indirectly from: a. all operations of the activity; and b. any potential emergency conditions, whether resulting from accident or any other cause. *Environmental performance outcomes and standards* (7) The environment plan must: a. set environmental performance standards for the control measures identified under paragraph (5)(c); and b. set out the environmental performance outcomes against which the performance of the titleholder in protecting the environment is to be measured; and c. include measurement criteria that the titleholder will use to determine whether each environmental performance outcome and environmental performance standard is being met.

An ENVID workshop (as described in Section 5.2.3) was held on 23 July and 29 July 2024 to consider the GEP activities and this Activity. Santos' assessment identified seven environmental risks associated with unplanned events for this Activity.

The results of the impact and risk assessments process undertaken as per Section4 are summarised in Table 7-1. A comprehensive impact and risk assessment for each unplanned event and subsequent control measures proposed by Santos to reduce risk and potential impacts to ALARP and acceptable levels are detailed in the following subsections.

Adopted control measures are assigned a reference number (e.g. BAO-CM-7.1.1). The control measure reference numbers are aligned with the Barossa Production Operations EP and therefore are not in numerical order in this GEP Coastal Waters OEMP.

Table 7-1: Environmental risk assessment summary

OEMP section	Unplanned event	Likelihood	Consequence	Residual risk level
7.1	Release of solid objects	B – Unlikely	II – Minor	Very Low
7.2	Introduction of invasive marine species	B – Unlikely	IV – Major	Low
7.3	Marine fauna interaction	B – Unlikely	II – Minor	Very Low
7.4	Minor releases of hydrocarbons and chemicals	C - Possible	I - Negligible	Very Low
7.5	Subsea release of dry natural gas	A – Remote	III – Moderate	Very Low
7.6	Surface release of MDO from a vessel	B – Unlikely	III – Moderate	Low
7.7	Contingency spill response operations	N/A	II – Minor	N/A

7.1 Release of solid objects

7.1.1 Description of event

Event	Solid objects can be accidentally released to the marine environment, including: • non-hazardous solid wastes, such as paper, plastics, and packaging • hazardous solid wastes, such as batteries, fluorescent tubes, medical wastes, and aerosol cans • equipment and materials, such as supplies, hard hats, and tools • infrastructure recovered or replaced during IMMR. Release of these solid objects may occur as a result of: • overfull or uncovered bins • incorrectly disposed items • incidents during transfers of waste or supplies • dropped objects and lost equipment through lifting operator error or mechanical failure. **Operational area** Within the OA, events relate to IMMR activities only.
Extent	The event will only occur within the OA, and all non-buoyant waste material or dropped objects are expected to sink to the seabed and remain in the OA, with the worst-case disturbance being the loss of a section of GEP, should it be accidentally released during a replacement activity. Buoyant objects could potentially move beyond the OA.
Duration	**Constant:** No regular activities are planned which may result in unplanned release of solids to occur within the OA. **Infrequent and one-off:** IMMR vessel presence occurs typically for approximately 7 to 30 days in duration every three to five years, or as needed and impacts may remain while the solid object is in the environment.

7.1.2 Nature and scale of environmental impacts

Potential receptors: physical environment (water quality, benthic habitats, KEF); Threatened, Migratory fauna or local fauna (marine reptiles, whales, sharks, fish, and rays), protected areas (marine parks) and socio-economic receptors (including cultural features).

Solids such as plastics have the potential to affect benthic environments and to harm marine fauna through entanglement or ingestion. Marine turtles and seabirds are particularly at risk from entanglement and ingestion. Marine turtles may mistake plastics for food; once ingested, plastics can damage internal tissues and inhibit physiological processes, which can both potentially result in fauna fatality. Floating, non-biodegradable marine debris has been highlighted as a threat to marine turtles, whales and whale sharks in the relevant recovery plans and approved conservation advice (refer to Table 3-13). The recovery plans, approved conservation advice and wildlife conservation plans, as well as the Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans (DoEE, 2018), have specified several recovery actions to help combat this threat. Of relevance is the legislation for the prevention of garbage disposal from vessels.

Release of hazardous solids (for example, wastes such as batteries) may result in pollution of the immediate receiving environment, leading to detrimental health impacts to marine fauna. Physiological damage can occur through ingestion; or absorption may occur in individual fish and sharks, marine mammals, marine reptiles, or seabirds.

The area of potential seabed disturbance due to release of a heavier, non-hydrocarbon solid, such as equipment or infrastructure would be restricted to the OA (for example, accidentally dropped equipment). Damage to substrates within the OA and associated infauna and epifauna may occur; however, such impact is expected to be restricted to the size of the dropped object. While soft sediment benthic habits will not be destroyed, disturbance of the communities on and within them (as in, the epifauna and infauna) will occur in the event of a dropped object, and depressions may remain on the seabed for some time after the dropped object is removed as it gradually infills over time. However, the soft sediment habitat within the OA is not expected to have a particularly high abundance, diversity, or unique composition of benthic invertebrates.

Benthic habitats along the OA consist predominantly of bare sediments, with other benthic habitat types constituting relatively small portions. All of these habitat types are well represented throughout the region (Section 3.2.9).

7.1.2.1 Threatened, migratory or local fauna

As discussed above, the impact is not anticipated to significantly affect mobile marine fauna, such as marine mammals, marine reptiles, fish, sharks, and rays. Any impact to an area of seabed disturbed within the OA also represents a negligible portion of the habitat available for Threatened, Migratory or local fauna.

Information provided during consultation identified that if culturally significant species are impacted this can impact First Nations access to food through traditional hunting and fishing, and in accordance with First Nations cultural beliefs if totemic species (e.g., turtles, whales, dugongs, bird and fish) are impacted by the activity, some believe this can in turn can impact Tiwi people and make them sick. Floating, non-biodegradable marine debris has been highlighted as a threat to marine turtles, sharks, seabirds, whales and whale sharks in the relevant recovery plans and approved conservation advice (see Table 3-13). Marine turtles and seabirds are particularly at risk from entanglement and ingestion.

The recognition of the problem of plastic and microplastic debris in the marine environment is a key aspect of the National Plastics Plan (DAWE, 2021). The National Plastics Plan also includes supporting global action to address marine plastic debris, including the implementation of the Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans (DoEE, 2018). The Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans (DoEE, 2018) and Wildlife Conservation Plan for Seabirds (CoA, 2020) have specified various recovery actions to help combat this threat. Floating non-biodegradable marine debris has been highlighted as a threat to marine turtles within the Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b).

Santos has considered information contained in relevant recovery plans and approved conservation advice for cetaceans that identify habitat modification as a potential threat (Table 3-13). This includes the objectives and actions with the Sawfish and River Shark Multispecies Recovery Plan (CoA, 2015b) and Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b), which relate to habitat degradation and modification. Marine turtles may mistake plastics for food—once ingested, plastics can damage internal tissues and inhibit physiological processes, both of which can potentially result in fauna mortality. Plastics such as microplastics, plastic bags or bottles can cause problems by ingestion or as entanglement in small cetaceans. Entanglement and ingestion of plastics may result in the loss of reproductive fitness or mortality for cetaceans (CoA, 2015a). Given the low level of seabed disturbance and the benthic habitats in the OA being well represented in the wider surrounds, the activities are not inconsistent with the recovery plans and conservation advice.

Of relevance to the Activity is legislation for preventing garbage disposal from vessels, which Santos implements in accordance with MARPOL Annex V, which is implemented in Australia through the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth), the *Navigation Act 2012* (Cth) and Marine Order 95.

7.1.3 Environmental performance outcomes and control measures

The EPO relating to this event is:

- No loss of equipment or cargo overboard from vessels. (EPO-06)
- No injury, or mortality to, EPBC Act 1999 listed marine fauna or marine fauna listed as threatened species under the *Territory Parks and Wildlife Conservation Act 1976* (NT) as a result of the Activity (EPO-08)
- No significant impact to cultural features from the Activity (EPO-19)
- No impacts to underwater cultural heritage from the Activity (EPO-20).

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this activity are shown in Table 7-2 to demonstrate the potential risks are ALARP. Control measures that are adopted have associated EPSs and measurement criteria, which are presented in Table 8-2. Rejected control measures have an ALARP evaluation provided to justify their rejection.

Table 7-2: Control measures evaluation for release of solid objects

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.4.5	HSE inductions will include applicable environmental requirements (administrative control)	Ensures that crew are aware of the stringent Coastal Waters OEMP, Santos and legislative requirements. Ensures personnel are suitably aware of	Administrative costs to update existing Santos procedure and induction materials and train personnel.	**Adopted** – benefits considered to outweigh costs.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
		cultural features and values		
BAO-CM-7.1.1	Implement standards and procedures for lifting equipment to reduce risk of dropped objects during lifting (administrative control)	Impacts to the environment are reduced by preventing dropped objects and dragged objects during lifting operations. Administrative costs to update induction materials and train personnel.	Cost of implementing procedures.	**Adopted** – environmental benefits of preventing dropped objects outweigh procedural compliance costs.
BAO-CM-7.1.2	Dropped objects (incident) management (administrative control)	Impacts to the environment are reduced by preventing dropped objects and by retrieving dropped objects unless the environmental consequences of the dropped object are negligible or there are risks to safety.	Cost of implementing procedures.	**Adopted** – environmental benefits of recovering dropped objects outweigh procedural compliance costs.
BAO-CM-7.1.3	International Maritime Dangerous Goods Code (administrative control)	Regulatory requirement that reduces the risk of an environmental incident, such as an accidental container release to sea or unintended chemical reaction.	Cost of implementing procedures.	**Adopted** – it is a legislated requirement.
BAO-CM-7.1.4	Chemicals and hydrocarbons will be managed in accordance with SDS to reduce risk of release to the marine environment (administrative control)	Reduces the risk of accidental discharge to sea by controlling the storage, handling and clean-up of chemicals.	Cost of implementing procedures. Regulatory requirement to manage hazardous chemicals.	**Adopted** – environmental benefits of ensuring procedures are followed outweigh the costs, plus the control is a legislated requirement.
Additional control measures				
N/A	Eliminate lifting in the field (elimination control)	Reduces the risk of dropped objects.	Lifting is an essential activity for IMMR activities.	**Not adopted** – not feasible to eliminate lifting in the field.
N/A	Cessation of operations until all dropped objects are located and recovered (administrative control)	Would minimise potential for further disturbance due to dropped object potentially moving around on the seabed causing further disturbance or long-term impacts.	Substantial additional cost due to downtime greater than the value of equipment lost. Little benefit, given water depths and sparse distribution of sensitive benthic habitats in the OA.	**Not adopted** – cost outweighs the benefit.
N/A	Immediate removal of solid waste from the OA (administrative control)	Reduces the risk of release of non-hazardous solids to the marine environment.	Substantial additional fuel cost (emissions increase) and personnel time, as the number of transfers would be increased and is not considered practicable.	**Not adopted** – cost outweighs the benefit.

7.1.4 Environmental impact and risk assessment

Receptors	• Physical environment (benthic habitats) • Threatened, Migratory or local fauna (marine mammals, marine reptiles, sharks, fish, and rays)
Consequence	II – Minor
Physical environment (benthic habitats) An object dropped into the sea can result in localised and short-term damage to the seabed. The extent of the impact to the seabed is limited to the size of the dropped object (e.g. tools, containers, and installation equipment); given the size of the equipment used on the activity vessels. The unplanned release of microplastics has the potential to contribute to the overall amount of marine microplastics in the ocean, which can have various impacts on marine fauna as they are absorbed by plants and animals and accumulate in the food chain. However, given the negligible amounts that may be accidentally released, the overall impact marine microplastic pollution is relatively limited. Marine invertebrates that may inhabit disturbed soft sediment benthic habitats are expected to occur elsewhere within the OA and surrounds and therefore the disturbance is not expected to affect prey availability, or protected fauna species. No significant seabed features or biota have been found in the OA. Therefore, it is highly unlikely that any objects dropped during the Activity would cause a significant impact to the ecological values associated with the seabed or benthic habitats. Therefore, the consequence level is considered I – Negligible.	
Threatened, Migratory or local fauna (marine mammals, marine reptiles, sharks, fish, and rays) Marine debris (including plastics and microplastics) is identified as a potential threat to several marine fauna species in relevant recovery plans and conservation advice (Table 3-14). The types of solids and plastics accidentally dropped into the sea are limited by the type of activities planned. If the solid object can be ingested by marine fauna, impacts would be restricted to a small number of individuals, if any. Microplastics within the ocean come from many sources, and the bioaccumulation potential is high within marine fauna if ingested. Filter feeders ingest substantial amounts of microplastics by directly swallowing ocean water or indirectly by consuming prey (that have microplastics within the body cavity). Given that the very small volume of unplanned microplastics and plastics that could potentially be released to the marine environment is relatively small and the distance of the OA to shorelines and sensitive turtle habitats, it is considered that the consequence of any impacts is considered to be slight. The controls implemented demonstrate that the Activity will be conducted to reduce the release of marine debris and plastic particles. Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b) has identified marine debris as a potential threat to marine turtles. The Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans (DoEE, 2018) also identifies marine debris as a threat. These plans identify marine debris as potential threats to marine turtles and vertebrate wildlife, resulting in potential injury or death, and recommend adherence to legislation for the prevention of garbage disposal to prevent impacts. Given the negligible consequence on species, subsequent risks, or significant impacts to socio-economic receptors (including commercial fish stocks and cultural features relating to species with cultural significance) are not anticipated. The limited quantities associated with this event indicate, even in a worst-case release of solid waste, impacts to fauna would be limited to individuals and are not expected to result in a decrease of the local population size. The consequence level for marine fauna is therefore considered I – Negligible for both smaller and larger objects of buoyant and non-buoyant materials. For potential impacts to marine species of cultural significance or that provide a traditional food source, refer to the above assessment for threatened, migratory or local fauna.	
Socioeconomic and cultural features Given the negligible consequence on species, subsequent risks or significant impacts to socioeconomic receptors (including commercial fish stocks) and cultural features (relating to species with cultural significance) are not anticipated.	
Likelihood	B – Unlikely
The proposed control measures will ensure the risks of dropped objects, lost equipment, or release of hazardous and non-hazardous solid waste to the environment has been reduced. These control measures will also ensure legislation for the prevention of garbage disposal from vessels is adhered to, as recommended in the Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans (DoEE, 2018). The likelihood of dropped objects occurring over the duration of the activity is considered 'Possible' for larger items that would result in a Minor consequence, as it has occurred before during other Santos projects. The risk to socioeconomic receptors and cultural features is considered to be Very Low.	
Residual risk	The residual risk is considered Very Low.

7.1.5 Demonstration of as low as reasonably practicable

All reasonably practicable control measures were reviewed and those adopted are considered appropriate to manage the residual risk to a Low level. The proposed management controls are in accordance with Santos' risk management criteria and are considered appropriate to reduce the risk to ALARP.

7.1.6 Acceptability evaluation

Is the risk ranked between Very Low to Medium?	Yes – residual risk is ranked Very Low.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available. Extensive marine studies have been completed within the OA to inform the assessment.
Are risks and impacts consistent with the principles of ecologically sustainable development (ESD)?	Yes – activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline which considers the principles of ESD: The impacts associated with unplanned minor loss of containment do not result in 'threats of serious or irreversible harm' as detailed within the EPBC Act and biodiversity and ecological integrity will be maintained. Conservative assumptions on scale of impact have been applied. The health, diversity and productivity of the environment will be maintained, including for future generations.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans, conservation advice, wildlife conservation plans and Australian marine park zoning objectives)?	Yes – controls implemented will minimise the potential impacts from the Activity to species identified in recovery plans and approved conservation advices as having the potential to be impacted by solid objects. The following material published in relation to threatened and migratory species within the OA identifies marine debris as a threat: **Management plans** • National Plastics Plan (DAWE, 2021) **Conservation advice** • Approved Conservation Advice for *Pristis clavata* (Dwarf Sawfish) (DEWHA, 2009) • Approved Conservation Advice for *Pristis pristis* (largetooth sawfish) (TSSC, 2014b) • Approved Conservation Advice for Green Sawfish (DEWHA, 2008c) • Approved Conservation Advice for *Glyphis garricki* (northern river shark) (TSSC, 2014a) • Approved Conservation Advice for *Glyphis glyphis* (speartooth shark) (DoE, 2014a). • Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g) • Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015c) • Conservation Advice for *Balaenoptera borealis* (sei whale) (TSSC, 2015b) • Approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle) (DEWHA, 2008b) • Approved Conservation Advice for *Limosa limosa* (black-tailed godwit) (DCCEEW, 2024e) • Approved Conservation Advice for *Calidris canutus* (red knot) (DCCEEW, 2024c) • Approved Conservation Advice for Calidris acuminata (sharp-tailed sandpiper) (DCCEEW, 2024b)Approved Conservation Advice for *Numenius madagascariensis* (Eastern Curlew) (TSSC, 2015f) **Recovery plans** • Threat Abatement Plan for the impacts of marine debris on vertebrate wildlife of Australia's coasts and oceans (DoEE, 2018) • Sawfish and River Sharks Multispecies Recovery Plan (CoA, 2015b) • Recovery Plan for the White Shark (*Carcharodon carcharias*) (DSEWPaC, 2013) • Conservation Management Plan for the Blue Whale - A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 2015–2025 (CoA, 2015a) • Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b) • Wildlife Conservation Plan for Seabirds (CoA, 2020) • Wildlife Conservation Plan for Migratory Shorebirds (CoA, 2015c)

	• Sawfish and River Shark Multispecies Recovery Plan (CoA, 2015b) Recovery plans / conservation advice for other species that may occur in the OA do not identify marine debris as a key threat or have explicit relevant objectives or management actions related to marine debris. The OA does not intersect any AMP or protected area. The objectives of these publications were considered during impact and risk assessments. The controls outlined in Table 7-2 and Section 7.1.3 are consistent with the objectives of the material listed above. Santos considers the Activity is not inconsistent with these objectives.
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – management measures are consistent with MARPOL Annex V (through the *Protection of the Sea (Prevention of Pollution from Ship) Act 1983* (Cth), the *Navigation Act 2012* (Cth) and Marine Order 95: Marine pollution prevention – garbage), Annex X (IMO Marine Litter Action Plan) and International Maritime Dangerous Goods Code). Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B. The GEP Coastal Waters OEMP is also compliant with the conditions of EPBC approval EPBC 2022/09372.
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health, and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable Operations EPs accepted by NOPSEMA have been reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback	Yes – no objections or claims raised by Relevant Persons relating to unplanned release of solid objects and waste and potential environmental impacts.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, with no additional control measures adopted.

The residual risk of an unplanned release of solid objects on receptors is assessed as Very Low. Based on an assessment of Santos' acceptability criteria and with the control measures in place, potential risks are considered acceptable.

7.2 Introduction of invasive marine species

7.2.1 Description of event

Event	Invasive marine species (IMS) could potentially be introduced to the OA from IMMR vessels through ineffective ballast water management or through ineffective biofouling management. Potential sources for the transfer and establishment of IMS may include: • biofouling on the vessels' internal niches (such as sea chests, strainers, seawater pipework, anchor cable lockers and bilge spaces) • biofouling on the vessel's other external niches (such as propulsion units, steering gear and thruster tunnels) • biofouling on equipment that routinely becomes immersed in water (such as ROVs) • ballast water exchanges • cross-contamination between vessels. Ballast water is responsible for up to 30% of all marine pest incursions into Australia, while biofouling (the accumulation of aquatic microorganisms, algae, plants and animals on vessel hulls and submerged surfaces) is also considered a significant pathway for the potential introduction and spread of marine pests (DAWE, 2018). Biofouling organisms may attach to the hull, particularly in areas such as seams and unpainted surfaces which are easy to attach to or where water turbulence is lowest (such as niches, sea chests). Organisms can also be drawn into ballast tanks during cargo unloading, as additional water is required for stabilisation.
Extent	Localised (seabed and water column) within the OA to widespread if successfully translocated to new areas via ocean currents or equipment transit.
Duration	**Constant** Temporary or long-term in the event of successful species translocation **Infrequent** Introduction of IMS may occur from vessel use. Campaign vessels will be infrequent, as per operational requirements for specific campaigns. Support vessel presence is required for day-to-day operations during routine IMMR. The duration of IMMR vessel presence will be approximately 7 to 30 days, every three to five years Vessels for unplanned activities, including USV, would be less frequent.

7.2.2 Nature and scale of environmental impacts

Potential receptors: physical environment (benthic habitat); threatened, migratory, or local fauna (marine mammals, marine turtles, sharks and rays and other fish); socioeconomic (commercial fisheries, other marine users, tourism); and cultural features (such as totem species and cultural food sources).

IMS are non-native marine plants or animals that harm Australia's marine environment, social amenity or industries that use the marine environment, or have the potential to do so if they were to be introduced, established or spread in Australia's marine environment (DAWE, 2018). Most climatically compatible IMS to northern Australia are found in Southeast Asian countries.

A number of vectors can transport IMS outside their native ranges. Shipping is considered to be the largest contributor for the human-mediated movement of IMS around the world (Ruiz *et al.*1997; Minchin and Gollasch 2002). For instance, ocean-going vessels can transport IMS in ballast water, as biofouling attached to submerged immersible equipment, within internal seawater systems and/or on the exterior of the hull.

Some IMS pose major threat to economy and social amenity by disrupting ecological processes (DAWE, 2018; Wells et al., 2009). When IMS achieve pest status, they are commonly referred to as introduced marine pests. Introduced marine pests can cause a variety of adverse effects in a receiving environment, including:

- Over-predation of native flora and fauna
- Out-competing of native flora and fauna for food
- Human illness through released toxins
- Depletion of viable fishing areas and aquaculture stocks
- Reduction of coastal aesthetics
- Damage to marine and industrial equipment and infrastructure.

The above impacts can result in detrimental flow-on effects to marine parks, tourism, recreation, and cultural features, noting that some native fauna may have cultural significance as dreaming totems or as a traditional food source.

In the 2022 Statement of Reasons Requests, the Tiwi clan members raised their concern regarding traditional hunting of marine species and totem species. First Nations people maintain a continuing spiritual connection with sea country, including marine fauna species with cultural significance, such as totems or as a cultural food source. An important outcome of Dr Corrigan's research is that no sacred sites or dreamings are shown to be directly impacted by the DPD project footprint (where this Activity OA is located), although this is not to say that some persons do not have fears that this could be the case in the event of an unplanned event (Corrigan, 2024).

Species of concern are those that are not native to the region, are likely to survive and establish in the region, and are able to spread by human-mediated or natural means. Species of concern vary from one region to another, depending on various environmental factors such as water temperature, salinity, nutrient levels, and habitat type. These factors dictate invasive species' survival and invasive capabilities.

Artificial, disturbed and polluted habitats in tropical regions are susceptible to introductions, which is why ports are often areas of higher IMS risk (Neil *et al.,* 2005). However, in Australia there are limited records of detrimental impact from IMS compared with other tropical regions (such as the Caribbean).

Once IMS populations have established, they are difficult to eradicate, limiting management options to ongoing control or impact minimisation. However, this depends on the environmental conditions and species. For this reason, increased management requirements have been implemented in recent years by various Australian regulatory agencies.

If an IMS is introduced, species have been known to colonise areas outside of the areas to which it is introduced, but this depends on the diversity and extent of suitable habitat for colonisation.

Potential sources for introducing marine species into the OA include biofouling on the vessels, including both external (e.g propulsion units, steering gear and thruster tunnels) and internal niches (e.g. sea chest, trainers, seawater pipework, anchor cable lockers and bilge spaces). Ballast water is water taken on board vessels from their originating port in order to maintain vessel draft and stability. Unmanaged exchange of this ballast water, which can contain aquatic microbes, plants, and animals from the originating port, can result in the release of a range of IMS to the destination area or port. Biofouling is the accumulation of aquatic micro-organisms, algae, plants and animals on vessel hulls and submerged surfaces. Whilst ballast water exchanges are responsible for up to 30% of all marine pest incursions into Australian waters, research indicates biofouling has been responsible for more foreign marine species introductions (DAWE, 2018).

Equipment that is submerged in water for periods of time, such as ROVs may also acquire marine pest species, which can be spread if the equipment is not cleaned before use in pest-free areas.

IMS are generally unable to successfully establish in deep-water ecosystems (Geiling, 2014), most likely due to a lack of light and suitable habitat to sustain their growth and survival. Therefore, most IMS are found in tidal and subtidal zones, with only a few species known to extend into deeper waters of the continental shelf (Bax et al., 2003). Most species introduced to an area outside of their natural range (such as via ballast water) will not survive to establish or subsequently become invasive or a pest (Wells et al., 2009).

IMS risks are relevant to all maritime activities, including commercial shipping, fishing, military, petroleum, and recreational boating.

7.2.3 Environmental performance outcomes and control measures

The EPOs relating to this event include:

- No introduction, establishment or spread of IMS in the natural environment as a result of the Activity (EPO-07)
- No significant impact to cultural features from the Activity (EPO-19)
- No impacts to underwater cultural heritage from the Activity (EPO-20).

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this activity are shown in Table 7-3 to demonstrate potential risks are ALARP. Control measures that are adopted have associated EPSs and measurement criteria that are presented in Table 8-2. Control measures that are not adopted have an ALARP evaluation provided for justification.

Section 8.3.2.9 describes the biosecurity management strategy to be adopted for the Activity, consistent with the Biosecurity Act 2015 and National Biofouling Management Guidance for the Petroleum Production and Exploration Industry (Marine Pest Sectoral Committee, 2009).

IMS are more likely to populate shallower areas with favourable substrates, such as on shoals and reefs. The closest sensitive habitat is an unnamed shoal located 6 km from the OA, which may provide suitable habitat. Shepparton Shoal is approximately 23 km west of the OA.

Table 7-3: Control measures evaluation for introduction of invasive marine species

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.4.5	HSE inductions will include applicable environmental requirements (administrative control)	Ensures that crew are aware of the stringent Coastal Waters OEMP, Santos and legislative requirements.	Administrative costs to update existing Santos procedure and induction materials and train personnel.	**Adopted** – cost for implementation proportionate to risk reduction.
BAO-CM-7.2.1	Develop and implement a biosecurity management plan in consultation with and approved by the Department of Agriculture Forestry and Fisheries (DAFF). (administrative control)	Reduces the risk of introducing IMS due to assessment and management procedures	Cost associated with implementing procedures and implementing the mitigation measures.	**Adopted** – cost for implementation proportionate to risk reduction
BAO-CM-7.2.2	Vessels undertake ballast water management or treatment to achieve low risk ballast water . (administrative control)	The likelihood of introducing IMS via ballasting activities is reduced by managing ballast water exchange and identifying high risk ballast water.	Inconsequential as Australian Ballast Water Management Requirements align to the International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (the Ballast Water Management Convention), which entered into force internationally on 8 September 2017.	**Adopted** – cost for implementation proportionate to risk reduction.
BAO-CM-7.2.3	Vessels equipped with effective anti-fouling coatings (engineering control)	The likelihood of introducing IMS is reduced by in water inspection and cleaning of Activity vessels under the direction of appropriately qualified marine biologist.	Cost associated with implementing procedures and implementing the mitigation measures.	**Adopted** – cost for implementation proportionate to risk reduction.
BAO-CM-7.2.4	Vessels equipped with Marine Growth Prevention System (MGPS) (engineering control)	The likelihood of introducing IMS is reduced by preventing marine growth on the submerged surfaces of vessels.	Cost associated with implementing procedures and implementing the mitigation measures.	**Adopted** – cost for implementation proportionate to risk reduction

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Additional control measures				
N/A	Heat treatment of ballast water to eliminate IMS (engineering control)	Would reduce potential for IMS to establish by reducing the potential for IMS present in ballast water.	Compared to traditional ballast treatment methods (e.g., chemical additive), heat treatment has a higher cost and increased energy consumption. Ballast requirements are adequately managed under Australian Ballast Water Management (DAWE, 2020) and the International Convention for the Control and Management of Ships' Ballast Water and Sediments to reduce the risk of IMS introduction.	**Not adopted** – based on high cost considered disproportionate to the risk.
N/A	Contract vessels only operating in local, state/territory or Commonwealth waters to reduce potential for IMS (substitute control)	Reduce potential for IMS to be transported into area since vessels would not have originated elsewhere.	Vessels and equipment suitable for the Activity may not be available in 'local' waters. Potential significant costs and delays to the Activity schedule by only contracting vessels working in 'local' waters.	**Not adopted** – potential for significant schedule delays and activity costs if suitable vessels are not 'locally' available. All contracted vessels must be 'low' risk of introducing IMS, regardless of their origin.
N/A	Use an alternative ballast system to avoid uptake or discharge of water (engineering control)	Eliminates need for ballast water exchange, therefore decreasing risk of introducing IMS through ballast water.	Vessels suitable for the Activity may not have options for alternative ballast system, therefore would require modification at significant cost.	**Not adopted** – costs disproportionately high compared with environment benefit, given the proposed risk-based management framework, which includes potential dry docking and cleaning if justified based on risk assessment.
N/A	Do not discharge ballast water (elimination control)	Would reduce the potential for introducing IMS by implementing a 'no ballast water exchange' policy on vessels.	Ballast water exchange required on the vessels for stability.	**Not adopted** – on the basis ballast water exchange is a safety-critical activity for marine operations
N/A	Mandatory dry docking of vessels before entering field to clean vessel and equipment and remove biofouling (engineering control)	The risk of IMS being present on vessels or associated equipment is further reduced by the removal of biofouling.	Significant costs and delays to the Activity schedule. Unnecessary docking of vessels and removal of biofouling increases waste and emissions.	**Not adopted** – costs disproportionately high compared with environmental benefit, given the given the proposed risk-based management framework, which includes potential dry docking and cleaning if justified based on risk assessment.

7.2.4 Environmental impact and risk assessment

Receptors	• Physical environment (benthic habitats and primary producers) • Threatened, Migratory, or local fauna (marine mammals, marine turtles, fish [including sharks and rays]) • Socio-economic (commercial fisheries, other marine users, tourism and cultural features) • Cultural features
Consequence	IV – Major
Physical environment and habitat (benthic habitats and primary producers) Within the OA, the water depths range from approximately 40 m to 50 m. The OA does not present a benthic habitat or community structure that is favourable to IMS survival. The seabed within the OA is characterised as silty, shelly sand (Figure 3-3) with very sparse (<1%) epibiota (mainly soft corals and crinoids) (RPS, 2023). The closest shoal is more than 8 km away from the GEP route in the OA and Shepparton Shoal is approximately 23 km away from the OA. Shepparton Shoal has water depths of 30 m to 50 m which limit the amount of light to the shoal. The consequence level is considered IV – Major.	
Physical environment and habitat (Key ecological features) The OA is 9 km from the Carbonate bank and terrace system of the Van Diemen Rise KEF (Table 3-8; Figure 3-7). The values of this KEF includes areas of hard substrate (including patch reefs and pinnacles) that can support ecosystems with high levels of biodiversity. Water depths are greater than 100 m; therefore, the values of this KEF are unlikely to be affected by IMS.	
Threatened, Migratory, or local fauna (marine mammals, marine turtles, fish [including sharks and rays]) IMS, if successfully established, can outcompete native species for food or space, prey on native species or change the nature of the environment. The Wildlife Conservation Plan for Migratory Shorebirds identified IMS from ballast water and hull transport as a threat to migratory shorebirds, particularly if the introduction results in the loss of benthic food sources at important intertidal habitat (CoA, 2015c). IMS are also identified as a threat in approved conservation advice for the northern river shark, whale shark, dwarf sawfish, green sawfish, largetooth sawfish, and the recovery plan for the white shark (for further information see Table 3-13). The consequence level is considered IV – Major.	
Socioeconomic (commercial fisheries, other marine users, tourism) The introduction of IMS could have a detrimental effect on commercial fisheries, other marine users, and tourism in the area due to the IMS outcompeting native species for food or space, prey on native species or change the nature of the environment; therefore, the consequence level is considered IV – Major.	
Cultural Features An important outcome of Dr Corrigan's research is that no sacred sites or dreamings are shown to be directly impacted by the DPD project footprint (which includes this Activity OA), although this is not to say that some persons do not have fears that this could be the case in the event of an unplanned event (Corrigan, 2024). For potential impacts to marine species of cultural significance or that provide a traditional food source (i.e. marine mammals, marine turtles, fish [including sharks and rays]), refer to the assessment for threatened, migratory or local fauna.	
Likelihood	B – Unlikely
The pathways for IMS introduction are well known; consequently, standard preventive measures are proposed. The ability for invasive marine species to colonise a habitat depends on several environmental conditions. It has been found that highly disturbed environments (such as marinas) are more susceptible to colonisation than are open-water environments, where the number of dilutions and the degree of dispersal are high (Paulay et al., 2002). IMS are more likely to populate shallower areas with favourable substrates. IMS are more likely to populate shallower areas with favourable substrates, such as on shoals and reefs. The closest sensitive habitat (shoal) that may provide suitable habitat is more than 8 km away from the GEP pipeline route in the OA and Shepparton Shoal is approximately 23 km from the OA. The OA is distant from coastal habitats, approximately 30 km from Tiwi Islands. With control measures in place to reduce the risk of introduction of IMS, the likelihood of introducing an IMS is considered unlikely.	
Residual risk	The residual risk is considered Low.

7.2.5 Demonstration of as low as reasonably practicable

Vessels and submersible equipment are required for the Activity. There are no alternatives to the use of activity vessels and equipment that are feasible in order to undertake the Activity. The risks from IMS are well understood, and with the proposed control measures, the activity will comply with relevant regulations and guidelines.

All reasonably practicable control measures have been reviewed and those adopted are considered appropriate to manage the residual risk to a Low level. The proposed management controls are in accordance with the Santos risk management criteria and are considered appropriate to manage the risk to ALARP.

7.2.6 Acceptability evaluation

Is the risk ranked between Very Low to Medium?	Yes – residual risk is ranked Low.
Is further information required to validate the consequence assessment?	No – potential impacts and risks well understood through the information available. Extensive marine studies have been completed within the OA to inform the assessment.
Are risks and impacts consistent with the principles of ESD?	Yes – activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline which considers principles of ESD: • While the nature and scale of impacts have the potential to result in lasting change to benthic community dynamics, the controls that will be implemented reduce the risk to an acceptable level. Conservative assumptions have been applied to the impact assessment, including assuming conditions are conducive for IMS to establish and that vessels mobilised are a vector for IMS.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans, conservation advice, wildlife conservation plans and Australian marine park zoning objectives)?	Yes – Control measures implemented will reduce the risk of IMS introduction to species identified in the following relevant species recovery plans, conservation advice, wildlife conservation plans and other management plans/guidelines, as also set out in Table 3-13. **Conservation advice:** • Approved Conservation Advice for *Pristis clavata* (Dwarf Sawfish) (DEWHA, 2009) • Approved Conservation Advice for *Green Sawfish* (DEWHA, 2008c) • Approved Conservation Advice for *Pristis pristis* (largetooth sawfish) (TSSC, 2014b) • Approved Conservation Advice for *Glyphis garricki* (northern river shark) (TSSC, 2014a) • Approved Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g) **Recovery plans:** • Recovery Plan for the White Shark (*Carcharodon carcharias*) (Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC, 2013) • The Wildlife Conservation Plan for Seabirds (COA, 2020) identifies disease, pathogens and invasive species as a threat Santos considers the impacts of IMS to be consistent with this Plan. Recovery plans / conservation advice for other species that may occur in the OA do not identify invasive species or disease as a key threat or have explicit relevant objectives or management actions related to invasive species or disease. While several plans identify habitat modification (which could occur as a result of IMS establishing) as a threat to marine fauna, significant impacts are not predicted for this Activity and IMS is not identified as a specific threat. The OA does not intersect any AMP. The objectives and actions of these publications were considered during impact and risk assessments. The controls outlined in Table 7-3 Section 7.2.3 are consistent with the objectives of the material listed above and Santos considers the risk of introducing IMS to be consistent with these objectives.
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – management consistent with the *Biosecurity Act 2015,* Australian Ballast Water Management Requirements: Version 8 (DAWE, 2020a), Australian biofouling management requirements (DAFF, 2023), Offshore Installations – Biosecurity Guide (DAFF, 2023a), Marine Order 98 (Marine Pollution – anti-fouling systems), International Maritime Organization (IMO) Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species (2011), National Biofouling Management Guidelines for The Petroleum Production and Exploration Industry (Marine Pest Sectoral Committee, 2009), and the International Convention for the Control and Management of Ships' Ballast Water and Sediments. Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B. The GEP Coastal Waters OEMP is also compliant with conditions of

	EPBC approval EPBC 2022/09372.
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable EPs were reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback	Yes – requests from Relevant Persons relating to IMS management and potential environmental impacts have been considered.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, with no additional control measures adopted.

The residual risk of an unplanned introduction of IMS is assessed as Low. Based on an assessment of Santos' acceptability criteria and with the control measures in place, potential risks are considered acceptable.

7.3 Marine fauna interaction

7.3.1 Description of event

Event	The physical presence of Activity vessels and helicopters/ROVs within the OA results in the potential for marine fauna interactions. There is the potential for vessels to interact with marine fauna, including cetaceans, fish, marine reptiles, and seabirds. The main potential for interaction is through vessel collision with large, slow-moving cetaceans. Marine fauna interaction may also occur from helicopter collision, during take-off and landing. Activity vessel speeds are generally slow due to IMMR requirements and will also be limited to ≤8 knots within the OA.
Extent	Marine fauna interaction will be localised within the OA, in the immediate vicinity of vessels or helicopters, while moving. While impact to individual marine fauna may occur, an impact at a population or ecosystem level is not anticipated.
Duration	Vessel activities will be infrequent, as per operational requirements for specific campaigns within the OA. IMMR vessel presence occur infrequently, typically for approximately 7 to 30 days in duration, every three to five years, or as needed.

7.3.2 Nature and scale of environmental impacts

Potential receptors: threatened, migratory fauna or local fauna (marine mammals, marine turtles, whale sharks, seabirds); socioeconomic receptors (tourism, recreation) and cultural features (such as totem species and cultural food sources).Threatened, Migratory fauna or local fauna (marine mammals, marine turtles, whale sharks, seabirds, migratory shorebirds) and socio-economic receptors via risks to fauna (tourism, recreation, and cultural features).

Movement of vessels in the OA introduces the potential for interaction with marine fauna present at the same location during operations.

Marine fauna in surface waters that would be most at risk from vessel collision include marine mammals, birds, marine turtles, and whale sharks. Other faster-moving species are likely to avoid or not be impacted by the presence of vessels. Consultation on other Barossa EPs identified that some marine fauna may have cultural significance.

Vessel speed has been demonstrated to be a key factor in relation to collision with marine fauna, particularly cetaceans and turtles, with faster moving vessels posing a greater collision risk than slower vessels.

7.3.2.1 Marine mammals

Humpback whales are indicated as one of the most frequently reported whale species involved in vessel strikes worldwide (Laist et al., 2001; Jensen and Silber, 2004). This observation is supported by Australian studies referenced in the National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna (CoA, 2017a). Increased vessel numbers (Silber and Bettridge, 2012) are not only a threat to humpback whales in relation to vessel strikes but also in relation to disturbance and displacement from key habitats. Although there may be individual humpback whales within the OA, the primary migratory route for humpback whales is near the Kimberley coastline and up to Camden Sound, located more than 710 km south-west of the OA. Therefore, it is unlikely that activity vessels will interact with this species.

Similarly, vessel strike is also recognised by the Conservation Advice for *Balaenoptera borealis* (sei whale) (TSSC, 2015b), Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015c) and Conservation Management Plan for the Blue Whale 2015–2025 (CoA, 2015a). The blue, sei and fin whales have a wide distribution throughout offshore waters and, therefore, may pass through the OA in low numbers. Vessel speed has been demonstrated to be a key factor in relation to collision with marine fauna, particularly cetaceans, with faster-moving vessels posing a greater collision risk than slower vessels (Laist et.al., 2001; Jensen and Silber, 2003; Hazel, 2009). Laist et al. (2001) suggest that the most severe and lethal injuries to cetaceans are caused by vessels travelling at 14 knots or faster. However, considering the relatively slow vessel speeds within the OA and the mobility of whale species, it is unlikely that activity vessels will adversely interact with any individuals.

Collisions between vessels and cetaceans are most frequent on continental shelf areas where high vessel traffic and cetacean habitat occur simultaneously (Simmonds et al., 2004). There have been recorded instances of cetacean deaths as a result of vessel collisions in Australian waters (e.g. a Bryde's whale in Bass Strait in 1992) (Simmonds et al., 2004), although the data indicate this is likely to be associated with container ships and fast ferries. Some cetacean species, such as humpback whales, can detect and change course to avoid a vessel (Simmonds et al., 2004).

As presented in the National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna (CoA, 2017a), most reported vessel collisions for whales in Australian waters between 1990 and 2015 have occurred along eastern or south-eastern Australia, with no reported incidents in NT waters. The International Whaling Commission has compiled a database of the worldwide occurrence of vessel strikes to cetaceans, within which Australia constitutes approximately 7% (35 reports) of the reported worldwide (approximately 471 reports) vessel strike records involving large whales (Peel et al., 2018).

Whales' reactions to approaching vessels are variable. Some species remain motionless when close to a vessel, while others are known to be curious and often approach slow-moving or stationary vessels, although they generally do not approach and sometimes avoid faster-moving vessels (Richardson et al., 1995).

While the PMST identified that dugongs or dugong habitat may occur in the OA, dugongs prefer shallow tidal and subtidal seagrass meadows less than 10 m deep, and therefore interaction is expected to be unlikely within the OA, which is ~30 km from the nearest shoreline and >40 m deep, and limited to transiting individuals (Cardno, 2015).

Dolphins (Australian snubfin dolphin, Australian humpback, spotted bottlenose) may transit through the OA; therefore, collisions between activity vessels and dolphin species are possible. However, collisions with dolphins are very infrequent due to the high mobility of these smaller cetaceans, allowing them to avoid vessels. The closest dolphin BIA is the Australian humpback dolphin (breeding), greater than 37 km from the OA. It is noted that dolphins are naturally inquisitive marine mammals, some of which are often attracted to vessels underway (e.g. commonly 'bow ride' with vessels).

7.3.2.2 Marine reptiles

The Recovery Plan for Marine Turtles in Australia 2017–2027 recognises increased vessel traffic as one of several key impacts on marine turtles (CoA, 2017b), with vessel disturbance posing a risk to flatback turtles. The plan also notes that while a vessel strike can be fatal for an individual turtle, vessels strike (as a standalone threat) has not been shown to cause declines at a population or stock level and have considered vessel disturbance to be of minor consequence to turtle populations in the NT (DoEE, 2017).

Marine turtle mortality due to vessel strike was identified as an issue in Queensland waters in the Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b). However, turtles appear to be more vulnerable to vessel strike in areas of high urban population where incidents with recreational vessel are higher. The approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle) (DEWHA, 2008b) listed boat strike as a threat. Turtles spend relatively limited (3 to 6%) time at the surface, with dive times generally lasting 15 to 60 minutes (Milton and Lutz, 2003; cited in Woodside Energy Limited, 2014).

Marine turtles are highly mobile and, given the low speeds of activity vessels, are likely to be able to move from an area where there are vessels. Marine turtles make extensive migrations through the broader region; and it is possible individual turtles of any of the region's species may be encountered in the OA; however, the OA does not contain any significant feeding, breeding or aggregation areas for marine turtles.

There is an internesting BIA for flatback turtles within the OA, which may increase the number of individuals from June to September. Olive ridley turtles are likely to have an increase in the number of individuals from April to August. These periods increase the risk of vessel strikes. The Recovery Plan for Marine Turtles in Australia 2017–2027 defines a 60 km internesting buffer around the Tiwi Islands, which also intersects the OA.

Other turtles, such as green, hawksbill, and loggerhead, may also be within the OA. Internesting olive ridley and flatback turtles are expected to be concentrated in relatively shallow coastal waters (<30 m deep) around nesting beaches. Benthic habitat within the 30 m isobath around the Tiwi Islands is broadly represented and the OA exceeds a water depth of 30 m, ranging from 40–50 m.

Support and supply vessel for the activity will maintain speeds of ≤8 knots within the OA and as such the risk of vessel strike is strongly reduced. The risk of coming into contact with turtles is low as turtles are expected to dive or move away from the activity vessels. Consequently, the likelihood of a vessel strike and injury/mortality to individual turtles within the OA is considered unlikely.

The Recovery Plan for Marine Turtles in Australia 2017–2027 notes that while a vessel strike can be fatal for an individual turtle, vessel strikes (as a standalone threat) have not been shown to cause declines at a population or stock level and have considered vessel disturbance to be of minor consequence to turtle populations in the NT (CoA, 2017b).

Individual sea snakes and crocodiles may transit through the OA. If a vessel strike was to occur, it is unlikely to threaten the overall viability of either population.

7.3.2.3 Sharks, rays, and other fish

Most sawfish, sharks, rays and other fish identified as potentially occurring within the OA are not considered at risk of vessel strike as they largely occur on or near the seabed and are not expected to come to the surface, except the giant manta ray and whale shark.

The giant manta ray is oceanic and known to feed on plankton, so it may occasionally be close to the sea surface. However, ~73% of its diet is from deep water sources (Burgess et al., 2016). The giant manta ray is not expected to come to the surface within the OA frequently and is highly mobile (therefore able to avoid vessels). Therefore, vessel collisions with giant manta rays are considered improbable.

The whale shark BIA does not overlap the OA and therefore significant numbers are not expected to be encountered. Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g) states that vessel strike from large vessels is a threat to whale sharks. Whale sharks are at risk from vessel strikes when feeding at the surface or in shallow waters (where options to dive are limited). Whale sharks have been shown to spend approximately 25% of their time less than 2 m from the surface and more than 40% of their time in the upper 15 m of the water column (Wilson et al., 2006; Gleiss et al., 2013). The OA does not overlap known whale shark foraging areas, and whale shark presence may be transitory and of a short duration. No constraints within the OA (e.g. shallow water or shorelines) would prevent whale sharks from moving away from vessels. Vessel speed has been demonstrated to be a key factor in relation to collision with marine fauna, with faster-moving vessels posing a greater collision risk than slower vessels (Laist et.al., 2001; Jensen and Silber, 2003; Hazel, 2009).

Whale sharks, other pelagic fishes, and demersal fishes are likely to exhibit a short-term avoidance to vessels and ROVs. This is likely be initiated through the vibrations and underwater noise emitted from these activities rather than the physical presence. Such avoidance is likely to be temporary but will further reduce the potential for collisions to occur.

7.3.2.4 Seabirds and migratory shorebirds

The OA has no bird BIAs, but several protected species of seabirds and migratory birds may occur at times within the OA (Table 3-10).

Birds may opportunistically rest on a vessel and may be attracted to activity vessels due to lighting and vessel discharges such as macerated food waste.

The Wildlife Conservation Plan for Migratory Shorebirds suggest that disturbance from human activities to shorebirds may compromise energy reserved for migration (CoA, 2015c). Although seabirds may be attracted to activity vessels due to increased feeding opportunities, these behavioural changes are unlikely to alter population dynamics or significantly change the habitat use of birds due to the very short duration of the Activity. The Conservation Advice for *Calidris canutus* (red knot) (DCCEEW, 2024c) indicates that anthropogenic disturbance is a threat, but it relates to disturbance of important sites.

Helicopter noise within the OA is expected to elicit a behavioural response in birds to avoid collision and, given the relatively low speeds helicopters would be flying at during take-off or landing, the helicopter strike is not likely.

7.3.2.5 Cultural features

First Nations people maintain a continuing spiritual connection with sea country, including caring for sea country and access to cultural food sources. Sections 7.3.2.1 to 7.3.2.4 above describes the potential impacts to marine species of cultural significance including culturally significant fauna such as dreaming and totem species, including marine mammals (e.g. whales, dolphins, dugongs), marine reptiles (e.g. turtles, crocodiles), sharks, rays, other fish and birds.

An important outcome of Dr Corrigan's research is that no sacred sites or dreamings are shown to be directly impacted by the DPD project footprint, which includes this Activity OA, (although this is not to say that some persons do not have fears that this could be the case in the event of an unplanned event) (Corrigan, 2024). In the 2022 Statement of Reasons Requests, the Tiwi clan members raised their concern regarding traditional hunting of marine species and totem species. The potential impact to marine fauna is likely to be limited to transiting individuals and is unlikely to result in significant impacts to marine species at the individual or population level. As a result, marine fauna interaction is not anticipated to affect traditional hunting practices or resources.

No objections or claims were raised during First Nations people feedback about potential impacts of marine fauna interactions affecting any cultural features (excluding marine fauna species) during consultation for this GEP Coastal Waters OEMP (refer to Section 4.8). Any concerns related to the potential for impacts to cultural features from marine fauna interaction are associated with direct or indirect impacts to culturally significant marine fauna species (refer to Section 3.2.15.10).

7.3.3 Environmental performance outcomes and control measures

The EPOs relating to this event are:

- Vessel speeds in operational areas will not exceed applicable restrictions, to reduce the risk of physical interactions between cetaceans / marine reptiles and vessels (EPO-02).
- Zero incidents of injury / mortality of cetaceans / marine reptiles from collision with vessels (EPO-03)
- No injury, or mortality to, EPBC Act 1999 listed marine fauna or marine fauna listed as threatened species under the *Territory Parks and Wildlife Conservation Act 1976* (NT) as a result of the Activity (EPO-08)
- No significant impact to cultural features from the Activity (EPO-19).

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this event are shown in Table 7-4 to demonstrate the potential impacts to this aspect are ALARP. Control measures that are adopted have associated EPSs and measurement criteria that are presented in Table 8-2. Control measures not adopted have an ALARP evaluation provided to justify this outcome.

Table 7-4: Control measures evaluation for marine fauna interaction

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.1.1	Apply Santos' Protected Marine Fauna Interaction Procedure to vessel and helicopter activities when in vicinity of cetaceans and turtles (isolation control)	Reduces risk of physical and behavioural impacts to marine fauna from vessels as it implements EPBC Regulations – Part 8 Division 8.1 Interacting with cetaceans. If cetaceans are sighted, vessels can slow down or move away, and helicopters can increase distances from sighted fauna if required. Reduces the potential impacts to culturally significant marine species, including totemic species, such as marine turtles and marine mammals.	Potential delay in vessel and helicopter movement, increasing activity duration and costs to Santos. Cost associated with implementing procedures. Regulatory requirements under EPBC Regulations 2000.	**Adopted**
BAO-CM-6.1.2	Vessels equipped and crewed in accordance with Australian maritime requirements, including Marine Order 30 (Prevention of Collisions) and Marine Order 21 (Safety and Emergency Arrangements) (administrative control)	Ensures contracted vessels are operated, maintained, and crewed in accordance with industry standards and regulatory requirements. Ensures vessels meet Marine Assurance Standards to reduce the likelihood of vessel collision (such as minimum and working lighting for maritime safety). Demonstrates appropriately trained and competent personnel are used to navigate vessels to reduce interaction with marine fauna.	Costs are expected as part of standard procedure.	**Adopted** – benefit of assuring vessels outweighs procedure compliance costs.
BAO-CM-6.4.5	HSE inductions will include applicable environmental requirements (administrative control)	Ensures that crew and helicopter operators are aware of the stringent Coastal Waters OEMP, Santos, and legislative requirements.	Administrative costs to update existing Santos procedure and induction materials, and train personnel.	**Adopted**

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Additional control measures				
BAO-CM-6.6.6	Vessel speed restrictions within 500 m around IMMR vessels and campaign vessels (substitute control)	Restricting vessel speeds within the OA to ≤8 knots reduces the likelihood and consequence (causing harm) of collisions as fauna have longer to detect and avoid the vessel. Reduces the potential impacts to culturally significant marine species, including totemic species, such as marine turtles and marine mammals.	Administrative costs to update existing Santos procedure and induction materials, and train personnel.	**Adopted**
N/A	Adopt further measures to those outlined in 'EPBC Regulations 2000 — Part 8 Division 8.1 during peak periods of ecological sensitivity; for vessels outlined in the Australian National Guidelines for Whale and Dolphin Watching (DoEE, 2017). (administrative control)	Potentially provides an additional level of protection of marina fauna.	Administrative costs to update existing Santos procedure and induction materials, and train personnel.	**Not adopted** – the existing controls ensure compliance with legislation. No additional relevant controls have been identified in government or industry guidelines.
N/A	Manage the timing of the Activity to avoid sensitive periods (administration control)	Potential to reduce interaction and disturbance of marine fauna by avoiding sensitive periods or periods of higher activity.	Protected marine fauna species are present in low numbers year-round; therefore, avoidance is not feasible.	**Not adopted** - the high financial cost would be grossly disproportionate to negligible environmental benefits.
N/A	Restrict vessel operating speeds in the OA (administrative control)	Reduces consequence of collisions and likelihood (causing harm) as fauna have longer to detect and avoid the vessel.	Administrative costs to update existing Santos procedure and induction materials and train personnel. Compliance with EPBC Regulations – Part 8 Division 8.1 Interacting with cetaceans already restricts vessel speeds appropriately when marine fauna is sighted.	**Not adopted** – not considered necessary, given there are very few marine fauna aggregation areas, migration pathways or BIAs near the OA, noting as per BAO-CM-6.1.1, vessels will comply with EPBC Regulations – Part 8 Division 8.1 Interacting with cetaceans (and applied for marine turtles), through implementation of the Santos Protected Marine Fauna Interaction and Sighting Procedure. As per BAO-CM-6.6.6 vessel

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
				speed will be restricted within 500m around the IMMR vessels and campaign vessels.
N/A	Dedicated marine mammal observer on vessels (EPBC Policy Statement 2.1 Part B). (administrative control)	Improved ability to spot and identify marine fauna at risk of collision (that may cause harm).	Additional cost of contracting marine mammal observer on vessels.	**Not adopted** – likelihood of encountering marine fauna is too low to justify the additional cost of marine mammal observers. Personnel can observe for marine fauna when piloting vessels. Cost would be grossly disproportionate to negligible environmental benefits.
N/A	Activities to only occur during daylight hours. (elimination control)	Potential vessel fauna collisions are decreased while the vessel is stationary when visibility is low at night.	Vessels are required to conduct and support 24-hour operations to meet operational needs (such as IMMR). Restricting operations would increase the duration of the Activity, resulting in significant financial costs. No other maritime industry has such a restriction.	**Not adopted** – the high financial cost would be grossly disproportionate to negligible environmental benefits.

7.3.4 Environmental impact and risk assessment

Receptors	• Threatened, Migratory fauna or local fauna (marine mammals, marine turtles, whale sharks, seabirds) • Socioeconomic • Cultural features
Consequence	II – Minor

In the event of a collision with fauna, there is the potential for injury or death to an individual. The number of receptors present in the OA is expected to be limited to a small number of transient individuals.

Marine mammals

Nine species of marine mammals may occur within the OA. Blue, sei, fin, Bryde's and humpback whales may transit through the OA and, while impact to an individual may occur, an impact at a population or ecosystem level is not anticipated.

The Indo-Pacific humpback dolphin breeding, calving, foraging BIA located in Darwin Harbour is the closest BIA to the OA, approximately 20 km away from the boundary. The snubfin dolphin breeding and calving BIA, also located in Darwin Harbour, is approximately 46 km away from the OA boundary. Considering the relatively slow vessel speeds within the OA, and the mobility of these dolphin species, it is highly unlikely activity vessels will adversely interact with any individuals.

While some species of marine mammals may be present in the OA in greater numbers at certain times of the year, the overall numbers are low. Considering this, and the wide distribution of the species, impact at a population is not anticipated.

While dugongs may transit through the OA, they spend most of their time in shallow tidal and subtidal seagrass meadows, which are not present within the OA. If any vessel interaction does occur, it is unlikely to threaten the overall viability of the population.

Marine reptiles Marine turtles make extensive migrations throughout the region, and it is possible individual turtles of any of the species known from the region may be encountered in the OA. The OA overlaps the internesting buffer HC for flatback turtles, overlaps the internesting BIA for flatback turtles, and is adjacent (distance of 11 km) to the internesting HC for olive ridley turtles. There may be an increase in the number of individual animals in the OA between June to September for flatback turtles and April to August for olive ridley turtles that are at risk from a vessel strike. However, the risk of coming into contact with turtles is low as it is expected turtles will dive or move away from the vessels. While impact to an individual may occur, an impact at a population or ecosystem level is not anticipated. **Sharks, rays and fish** Boat strike is recognised by the Approved conservation Advice for *Rhincodon typus* (whale shark) as one of the threats to their recovery (TSSC, 2015g). The OA is more than 400 km away from the nearest BIA for whale sharks and, given the offshore location, large numbers of species are not anticipated. It is possible, however, individuals may transit through the OA and, while impact to an individual may occur, an impact at a population or ecosystem level is not anticipated.	
Likelihood	B – Unlikely
The likelihood of marine fauna interaction resulting in injury or death is considered possible in the OA, given the implementation of the Santos procedure for interacting with marine fauna. The OA overlaps areas of increased marine fauna abundance; however, there remains a tendency for marine fauna to move away from vessels.	
Residual risk	The residual risk is considered Very Low.

7.3.5 Demonstration of as low as reasonably practicable

No alternative options to the use of the vessels are possible in order to undertake the activity.

All reasonably practicable control measures have been reviewed and those adopted are considered appropriate to manage the residual risk to a Very Low level. The proposed management controls are in accordance with the Santos risk management criteria and are considered appropriate to manage the risk to ALARP.

7.3.6 Acceptability evaluation

Is the risk ranked between Very Low to Medium?	Yes – residual risk is ranked Very Low.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available.
Are the risks and impacts consistent with the principles of ecological sustainable development?	Yes – activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline which considers principles of ESD: The impacts associated with marine fauna interaction have the potential to occur to a small number of an overall population and population-level impacts will not occur so, the event does not result in 'threats of serious or irreversible harm' as detailed within the EPBC Act and biodiversity and ecological integrity will be maintained. Conservative assumptions on scale of impact have been applied including a conservative assumption on marine fauna presence. The health, diversity and productivity of the environment will be maintained, including for future generations.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans, conservation advice, wildlife conservation plans and Australian marine park zoning objectives)?	Yes – consistent with relevant species recovery plans, conservation advice, wildlife conservation plans and management actions set out in Table 3-13. **Conservation Advice:** • Conservation Advice for *Balaenoptera borealis* (sei whale) (TSSC, 2015b) • Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015c) • Conservation Advice for *Calidris canutus* (red knot) (DCCEEW, 2024c) • Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g) • Approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle) (DEWHA, 2008b) **Recovery Plans:** • National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna (CoA, 2017a)

	• Conservation Management Plan for the Blue Whale – A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 2015–2025 (CoA, 2015a) identifies vessel collisions as a threat to blue whales: 'Action A4: minimising vessel collisions by ensuring the risk of vessel strikes on blue whales is considered when assessing actions that increase vessel traffic in areas where blue whales occur and, if required appropriate mitigation measures are implemented; and ensure all vessel strike incidents are reported in the National Ship Strike database'. The adoption of EPO-03, BAO-CM-6.1.1 and BAO-CM-6.6.6 reduces potential impacts, hence is considered not inconsistent with the objectives of this management plan. • Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b) • Wildlife Conservation Plan for Seabirds (CoA, 2020) • Wildlife Conservation Plan for Migratory Shorebirds (CoA, 2015c). Recovery plans / conservation advice for other species that may occur in the OA do not identify vessel or anthropogenic disturbance as a key threat or have explicit relevant objectives or management actions related to vessel or anthropogenic disturbance. The OA does not intersect any AMP or protected area. The objectives and actions of these publications were considered during impact and risk assessments. The controls outlined in Table 7-4 Section 7.3.3 are not inconsistent with the objectives of the material listed above and Santos considers the risk of marine fauna interactions to be not inconsistent with these objectives..
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – management is consistent with EPBC Regulations Part 8. Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B. The GEP Coastal Waters OEMP is also compliant with the conditions of EPBC approval EPBC 2022/09372 (Appendix B).
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health, and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable Operations EPs accepted by NOPSEMA have been reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback	Yes – requests from Relevant Persons relating to management of vessel movement and potential environmental impacts have been considered.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, with no additional control measures adopted.

The residual risk of marine fauna interaction is assessed as Very Low. Based on an assessment of Santos' acceptability criteria and with the control measures in place, potential risks are considered acceptable.

7.4 Minor release of hydrocarbons and chemicals

7.4.1 Description of event

Event	Vessels undertaking the Activity will routinely have a range of chemicals and hydrocarbons onboard, including: • fuel for portable/deck equipment • hydraulic fluid (e.g., for ROVs) • paints and lubricants • miscellaneous chemicals (e.g., cleaning fluids) An accidental release of minor volumes of chemicals and hydrocarbon liquids into the marine environment can potentially occur from: • mechanical failure of equipment, such as tank or pipework failure • inadequate handling and storage • insufficient fastening or inadequate bunding • firefighting foam released during an unplanned incident • bunkering A release of hydrocarbon liquids or chemicals may result in impacts to water quality and hence sensitive environmental receptors.
Extent	Small spills may occur when the chemicals or hydrocarbons are in use or from leaks within the storage area and can potentially be released into the marine environment. The maximum volume of chemicals that could be released during routine operations is likely to be incidental and minor, with bunding in place to retain substances in the event of a leak. Operational experience indicates typical minor spill volumes are <10 L. Dilution from discharges in open waters is rapid, with 1 in 1,000 dilution usually occurring within 30 minutes (Costello and Read, 1994). If the spill is not contained on deck, a release to the marine environment would likely disperse rapidly within the OA. Hydraulic fluids and lubricating fluids behave similarly to marine diesel oil (MDO) when spilt in the marine environment (see Section 7.6 for information on unplanned release of MDO). Hydraulic fluids are medium oils of light to moderate viscosity with a relatively rapid spreading rate, and will dissipate quickly, particularly in high sea states. Lubricating oils are more viscous, with a slightly slower rate of spread following a spill. Hydraulic fluids are used in various equipment, such as A-frames, cranes, winches and ROVs. Failure of hydraulic lines may result in the loss of hydraulic fluid to the environment. Operational experience indicates typical volumes released due to hydraulic line failure are <20 L. During bunkering activities, a total rupture or failure of bunker transfer equipment, such as the hose or fittings, combined with a failure in procedure to shut off fuel pumps for a period of up to three minutes, may result in approximately 10 m^3 of chemicals released into the marine environment. Chemical bunkering is a monitored event, allowing for almost immediate shutdown of the bunkering activity. In the event of a fire emergency, firefighting foam will be used, which would then be discharged directly overboard or through deck drainage systems. The environment that may be affected for hydrocarbon liquids or chemical release resulting in a decrease in water quality is likely to be restricted to the area surrounding Activity vessels and contained within the OA.
Duration	The duration of the impact is limited (minutes to hours) to the time the released chemical or hydrocarbon takes to disperse to below harmful concentrations. IMMR vessels will typically be present in the OA for 7 to 30 days in duration, every three to five years, or as needed.

7.4.2 Nature and scale of environmental impacts

Potential receptors: physical environment (water quality); threatened, migratory or local fauna (marine mammals, marine reptiles, seabirds, sharks, rays and other fish); socioeconomic; and cultural features.

7.4.2.1 Physical environment

Minor volumes of hydrocarbons or chemicals released to the marine environment may result in a reduction in water quality. Releases will likely be temporary (minutes to hours), localised and limited to surface waters surrounding the Activity vessels.

Minor hydrocarbon and chemical releases in the OA are expected to disperse and dilute rapidly given the water depths (47 – 50 m), strong currents and wave action. The small volumes of worst-case releases are such that the potential for impacts on water quality will decline rapidly with time and distance at the sea surface. Impacts to benthic habitats are not expected given the location and water depths in the OA (47 – 50 m).

7.4.2.2 Threatened, migratory or local fauna

Changes to water quality could potentially lead to short-term impacts on transiting marine fauna (e.g., pelagic fish, sharks, marine mammals, marine reptiles and seabirds), some of which may have cultural significance as totems or cultural food sources. Marine pollution and contamination are identified as threats in the recovery plans and conservation advice for several protected marine species, such as the Recovery Plan for Marine Turtles in Australia 2017 – 2027 (CoA, 2017b).

Relatively low numbers of marine fauna are expected around Activity vessels due to the location and water depths of the OA (47 – 50 m). Minor hydrocarbon and chemical releases in the OA are expected to disperse and dilute rapidly, such that the potential for impacts on marine fauna will decline with time and distance at the sea surface. Sublethal or lethal impacts to marine fauna, including physical coating (e.g., seabirds at the surface) from entrained or surface hydrocarbons or hazardous chemicals are considered unlikely, given the nature and limited volumes of potential releases from Activity vessels.

7.4.2.3 Cultural features

No First Nations people feedback was provided about the potential impacts from unplanned minor releases of hydrocarbons and chemicals on geographically specific cultural features (excluding marine fauna species) during consultations for this GEP Coastal Waters OEMP or other Barossa Gas Project EPs (refer to Section 4.8).

In accordance with First Nations people cultural beliefs, if totemic species (e.g. turtles, fish, marine mammals and birds) are impacted by the Activity some believe this in turn can impact First Nations people and make them sick. The potential impacts to culturally significant marine fauna species (such as dreaming and totem species including marine mammals, turtles, fish and birds) are assessed in Section 7.4.2.2.

7.4.3 Environmental performance outcomes and control measures

The EPOs relating to this event is:

- No injury, or mortality to, EPBC Act 1999 listed marine fauna or marine fauna listed as threatened species under the *Territory Parks and Wildlife Conservation Act 1976* (NT) as a result of the Activity. (EPO-08)
- Zero unplanned discharge of hazardous and non-hazardous wastes into the marine environment from the Activity. (EPO-16)
- Zero unplanned discharge of hydrocarbons or chemicals to the marine environment from the Activity. (EPO-18)
- No significant impact to cultural features from the Activity (EPO-19).

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this activity are described in Table 7-5 to demonstrate that potential risks are ALARP. Control measures that are adopted have associated EPSs and measurement criteria and are presented in Table 8-2. Rejected control measures have an ALARP evaluation provided to justify their rejection.

Table 7-5: Control measures evaluation for minor release of hydrocarbons and chemicals

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.1.2	Vessels equipped and crewed in accordance with Australian maritime requirements, including Marine Order 30 (Prevention of Collisions) and Marine Order 21 (Safety and Emergency Arrangements) (administrative control)	Ensures contracted vessels are operated, maintained and crewed in accordance with industry standards and regulatory requirements. Ensures vessels meet Marine Assurance Standards to reduce the likelihood of vessel collision (such as minimum and working lighting for maritime safety).	Costs are expected as part of standard procedure.	**Adopted** – benefit of assuring vessels outweighs procedure compliance costs.
BAO-CM-6.4.5	HSE inductions will include applicable environmental requirements	Ensures that crew are aware of the stringent Coastal Waters OEMP, Santos and legislative requirements.	Administrative costs to update existing Santos procedure and induction materials, and train personnel.	**Adopted**

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
	(administrative control)			
BAO-CM-6.4.10	Barossa Facilities and vessel planned maintenance to confirm equipment integrity is maintained in accordance with manufacturers guidelines (administrative control)	Ensures vessel and equipment is maintained through routine checks, reducing the likelihood of leaks or loss of integrity. Maintenance and pre-deployment inspection on ROV completed as scheduled to reduce the risk of hydraulic fluid releases to the marine environment. Ensures bunkering equipment is maintained through routine checks via: • visual inspections • string hydrotest. Maintained bunkering equipment will reduce likelihood of loss of integrity events during transfers.	Cost of implementing procedures.	**Adopted** – environmental benefits of maintaining offtake equipment integrity outweigh the costs.
BAO-CM-6.7.5	Apply the Santos chemical selection process for all chemicals planned to be discharged (Section 2.7) (administrative control)	Under the procedure, CHARM-rated gold/silver and non-CHARM Group E/D chemicals managed under the OCNS, or OSPAR PLONOR list, or chemicals risk assessed by Santos and deemed environmentally acceptable, will be selected (Section 2.7). Reduces the potential impacts if accidental release occurs. Therefore, the production and other chemicals will pose little or no risk to the environment. Reduces the potential impacts to culturally significant marine species, including totemic species, such as marine turtles and marine mammals.	Cost of implementing procedures. Range of chemicals reduced with potentially higher costs for alternative products.	**Adopted** – environmental benefits of using environmentally acceptable chemicals outweigh procedural implementation and operational costs.
BAO-CM-7.1.1	Implement standards and procedures for lifting equipment to reduce risk of dropped objects during lifting (administrative control)	Impacts to the environment are reduced by preventing dropped objects and dragged objects during lifting operations.	Administrative costs to implement procedures, update induction materials and train personnel.	**Adopted** – environmental benefits of ensuring the procedure are followed and measures implemented outweigh the costs.
BAO-CM-7.1.2	Dropped objects (incident) management (administrative control)	Impacts to the environment are reduced by preventing dropped objects and by retrieving dropped objects unless the environmental consequences of the dropped object are negligible or there are risks to safety.	Cost of implementing procedures.	**Adopted** – environmental benefits outweigh costs.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
BAO-CM-7.1.3	International Maritime Dangerous Goods Code (administrative control)	Regulatory requirement that reduces the risk of an environmental incident, such as an accidental container release to sea or unintended chemical reaction.	Cost of implementing procedures.	**Adopted** – environmental benefits of ensuring procedures are followed outweigh the costs; plus, the control is a legislated requirement.
BAO-CM-7.1.4	Chemicals and hydrocarbons will be managed in accordance SDS to reduce risk of release to the marine environment (administrative control)	Reduces the risk of accidental discharge to sea by controlling the storage, handling, and clean-up of chemicals.	Cost of implementing procedures. Regulatory requirement to manage hazardous chemicals.	**Adopted** – environmental benefits of ensuring procedures are followed outweigh the costs, plus the control is a legislated requirement.
BAO-CM-7.4.1	ROV operations undertaken in accordance with good industry practice (administrative control)	Maintenance (as per manufacturer specifications) and pre-deployment inspection on ROV completed as scheduled to reduce the risk of hydraulic fluid releases to the marine environment.	Cost of implementing procedures.	**Adopted** – environmental benefits outweigh the costs.
BAO-CM-7.4.2	Bulk liquid transfer procedure (administrative control)	The procedure provides details about the chemical bunkering process to be undertaken. Implementing the procedure reduces the potential for release during bunkering. Requires use of dry-break coupling (on bunkering hose) and breakaway coupling, which limit the chemical losses in an emergency.	Costs associated with ensuring the procedure is in place, up to date and implemented.	**Adopted** – environmental benefits of ensuring the procedure is followed and measures implemented outweigh the costs.
BAO-CM-7.4.3	Vessel spill response plans (SOPEP/SMPEP) (administrative control)	Implements onboard response plans to deal with unplanned hydrocarbon releases and spills quickly and efficiently to reduce impacts to the marine environment.	Administrative costs of demonstrating vessel contractor compliance. Generally undertaken by vessel contractor so time for Santos personnel to confirm that a Shipboard Oil Pollution Emergency Plan (SOPEP) /Shipboard marine pollution emergency plan (SMPEP) is in place.	**Adopted** – regulatory requirement, must be adopted.
BAO-CM-7.4.4	Spill clean-up kits available in high-risk areas (protective control)	Reduces the risk of spills and leaks to sea by controlling the clean-up of minor spills.	Cost of implementing procedures.	**Adopted**

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Additional control measures				
N/A	Eliminate ROV activities (elimination control)	Eliminates accidental hydrocarbon releases to the marine environment due to equipment failure.	ROVs contain minimal hydrocarbons (<5 L of hydraulic fluid) and as they are inspected and maintained, the risk of failure is very low. Using ROVs for IMMR activities reduces seabed disturbance, length of time in field, safety and environmental risks.	**Not adopted** – not technically or environmentally feasible to eliminate ROV activities. Hydrocarbon releases due to ROV failure has a very low risk and is considered sufficiently managed under ROV inspection and maintenance procedures (BAO-CM-7.4.1).
N/A	ROVs to use biodegradable hydraulic fluids only (substitution control)	Using a biodegradable hydraulic fluid reduces potential spill impacts as the oil is less persistent in the marine environment.	ROVs contain minimal hydrocarbons (<5 L of hydraulic fluid) that is likely to be a synthetic blend base oil (inherently biodegradable). ROVs are inspected and maintained, and the risk of failure is considered very low.	**Not adopted** – based on the cost to replace or modify the ROVs. The synthetic blend base oil that may be released during ROV failure has a very low risk and is considered sufficiently managed under the ROV inspection and maintenance procedures (refer to BAO-CM-7.4.1).
N/A	Zero chemical bunkering via hose (elimination control)	Removes spill risk from hose operations.	Cost associated with large transfers of chemicals via drums or containers. Additional environmental risks (such as dropped objects) associated with transferring chemicals via drums or containers. Additional trips to port increases health and safety risks.	**Not adopted** – storage of chemicals would result in unacceptable transfer of environmental risks to health and safety and operational risks. Would not eliminate the risk of accidental releases.

7.4.4 Environmental impact and risk assessment

Receptors	• Physical environment (water quality) • Threatened, migratory or local fauna (fish [including sharks and rays], marine mammals, marine reptiles and seabirds) • Socioeconomic (commercial fishing, tourism and recreation) • Cultural features
Consequence	I – Negligible
If a chemical is spilt, the largest spill would likely be less than 10 L. Impacts to water quality would be expected to be very short-term and localised given the limited volumes that could be spilled. Due to the dispersive nature of the ocean environment and water depths within the OA, impacts to benthic habitats, including Shepparton Shoal are not predicted. The water foaming agents in aqueous film forming foam (AFFF) may be harmful to marine organisms. Most of these foams have high oxygen demand and the toxicity of the detergents, solvents and other components in the foams may result in adverse effects to marine organisms. However, these effects are greatly diminished in the offshore marine environment due to the natural dilution from wind, wave and currents. The release of these foams is restricted to an emergency event.	

If a minor hydrocarbon spill occurs, the quantities would likely be limited to 20 L. The small volumes, dilution and dispersion from natural weathering processes such as ocean currents and evaporation are such that spills will be limited in area and duration. The susceptibility of marine fauna to hydrocarbons depends on hydrocarbon type and exposure duration; however, given that exposures would be limited in extent and duration, exposure to marine fauna from this potential hazard is considered very low. The small volumes of worst-case discharges are such that the potential for impacts to receptors will decline rapidly with time and distance at the sea surface. Harmful effects are not expected to the benthic community due to the water depths. Near the sea surface, fish can detect and avoid contact with surface slicks and, as a result, fish mortalities rarely occur in open waters from surface spills (Kennish, 1997; Scholz et al., 1992). Therefore, pelagic fish species (e.g. sharks) are generally not highly susceptible to impacts from hydrocarbon spills. In offshore waters near the release point, pelagic fish are at risk of exposure to the more toxic aromatic components of the hydrocarbons. However, pelagic fish in offshore waters are highly mobile; therefore, it is unlikely they would be exposed to toxic components for long periods in this spill scenario. Components with higher toxicity would also rapidly evaporate and concentrations would significantly diminish with distance from the spill site, limiting the potential area of impact. Marine pollution is identified as potential threats to several marine fauna species (that may be present in the OA) in relevant recovery plans and conservation advice (Table 3-13) and to MNES (DCCEEW, 2022b). Given the negligible consequence on the physical environment or species, subsequent impacts to socioeconomic receptors (including commercial fishing, tourism and recreation) and cultural features are not anticipated. A very small (less than 20 L) chemical or hydrocarbon spill would not result in a decreased population size at a local or regional scale or long-term reduction to water and sediment quality, but may be detectable, it is expected that a spill of this nature would result in I – Negligible consequence.	
Likelihood	C – Possible
The likelihood of releasing minor volumes of chemicals (<10 L) or hydrocarbons (<20 L) to the environment during routine operations is considered D – Occasional.	
Residual Risk	The residual risk is considered Very Low.

7.4.5 Demonstration of as low as reasonably practicable

The use and storage of chemicals and hydrocarbon liquids is a requirement to undertake the Activity, and there are no reasonably practicable alternatives that meet operational requirements. All reasonably practicable control measures were reviewed and those adopted are considered appropriate to manage the residual risk to a Very Low level. The proposed management controls are in accordance with Santos' risk management criteria and are considered appropriate to reduce the risk to ALARP.

7.4.6 Acceptability evaluation

Is the risk ranked between Very Low and Medium?	Yes – residual risk is ranked as Very Low.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available.
Are the risks and impacts consistent with the principles of ecologically sustainable development (ESD)?	Yes – activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline, which considers principles of ESD.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans and conservation advice and Australian marine park zoning objectives?	Yes – while several plans identify pollution as a threat to marine fauna, negligible impacts are predicted for this Activity. Control measures implemented will reduce the risk of minor releases to species identified in the following relevant species conservation advice and recovery plans, as also set out in Table 3-13. **Conservation advice:** • Approved Conservation Advice for *Pristis clavata* (Dwarf Sawfish) (DEWHA, 2009) • Approved Conservation Advice for Green Sawfish (DEWHA, 2008c) • Approved Conservation Advice for *Pristis pristis* (largetooth sawfish) (TSSC, 2014b) • Approved Conservation Advice for *Glyphis garricki* (northern river shark) (TSSC, 2014a) • Approved Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g) • Approved Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015c)

	• Approved Conservation Advice for Balaenoptera borealis (sei whale) (TSSC, 2015b) **Recovery plans:** • Recovery Plan for the White Shark (*Carcharodon carcharias*) (Department of Sustainability, Environment, Water, Population and Communities ((DSEWPaC, 2013) • Conservation Management Plan for the Blue Whale - A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 2015–2025 (CoA, 2015a) • Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b) • Wildlife Conservation Plan for Seabirds (CoA, 2020) Habitat degradation or modification is identified in many conservation advice, however the nature of these discharges does not result in habitat degradation. The OA does not intersect any AMP or protected area. For the identified plans, the objectives of those plans are achieved through the adoption of performance outcomes and the control measures outlined in Section 7.4.3. Santos considers that the level of risk of minor releases (surface and subsea) is not inconsistent with these plans.
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – management measures are consistent with *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth), *Navigation Act 2012 (Cth),* MARPOL Annex V and Marine Order 91 (Marine pollution prevention – oil). Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B.
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable EPs accepted by NOPSEMA were reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback?	Yes – no objections or claims were raised regarding a potential minor release.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, with additional control measures adopted.

No Relevant Person concerns have been raised regarding the accidental release of minor volumes of chemicals and hydrocarbons, and the proposed controls will reduce the residual risk to Very Low and ALARP. Based on an assessment of Santos' acceptability criteria and with the control measures in place, residual risks are considered acceptable.

7.5 Subsea release of dry natural gas

7.5.1 Description of event

Event	Subsea release of gaseous hydrocarbon from: • part of the Barossa GEP within of the OA impacted by IMMR activities or external event. A subsea release of gaseous hydrocarbon within the OA during normal operations could be caused by one or a combination of the following: • External impact from the following sources: - dropped objects from supply/support/third party vessel - damage to pipeline during IMMR campaigns (e.g., repairs not undertaken to meet design specifications) - future construction in the area from external parties • GEP integrity failure (e.g., fatigue/stress, internal and external corrosion, erosion) • operating outside design envelope (e.g., overpressure, exceeding design temperature) • natural hazards (e.g., cyclone or seismic activity) Discharge of a maximum volume up to 1,080 MMscf (24,030 tonnes) of dry gas (ref Pipeline Consequence Modelling Report) forming a large plume in the water column and dispersing into the atmosphere. A gas plume would be released from the Barossa GEP in the event of a rupture. The plume would move towards the surface, with some of the gas becoming dissolved in seawater as the plume rises. A worst-case rupture would lead to the formation of a large gas cloud, which would rapidly disperse in the atmosphere. Methane (the main component of the dry gas) is lighter than air and would rise into the atmosphere, away from the release location. A gas cloud could potentially form an explosive mix, which if ignited, results in injury/death and/or damage to property. The scale of a Barossa GEP release is dependent on the nature of the loss of containment. Small 'pinhole' leaks will result in a stream of bubbles which may dissolve and disperse before reaching the surface. A major rupture caused by a catastrophic failure has the potential to release a volume of up to 1080 MMscfd (24,030 t) of dry gas (Pipeline Consequence modelling report) forming a large plume in the water column and dispersing into the atmosphere over a period of approximately three days. A rupture is considered to be the worst-case credible release from the Barossa GEP. As the Barossa GEP transports dry natural gas with no liquid phase hydrocarbons, a loss of containment would not release any liquid phase hydrocarbons to the environment. Given that the contents of the pipeline consist entirely of dehydrated gas, condensation of gas phase components upon release is not expected due to the pressure and temperature differential between the pipeline contents and the receiving environment.
Extent	The dry natural gas within the Barossa GEP is contained at a relatively high pressure of up to 180 barG. The extent of a leak from the Barossa GEP would depend on the nature of the rupture but is expected to be limited to within hundreds of metres of the rupture location. Small 'pinhole' leaks may result in a stream of bubbles that could dissolve before reaching the surface.
Duration	Potentially harmful concentrations are limited to a very short period (days) immediately following the release.

Dry natural gas

The Barossa GEP consists of dry natural gas that is predominantly methane (approximately 88%), carbon dioxide (up to 6%), hydrogen sulphide (0.0015%) and approximately 6% other organic compounds (including ethane, propane, butane and isobutane, and nitrogen) (Santos, 2024). However, the gas composition can vary. Physical properties indicate that dry natural gas is highly flammable and will volatilise from the aquatic environment rapidly. It is noted that in practice, acute and chronic effects would not typically be observed (Shell, 2019).

7.5.2 Nature and scale of environmental impacts

Potential receptors: physical environment (water and air quality); threatened, migratory or local fauna (marine mammals, marine reptiles, sharks and rays, other fish, and birds); socioeconomic (other marine users); and cultural features.

7.5.2.1 Physical environment

A pipeline rupture and subsequent release of dry natural gas would result in a localised and short–term reduction in water and air quality. The plume would move towards the surface, as methane (the main component of dry natural gas) is lighter than air, with some of the gas becoming dissolved in seawater as the plume rises. Any dissolved gas in the water column is expected to disperse rapidly in the OA given the water depths, strong currents and wave action. A worst-case rupture would lead to the formation of a minor gas cloud, which would rapidly disperse in the

atmosphere. Potential changes to water and air quality are expected to be short-term (within days) and limited to within hundreds of meters of the rupture site.

The seabed in the OA adjacent to the GEP is characterised as featureless silty, shelly sand, with very sparse (<1%) epibiota (mainly soft corals and crinoids) (RPS, 2023). Any seabed disturbance impacts (e.g., scouring) are expected to be limited to the immediate vicinity of a pipeline rupture. Given the mobile nature of sediments and high current speeds in the OA, the seabed is expected to infill naturally with sediments and detrital matter, returning to near its original state over a short time (weeks to months). Benthic habitats would remain viable and are expected to recolonise through the recruitment of new colonists from planktonic larvae in adjacent undisturbed areas (Guerra-Garcia & Garcia-Gomez, 2006).

7.5.2.2 Threatened, migratory or local fauna

A hydrocarbon release will cause a decline in water quality that may have chemical (e.g., toxicity) impacts on marine fauna. Pipeline rupture may also cause changes in fauna behaviour as individuals avoid turbulent water around the release. A worst case rupture would lead to the formation of a minor gas cloud that could potentially impact air-breathing fauna, such as marine mammals, reptiles, and birds. Individuals in the immediate vicinity of the release may be at risk of asphyxiation, potentially resulting in death. However, this effect would be localised (within 500 m) and short-term as gas rapidly disperses into the atmosphere.

The recovery plans and conservation advice for several marine fauna species identify pollution and/or habitat degradation as a threat (e.g., marine turtles, marine mammals, sawfish); however, they are primarily focussed on agricultural, terrestrial industrial, domestic and oil pollution. Given the location and habitat within the OA, contact between marine fauna and an unplanned release of dry natural gas will likely be for a short duration and not sufficient to cause a toxic effect.

7.5.2.3 Socioeconomic

Pipeline rupture and subsequent release of dry natural gas could impact the health and safety of other marine users, such as fishers (commercial and traditional), tourism operators, and recreational users. A dry natural gas cloud could potentially form an explosive mix that, if ignited, results in injury/death and/or property damage. However, exclusion zones around Activity vessels would restrict other marine users within 500 m. An unplanned release would also activate an emergency response plan (refer to 8.2.6) that ensures other marine users are advised of the hazard.

7.5.2.4 Cultural features

No First Nations people feedback was provided about potential impacts from an unplanned release of dry natural gas release to any geographically specific cultural features (excluding marine fauna) during consultation for this GEP Coastal Waters OEMP (refer to Section 4.8). An important outcome of Dr Corrigan's research is that no sacred sites or dreamings are shown to be directly impacted by the DPD project footprint (where this OA and Activity are located), although this is not to say that some persons do not have fears that this could be the case in the event of an unplanned event (Corrigan, 2024).

In the 2022 Statement of Reasons Requests, the Tiwi clan members raised their concern regarding traditional hunting of marine species and totem species. The First Nations people maintain a continuing spiritual connection with sea country, including caring for sea country and access to cultural food sources. The potential impact to marine fauna is likely to be limited to transiting individuals and is unlikely to result in significant impacts to marine species at the individual or population level (refer to Section 7.5.2.2). As a result, unplanned release of dry natural gas is not anticipated to affect traditional hunting practices or resources.

In accordance with First Nations people cultural beliefs, if totemic species (e.g. turtles) are impacted by the Activity some believe this in turn can impact First Nations people and make them sick. The potential impacts to culturally significant marine fauna species (such as dreaming dreaming and totem species including marine mammals, reptiles and birds) are assessed in Section 7.5.2.2.

7.5.3 Environmental performance outcomes and control measures

The EPO relating to this event is:

- No injury, or mortality to, EPBC Act 1999 listed marine fauna or marine fauna listed as threatened species under the *Territory Parks and Wildlife Conservation Act 1976* (NT) as a result of the Activity (EPO-08)
- Atmospheric emissions associated with the Activity will meet all regulatory source emission standards (EPO-09)
- Zero unplanned discharge of hydrocarbons or chemicals to the marine environment from the Activity (EPO-18)

- No significant impact to cultural features from the Activity (EPO-19)
- No impacts to underwater cultural heritage from the Activity (EPO-20)

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this Activity are described in Table 7-6 to demonstrate that potential risks are ALARP. Control measures that are adopted have associated EPSs and measurement criteria and are presented in Table 8-2. Rejected control measures have an ALARP evaluation provided to justify their rejection.

Table 7-6: Control measures evaluation for subsea release of dry natural gas

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.1.2	Vessels equipped and crewed in accordance with Australian maritime requirements, including Marine Order 30 (Prevention of Collisions) and Marine Order 21 (Safety and Emergency Arrangements) (administrative control)	Ensures vessels meet Marine Assurance Standards to reduce the likelihood of vessel collision (such as minimum and working lighting for maritime safety).	Cost associated with implementing procedures.	**Adopted** – benefit of assuring vessels outweighs procedure compliance costs.
BAO-CM-6.4.5	HSE inductions will include applicable environmental requirements (administrative control)	Ensures that crew are aware of the stringent Coastal Waters OEMP, Santos and legislative requirements.	Administrative costs to update existing Santos procedure and induction materials, and train personnel.	**Adopted** - benefits considered to outweigh costs.
BAO-CM-6.4.10	Barossa Facilities and vessels planned maintenance system to confirm equipment integrity is maintained in accordance with manufacturer guidelines (administrative control)	Ensures vessel and equipment integrity is maintained through routine checks.	High cost of maintaining equipment and managing the maintenance system.	**Adopted** – environmental benefits outweigh the costs.
BAO-CM-6.6.1	Notify AHS and AMSA MSI prior to relevant Activity (administrative control)	Maritime notifications ensure marine users are informed of the proposed activities, reducing the likelihood of unplanned interactions. Subsea infrastructure will be clearly marked on Australian nautical charts published by the Australian Hydrographic Office (AHO), alerting other marine users to the presence of activity vessels and exclusion zones and restrictions, reducing the likelihood of vessel collision and fishing gear snagging.	Cost and time perform notifications.	**Adopted** – benefits considered to outweigh costs.
BAO-CM-6.6.4	Activity undertaken in accordance with Santos HSE management and	Ensures contracted vessels are operated, maintained, and crewed in accordance	Costs associated with personnel time in checking vessels.	**Adopted** – benefit of assuring vessels outweighs procedure

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
	marine vessel vetting processes (Santos' Offshore Marine Assurance Procedure) (administrative control)	with industry standards and regulatory requirements.		compliance costs.
BAO-CM-7.1.1	Implement standards and procedures for lifting equipment to reduce risk of dropped objects during lifting (administrative control)	Impacts to the environment are reduced by preventing dropped objects and dragged objects during lifting operations. Reduces the chance of a dropped suspended load. Load-bearing lifting equipment engineering standards and appropriate lifting procedures factor in technical and environmental variables to minimize the risk of losing control of a suspended load.	Cost of implementing procedures.	**Adopted** – environmental benefits of preventing dropped objects outweigh the procedural compliance costs.
BAO-CM-7.1.2	Dropped objects (incident) management (administrative control)	Impacts to the environment are reduced by preventing dropped objects and by retrieving dropped objects unless the environmental consequences of the dropped object are negligible or there are risks to safety.	Cost of implementing procedures.	**Adopted** – benefits of ensuring procedures are developed and followed outweigh the costs of personnel time.
BAO-CM-7.6.1	Emergency Response Plan (ERP) (administrative plan)	Mitigates the impact of a potential leak in the Barossa GEP. The ERP is based on the safety case for the pipeline.	Cost of implementing the procedure.	**Adopted** – benefits of ensuring procedures are developed and followed outweigh the costs of personnel time.
BAO-CM-7.6.2	Pipeline operating procedures (administrative control)	This control is effective in maintaining the integrity of the pipeline by providing the limitations within which the pipeline can be safely operated. This is done by relying on design specifications and standards, which are well-developed through extensive experience within Santos and the industry more broadly.	Personnel costs of ensuring appropriate procedures are in place and followed, including compliance inspections/reviews.	**Adopted** – benefits of ensuring procedures are developed and followed outweigh the costs of personnel time.
BAO-CM-7.6.3	Pipeline Integrity Management Plan (administrative control)	This control is effective in maintaining the integrity of the pipeline by ensuring preventative and	Personnel costs of ensuring appropriate procedures are in place and followed, including compliance inspections / surveys /	**Adopted** – benefits of ensuring procedures are developed and followed outweigh the costs of personnel time and expenses

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
		reactive inspections and maintenance/repairs are performed using a risk-based approach.	reviews. Survey expenses.	
BAO-CM-7.6.5	Repairs to the Pipeline carried out to design specification (administrative control)	Ensures pipeline repairs are consistent with design specifications. Repairs conducted incorrectly may increase the likelihood of a failure with environmental and safety impacts.	Costs of repairs to be carried out in accordance with the Offshore Standard for Submarine Pipeline Systems.	**Adopted** – benefits outweigh the costs of undertaking appropriate repairs.
BAO-CM-7.6.9	Barossa Nearshore Gas Export Pipeline Operations Pipeline Management Plan	Details alarms and required emergency response in the event of a loss of containment.	Administrative costs of preparing procedures.	**Adopted** – benefits considered to outweigh costs.
Additional control measures				
N/A	Eliminate lifting in the Operational Area (elimination control)	Reduces the risk of dropped objects.	Lifting is an essential activity for IMMR activities.	**Not adopted** – not feasible to eliminate lifting in the field.

7.5.4 Environmental impact and risk assessment

Receptors	• Physical environment (water quality, air quality) • Threatened, migratory or local fauna (marine mammals, marine reptiles, sharks, rays, other fish, and birds) • Socioeconomic (commercial fishing, traditional fishing, tourism, recreation, shipping and defence) • Cultural features
Consequence	III – Moderate

Physical environment and habitat

Impacts to water and air quality would be expected, but due to the dispersive nature of the ocean environment and water depths, impacts are expected to be short-term and localised. Potential impacts to the physical environment and habitat (water and air quality) from a large or small release is considered in the OA is considered to be II - Minor.

Threatened, migratory or local fauna

A dry natural gas release is unlikely to have widespread ecological effects, given the nature of the product, short duration and the limited volume that could be released, and the transient nature of marine fauna in the OA. This unplanned event is not considered to have the potential for significant impacts to marine fauna species at the population level, including cultural significance. Potential impacts to marine fauna are considered to be II - Minor.

Socio-economic

The release of 24,030 tonnes of dry natural gas forming a gas cloud has the potential to result in injury/death of other marine users (such as traditional / commercial fishers) and or property damage of vessels that may be in the area. If the release is due to IMMR activities, a 500 m exclusion zone will be in force around the Activity vessels and subsequent impacts to socio-economic receptors including commercial fishing and other marine users are not anticipated to be significant. If a rupture occurs when a 500 m exclusion zone is not in place (i.e. it is not related to IMMR activities) there is the potential to impact a number of marine users. The worst-case consequence to socio-economic receptors was assessed as III – Moderate if a release impacts a number of marine users.

Cultural features

For assessment of impacts to marine species of cultural significance, refer to the above impacts and risks to threatened, migratory or local fauna.

Likelihood	A – Remote
A pipeline rupture incident caused by IMMR activities or an external impact with the control measures in place is considered to be remote due to the volume of 3rd party vessels that are not under Santos control that may be present.	
Residual Risk	The residual risk is considered Very Low.

7.5.5 Demonstration of as low as reasonably practicable

A thorough set of controls has been proposed to minimise the risk of damage to the existing Barossa GEP and any subsequent environmental consequences of a dry natural gas release.

All reasonably practicable control measures were reviewed and those adopted are considered appropriate to manage the residual risk to Very Low. The proposed management controls are in accordance with Santos' risk management criteria and are considered appropriate to reduce the risk to ALARP.

7.5.6 Acceptability evaluation

Is the risk ranked between Very Low and Medium?	Yes – residual risk is ranked Very Low.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available.
Are the risks and impacts consistent with the principles of ecologically sustainable development (ESD)?	Yes – activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline, which considers principles of ESD.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans and conservation advice and Australian marine park zoning objectives?	Yes – while several plans identify pollution as a threat to marine fauna, significant impacts are not predicted for this Activity. Control measures implemented will reduce the risk of a subsea release of gaseous hydrocarbon to species identified in the following relevant species recovery plans, conservation advice, wildlife conservation plans and other management plans/guidelines, as also set out in Table 3-13. **Conservation advice** • Approved Conservation Advice for *Pristis clavata* (Dwarf Sawfish) (DEWHA, 2009) • Approved Conservation Advice for Green Sawfish (DEWHA, 2008c) • Approved Conservation Advice for *Pristis pristis* (largetooth sawfish) (TSSC, 2014b) • Approved Conservation Advice for *Glyphis garricki* (northern river shark) (TSSC, 2014a) • Approved Conservation Advice for *Glyphis glyphis* (speartooth shark) (DoE, 2014a) • Approved Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g) • Approved Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015c) • Approved Conservation Advice for *Balaenoptera borealis* (sei whale) (TSSC, 2015b) • Approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle) (DEWHA, 2008b) **Recovery plans** • Recovery Plan for the White Shark (*Carcharodon carcharias*) (Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC, 2013) • Conservation Management Plan for the Blue Whale - A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 2015–2025 (CoA, 2015a) • Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017) • Wildlife Conservation Plan for Seabirds (CoA, 2020) The OA does not intersect any AMP or protected area. For the identified plans, the objectives of those plans are achieved through the adoption of performance outcomes and the control measures outlined in Section 7.5.3. Santos considers that the level of risk of a subsea release of gaseous hydrocarbon is not inconsistent with these plans.

Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – Relevant legislative requirements and standard industry practices have been applied to control the risk. Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B.
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable EPs accepted by NOPSEMA were reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback?	Yes – Relevant feedback relating to a potential unplanned dry natural gas release has been considered when evaluating performance outcomes, control measures and associated performance standards. Where relevant, control measured implemented based on Relevant Persons feedback for other Barossa EPs have been adopted in this GEP Coastal Waters OEMP. Additional performance outcomes (EPO-19, EPO-20) have been adopted based on Relevant Persons feedback on other Barossa EPs.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, with no additional control measures adopted.

Relevant Persons concerns have been evaluated regarding this aspect and additional performance outcomes have been adopted. The proposed controls will reduce the residual risk to Very Low and ALARP. Therefore, Santos considers the residual risk associated with the unplanned release of dry natural gas to be reduced to an acceptable level.

The potential impacts from a dry gas release from a pipeline rupture are broadly acceptable based on the residual risk ranking and considerations outlined above.

7.6 Unplanned release of MDO

7.6.1 Description of event

Event	**Worst-case credible MDO release** Unplanned loss of containment of hydrocarbons into the marine environment is a credible risk during IMMR activities. A credible worst-case release scenario of MDO to the marine environment could be a collision between 2 activity vessels or an activity vessel and a third party. Such a collision could rupture a fuel tank at the sea surface resulting in the release of MDO to sea. The AMSA (2015) Technical Guidelines for Preparing Contingency Plans for Marine and Coastal Facilities recommend that the spill scenario for modelling and impact assessment should be based on 50% of the largest single fuel tank volume if protected by a double–hull or the largest single unprotected fuel tank volume. It was estimated that a typical IMMR vessel could have an MDO fuel tank of 600 m^3 with double–hull wing protection equivalent. Based on the class of vessel to be used for the activity, the largest credible loss of containment scenario identified is a surface release of MDO from a vessel as a result of an external impact (vessel collision), which ruptures an MDO tank was conservatively estimated to be 300 m^3 over one hour. **Bunkering incident** Also considered in this section is a much smaller volume refuelling incident (fuel hose failure or rupture, coupling failure or tank overfilling) where vessel fuel bunkering would need to be stopped manually. Fuel released before pumping stops and fuel remaining in the transfer line may be released to the environment. Spill volumes were determined from transfer hose inventory and spill prevention measures, including 'drybreak' or 'breakaway' couplings, rapid shutdown of fuel pumps and spill response preparedness, with 10 m^3 considered to be the maximum volume that could be released from the hose before shutdown. A collision scenario between a vessel and another vessel (third-party or other Santos vessel) could occur due to factors such as human error, poor navigation, vessel equipment failure or poor weather. A number of prerequisite conditions must exist for a vessel collision to result in the loss of fuel to the environment: The vessel must be involved in a collision: collisions involving offshore support vessels, comparable to those that will be used during the activity, are very uncommon. Statistics compiled by the Australian Transport Safety Bureau indicated offshore support vessels were involved in only one collision-related incident between 2011 and 2012, and no pollution-related incidents from offshore support vessels were recorded in the same time period. The collision must occur with sufficient force to rupture a fuel tank: fuel tanks are typically located at various positions around a vessel within the hull. The rupture must be of such a nature that the fuel can be released into the environment: a tank rupture must be above or near the fuel level within the tank to result in a loss of containment from the tank. Once lost from the tank, fuel may leak to the environment or drain into the vessel hull. Fuel from ruptured tanks may be transferred to other tanks onboard, reducing the volume in the ruptured tank. Note, it is not credible that the total storage volume of the vessel would be lost, as MDO is stored in more than one tank. All vessels used to undertake activities within the scope of this GEP Coastal Waters OEMP will be fuelled using MDO or lighter fuels (such as MGO). Heavier fuel types, such as intermediate fuel oil or HFO, will not be used.
Extent	Floating oil at, or above, 1 g/m^2 concentrations were predicted to extend up to 55 km from the release location. However, the distances reduced to 38 km and 21 km as the thresholds increase to 10 g/m2 and 50 g/m2, respectively. The Afghan Shoal and Shepparton Shoal were the only environmental value areas (EVAs) predicted to be exposed by floating oil at, or above, 1 g/m^2 at 0.33% and 2% probability of exposure, respectively. It took a minimum of 7 hours and 66 hours to reach the two receptors, respectively. Oil accumulation was forecasted for Tiwi Islands and Vernon Islands CR with probabilities of exposure of 0.33% and 1.67%, respectively, at, or above, 10 g/m^2 threshold. No accumulation of oil was predicted at, or above, 100 g/m^2 threshold. The minimum time before oil accumulation was 230 hours for the Tiwi Islands, whilst the maximum volume of oil ashore was <1 m^3 predicted for both EVAs. The maximum distance from the release location to the 10 ppb entrained hydrocarbon threshold, was 229 km. Shepparton Shoal was the EVA with the shortest predicted time to exposure at 8 hours and also had the highest probability of exposure at 29%, whilst the maximum concentration was 1,435 ppb. Dissolved hydrocarbon concentrations exceeding 10 ppb may potentially occur 49 km from the release location with the distance reducing to 23 km as the threshold increased to 50 ppb. Notably, no concentrations at, or above, the 400 ppb threshold were predicted. The highest probability of exposure was forecasted for Outer Oceanic Shoals AMP (1.33%) at, or above, the 10 ppb threshold and this receptor registered the shortest time before exposure at 30 hours. Additionally, Outer Oceanic Shoals AMP recorded the highest concentration at 35 ppb (RPS April 2024).

Duration	**Constant** An unplanned release may occur during operational activities within the OA. Release estimated to occur over one hour. Hydrocarbons would persist within the environment for a longer period of time, although MDO is expected to weather quickly through evaporation and dispersion.

7.6.2 Nature and scale of environmental impacts

Potential receptors: physical environment (water quality, shoals and banks, benthic habitats), threatened or migratory fauna (marine mammals, marine reptiles, fish [including sharks and rays] and birds), protected areas (AMPs and KEFs), socioeconomic receptors (fisheries, tourism, recreation and other third-party operators); and cultural features (including Native Title, ILUAs, sacred sites and sea country).

A hydrocarbon release will cause a decline in water quality and may cause chemical (e.g. toxicity) and physical (e.g. coating of emergent habitats, oiling of wildlife at sea surface) impacts to marine species. The severity of the impact of a hydrocarbon release depends on the magnitude of the release (i.e., extent, duration), prevailing weather conditions and sensitivity of the receptor. The nature and scale of a hydrocarbon release is described throughout this section for a vessel collision scenario, given smaller hydrocarbon releases (from refuelling, maximum of 10 m^3) will impact a smaller area than a vessel collision (modelled spill of 300 m^3).

7.6.3 Spill modelling overview

Hydrocarbon spill modelling (RPS, 2024b; Appendix F) was performed using an advanced three-dimensional trajectory and fates model: Spill Impact Model Application Package (SIMAP). The SIMAP model calculates the transport, spreading, entrainment and evaporation of spilled hydrocarbons over time, based on the prevailing wind and current conditions and the physical and chemical properties. The modelling does not take into consideration any of the spill prevention, mitigation and response capabilities that would be implemented in response to the spill.

The modelling study was performed in stages. Firstly, a ten-year wind and current dataset (2010 to 2019) that includes the combined influence of large-scale ocean and tidal currents was prepared. Secondly, the currents, local winds and detailed hydrocarbon characteristics were used as inputs in SIMAP to simulate the drift, spread, weathering and fate of the spilled hydrocarbon.

Modelling was conducted using a stochastic (or probabilistic) approach, which involved running 100 spill simulations per season (summer [October to the following March]; transitional periods [April and September] and winter [May to August]), with each simulation having the same spill information (spill volume, duration and composition of hydrocarbons) but randomly selected start time to ensure a range of wind and current conditions were assessed. Once all 300 simulations were run, the results were combined to determine the annualised potential exposure to the surrounding waters, shorelines and sensitive receptors based on the thresholds outlined in the NOPSEMA Oil Spill Modelling Bulletin (NOPSEMA, 2019).

Deterministic modelling is the predictive modelling of a single incident subject to a single sample of wind and weather conditions over time. Deterministic spill dispersion modelling is provided in Section 6 of the GEP NT waters OPEP, which includes all results relevant to spill response.

Deterministic modelling is often paired with stochastic modelling to place the large stochastic footprint into perspective. This deterministic analysis is generally a single run selected from the stochastic analysis and serves as the basis for developing the spill response or scientific monitoring plans. Deterministic modelling was also performed for the worst-case scenario to understand the potential area of influence that could be expected from the worst case MDO spill event. Table 7-7 summarises the model settings and assumptions.

Table 7-7: Summary of model settings and assumptions for the vessel collision scenario

Parameter	Scenario
Scenario description	Fuel tank rupture
Location	Commonwealth/NT waters boundary – KP 23 Easting - 618,128.5 Northing - 8,663,104.1
Number of randomly selected spill start times	300 total (100 per season)
Oil type	MDO
Spill volume	300m^3
Release duration	1 hour
Simulation length	30 days

7.6.4 Hydrocarbon and weathering characteristics

MDO has a density of 890 kg/m^3 (API of 37.6) and a low pour point of -9°C. The low viscosity (14 cP at 25°C) indicates this hydrocarbon will spread quickly when released and will form a thin- to low-thickness film on the sea surface, increasing the rate of evaporation.

As presented in Table 7-8, about 4% of the MDO mass should evaporate within the first 12 hours (Boiling point (BP) < 180°C); a further 32% should evaporate within the first 24 hours (180°C < BP < 265°C); and an additional 54% should evaporate over several days (265°C < BP < 380°C). Approximately 10% (by mass) of MDO will not evaporate, though will decay slowly over time.

MDO is categorised as a Group II oil (light-persistent) according to ITOPF (2022) and United States Environmental Protection Agency/United States Coast Guard classifications. The classification is based on the specific gravity of hydrocarbons in combination with relevant boiling point ranges.

MGO is a Group II oil hydrocarbon with a 'light persistent' classification. While MDO and MGO are similar, MGO has a marginally higher density than MDO and is based on the lighter distillates, which results in a low viscosity. MGO is considered an ultra-low sulfur fuel and emissions from MGO contain significantly less particulate matter than other fuel types. Given the similarities in MGO and MDO properties, MDO is presented in Table 7-8 and has been used for the purpose of spill modelling.

Table 7-8: Properties of marine diesel oil

Parameter		Marine diesel oil
Density (kg/m^3)		890
American Petroleum Institute		27.5
Dynamic viscosity (cP)		14.0 (at 25°C)
Pour point (°C)		-9.0
Hydrocarbon property category		Group II
Hydrocarbon property classification		Light persistent
Boiling point (°C)		
Non-persistent	Volatiles <180	4
	Semi-volatiles 180 to 265	32
	Low volatiles 265 to 380	54
Persistent	Residual >380	10

Source: RPS (2024b)

A series of weathering tests were conducted to illustrate the potential behaviour following a 50 m^3 instantaneous surface release of MDO when exposed to:

- five-knot (2.6 m/s) constant wind speed, 27°C water temperature and currents
- variable wind speeds (1 to 12 m/s or 2 to 24 knots), 27°C water temperature and currents.

The first case is indicative of the potential weathering rates under calm conditions that would not generate entrainment, while the second case would be more representative of the moderate winds experienced over the region.

The mass balance forecast for the constant wind case (Figure 7-1) shows that around 41% of the MDO has evaporated within 24 hours. Evaporation will slow considerably and be subject to more gradual decay through biological and photochemical processes.

Under the variable wind speed case (Figure 7-2), after 24 hours 40% of the mass has evaporated, 31% has entrained and 29% remains on the water surface. Due to the higher wind speeds and breaking waves, entrainment of the MDO into the water column is shown to occur. While the MDO is entrained it will decay at a higher rate of 1% per day or 7.7% after seven days due to biological and photochemical degradation, compared to a rate of 0.14% per day and total of approximately 1% after seven days for the constant-wind case. Given the proportion of entrained MDO and the tendency for it to remain mixed in the water column, the remaining hydrocarbons will decay over timescales of several weeks.

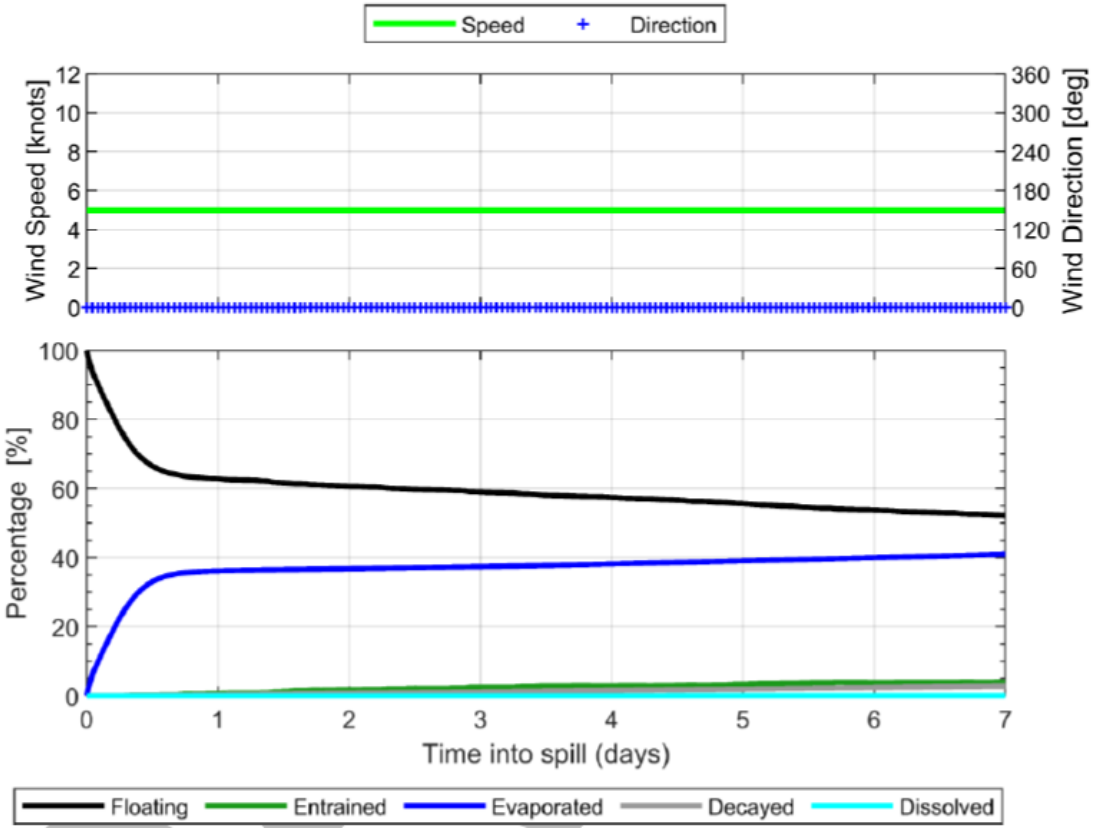


Figure 7-1: Mass balance plot for an instantaneous 50 m^3 surface release of MDO subjected to a constant 5 knot (2.6 m/s) wind, currents and 27°C water temperature

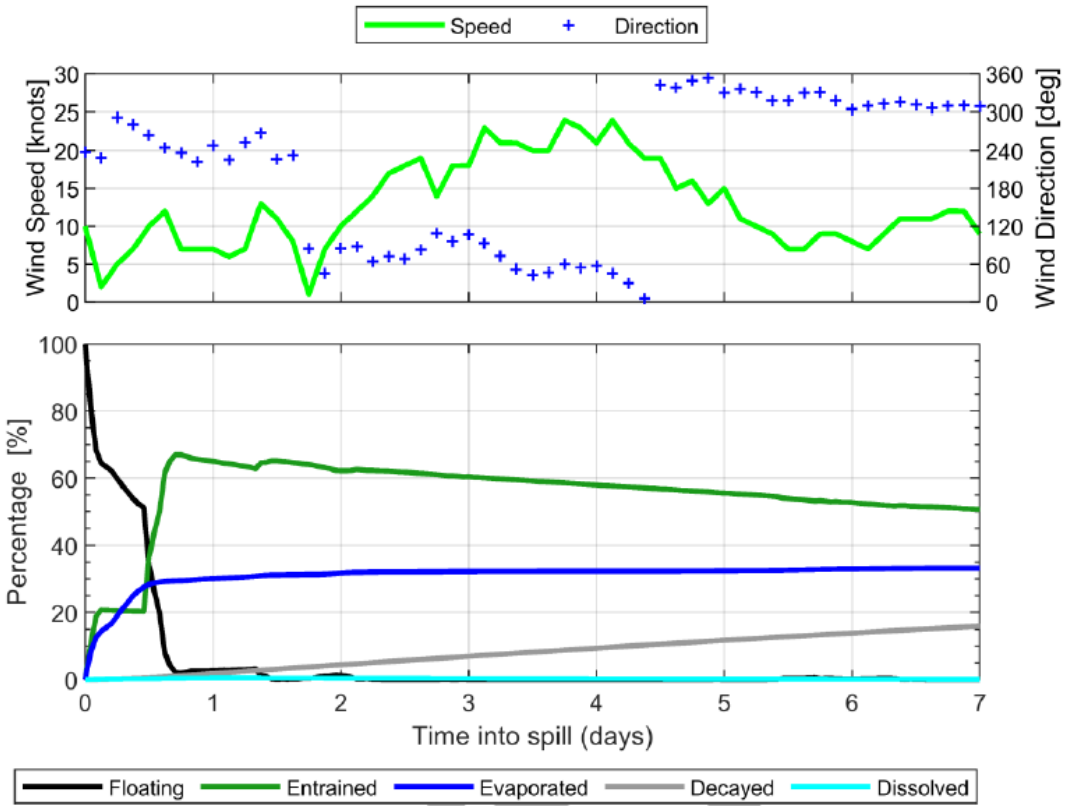


Figure 7-2: Mass balance plot for an instantaneous 50 m^3 surface release of marine diesel oil subjected to variable wind speeds (1 to 12 m/s or 2 to 23 knots), currents and 27°C water temperature

7.6.5 Hydrocarbon exposure thresholds

To inform the environmental assessment, it is important to understand the profile of the concentrations of hydrocarbons after a spill. To do this, NOPSEMA recommends identifying hydrocarbon exposure values that broadly reflect the range of consequences that could occur at certain concentrations (NOPSEMA, 2019). The exposure values that have been applied to this GEP Coastal Waters OEMP are provided in Table 7-9.

To identify appropriate exposure values, Santos has followed the advice provided by NOPSEMA in Bulletin #1 Oil Spill Modelling (2019) and scientific literature. The selected hydrocarbon exposure values are discussed in Table 7-10 to Table 7-13. These tables explain how the exposure value is relevant to the risk evaluation and provides context on how that exposure value is used to inform response planning (which is addressed further in the GEP NT waters OPEP).

Table 7-9: Hydrocarbon exposure values for the environment that may be affected

Hydrocarbon phase	Exposure value		
	Low	Moderate	High
Floating (g/m^2)	1	10	50
Shoreline accumulation (g/m^2)	10	100	1,000
Dissolved aromatics (ppb)	10	50	400
Entrained (ppb)	10	-	100

The low exposure values contours (Figure 7-3), which approximate a range of potential socioeconomic effects, are used as a predictive tool to set the outer boundaries of the EMBA, presented in Section 3. A ‘best fit’ line is drawn around the outermost limits of the low exposure value contours for all three phases of hydrocarbons (floating, dissolved and entrained) in all seasons. This results in a highly conservative and comprehensive basis to plan and prepare for spill response.

These low exposure values are not considered to be representative of a biological impact, but they are adequate for identifying the full range of environmental receptors that might be contacted by surface and sub-surface floating hydrocarbons (NOPSEMA, 2019) and a visible sheen may be apparent.

Determining exposure values that may be representative of biological impact is complex, since the degree of impact will depend on the sensitivity of the receptors contacted, the duration of the exposure, and the toxicity of the hydrocarbon type making the contact. The toxicity of a hydrocarbon will also change over time, due to weathering processes altering the composition of the hydrocarbon.

To inform the environmental assessment, exposure values that may be representative of biological impact have also been identified. These are called ‘moderate exposure values’ (defined by the moderate exposure value area, or MEVA) and ‘high exposure values’ (defined by the high exposure value area, or HEVA), and are shown in Figure 7-3. Moderate and high exposure values are modelled for each fate of hydrocarbon to identify what contact is predicted for surface (floating hydrocarbon), subsurface (entrained hydrocarbon and dissolved aromatic hydrocarbons) and shoreline accumulation of hydrocarbon at sensitivities.

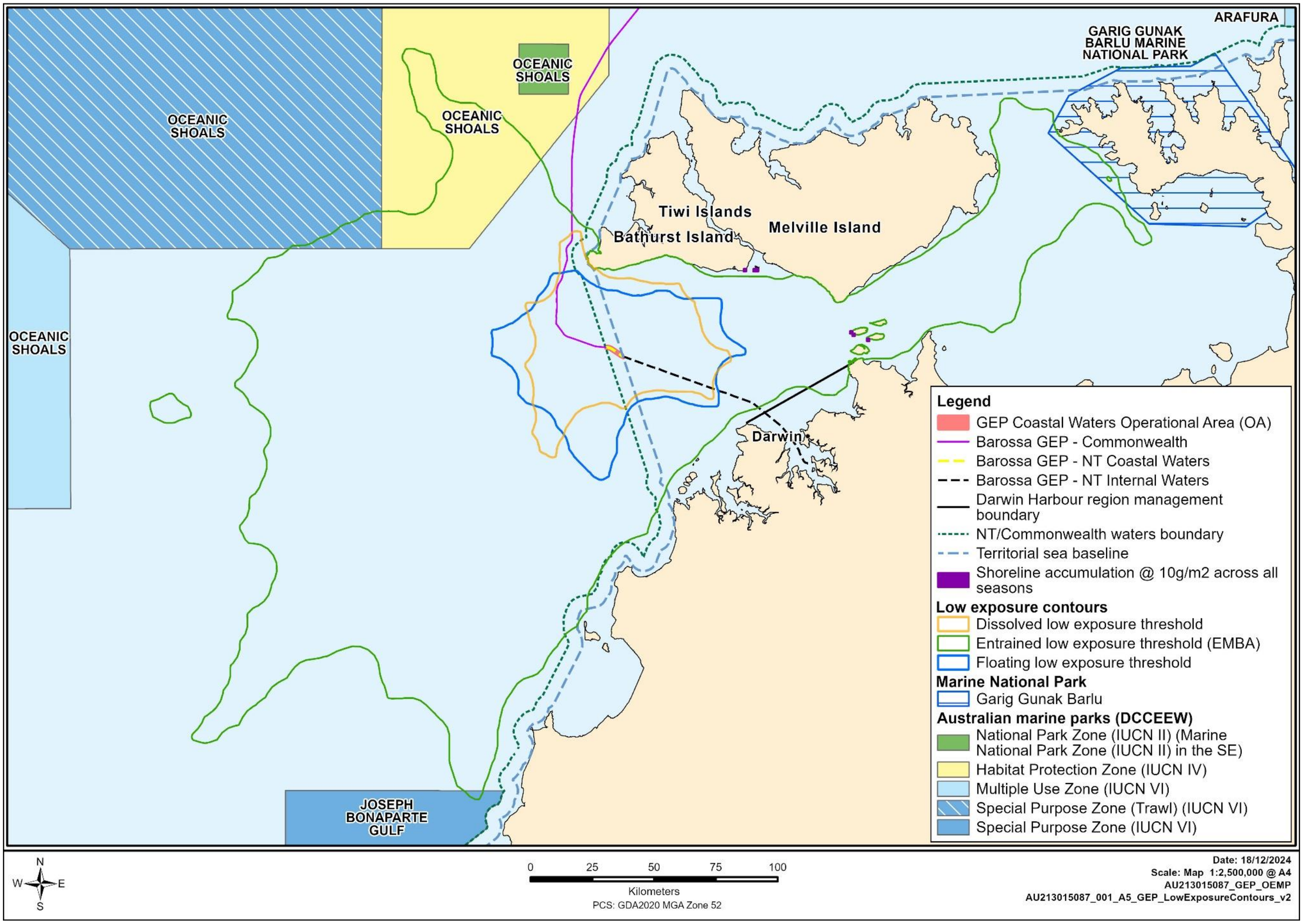


Figure 7-3: Low exposure value contours used to define the EMBA and shoreline accumulation

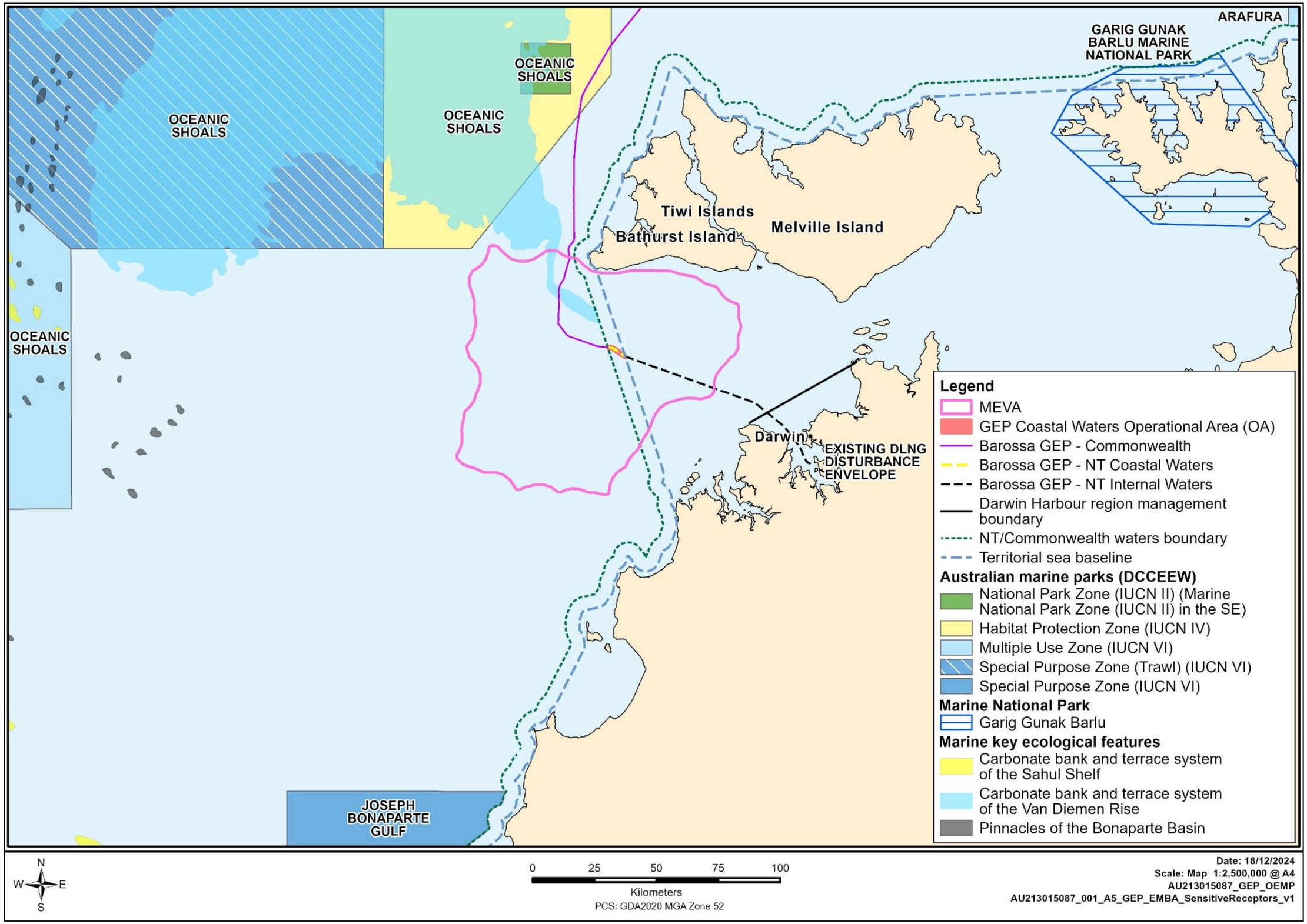


Figure 7-4: Sensitive receptors within the MEVA

Table 7-10: Floating hydrocarbons exposure values

Surface hydrocarbons concentration (g/m^2)	Exposure value	Description
1	**Low**	**Risk evaluation** It is recognised a lower floating hydrocarbon concentration of 1 g/m^2 (equivalent to a thickness of 0.001 mm or 1 ml of hydrocarbon per m^2) is visible as a rainbow sheen on the sea surface. Although this is lower than the exposure value for ecological impacts, it may be relevant to socioeconomic receptors and has been used as the exposure value to define the spatial extent of the low exposure and EMBA from floating hydrocarbon. **Response planning** Contact at 1 g/m^2 (as predicted by hydrocarbon spill trajectory modelling) is used for operational and scientific monitoring planning, as described in the Northern Australia Operational and Scientific Monitoring Bridging Implementation Plan.
10	**Moderate**	**Risk evaluation** There is a paucity of data about floating hydrocarbon concentrations with respect to impacts to marine organisms. Hydrocarbon concentrations for registering biological impacts resulting from contact of surface slicks have been estimated by different researchers at about 10 to 25 g/m^2 (French et al., 1999; Koops et al., 2004; NOAA, 2002). The impact of floating hydrocarbon on birds is better understood than on other receptors. A conservative exposure value of 10 g/m^2 has been applied to impacts from floating hydrocarbons (floating hydrocarbon) in this GEP Coastal Waters OEMP. Although based on birds, this hydrocarbon exposure value is also considered appropriate for turtles, seasnakes and marine mammals (Natural Resource Damage Assessment Model for Coastal and Marine Environments, 1997). This value has been used to define the MEVA. **Response planning** Contact at 10 g/m^2 is not specifically used for spill response planning.
50	**High**	**Risk evaluation** At greater thicknesses, the potential for impact of floating hydrocarbon to wildlife increases. All other things being equal, contact to wildlife by floating hydrocarbon at 50 g/m^2 is expected to result in a greater impact. This value has been used to define the HEVA. **Response planning** Containment and recovery effectiveness drops significantly with reduced hydrocarbon thickness (McKinney et al., 2017; NOAA, 2014). McKinney et al. (2017) tested the effectiveness of various hydrocarbon skimmers at various hydrocarbon thicknesses. Their results showed the hydrocarbon recovery rate of skimmers dropped significantly when hydrocarbon thickness was less than 50 g/m^2 (less than Bonn Agreement Code 4). Hence, 50 g/m^2 has been set as a guide for planning effective containment and recovery operations. Similarly, floating hydrocarbon greater than 50 g/m^2 (Bonn Agreement Code 4/5 and equivalent to hydrocarbon observed as discontinuous or continuous true colour) is considered to be a lower limit for effective dispersant operations and is therefore considered for planning.

Table 7-11: Shoreline hydrocarbon accumulation exposure values

Shoreline Accumulation (g/m^2)	Exposure Value	Description
10	**Low**	**Risk evaluation** An accumulated concentration of hydrocarbon above 10 g/m^2 on shorelines is considered to represent a level of socioeconomic effect (NOPSEMA, 2019). For example, reduction in visual amenity of shorelines. This value has been used in previous studies to represent a low contact value for interpreting shoreline accumulation modelling results (French-McCay, 2005a, 2005b) and is used to define the low exposure and EMBA. **Response planning** Not specifically used for response planning because it is below the limit that can be effectively cleaned.

Shoreline Accumulation (g/m^2)	Exposure Value	Description
100	**Moderate**	**Risk evaluation** The impact exposure value for exposure to hydrocarbons stranded on shorelines is derived from levels likely to cause adverse impacts to marine or coastal fauna and habitats. These habitats and marine fauna known to use shorelines are most at risk of exposure to shoreline accumulations of hydrocarbon, due to smothering of intertidal habitats (such as mangroves and emergent coral reefs) and coating of marine fauna. Environmental risk assessment studies (French-McCay, 2009) report a hydrocarbon thickness of 0.1 mm (100 g/m^2) on shorelines is assumed as the lethal exposure value for invertebrates on hard substrates (rocky, artificial or human-made) and sediments (mud, silt, sand or gravel) in intertidal habitats. Therefore, a conservative exposure value for impacts of 100 g/m^2 has been applied to impacts from shoreline accumulation of hydrocarbons. This value has been used to define the MEVA. **Response planning** A shoreline concentration of 100 g/m^2, or above, is likely to be representative of the minimum limit the hydrocarbon can be effectively cleaned (AMSA, 2015; NOPSEMA, 2019) and is therefore used as a guide for shoreline clean-up planning. This exposure value equates to approximately half a cup of hydrocarbon per square metre of shoreline contacted.
1000	**High**	**Risk evaluation** At greater thicknesses, the potential for impact of accumulated hydrocarbon to shoreline receptors increases. All other things being equal, accumulation of hydrocarbon above 1,000 g/m^2 is expected to result in a greater impact. This value has been used to define the HEVA. **Response planning** As hydrocarbons increase in thickness the effectiveness of hydrocarbon recovery techniques increases. This value can therefore be used to prioritise hydrocarbon recovery efforts, assuming hydrocarbon recovery is deemed to have an environmental benefit.

Table 7-12: Dissolved aromatic hydrocarbon exposure values

Dissolved hydrocarbons (ppb)	Exposure value	Description
10	**Low**	**Risk evaluation** Dissolved aromatic hydrocarbons (DAH) include the monoaromatic hydrocarbons (compounds with a single benzene ring, such as benzene, toluene, ethylbenzene and xylene [BTEX]) and polycyclic aromatic hydrocarbons (PAHs) (compounds with multiple benzene rings, such as naphthalenes and phenanthrenes). These compounds have a greater bioavailability than hydrocarbons and are the main contributors to hydrocarbon toxicity. The toxicity of DAHs is a function of the concentration and duration of exposure by sensitive receptors, with greater concentration and exposure time causing more severe impacts. Typically tests of toxicity done under laboratory conditions measure toxicity as A proportion of test organisms affected (such as 50% mortality or LC50) at the end of a set time, often 48 or 96 hours. French-McCay (2002) found LC50 for dissolved PAHs with a 96-hour exposure range between 30 ppb for sensitive species (2.5th-percentile species) and 2260 ppb for insensitive species (97.5th-percentile species), with an average of about 250 ppb. The range of LC50s for PAHs obtained under turbulent conditions (this includes fine hydrocarbon droplets) was 6 ppb to 410 ppb, with an average of 50 ppb (French-McCay, 2002). More recently, French-McKay (2018) described in-water thresholds as 10 to 100 µg/L (equivalent to ppb). For the effect of ultraviolet on PAH toxicity, French-McKay et al. (2018) use the findings of the Deepwater Horizon Oil Spill to adjust for this by reducing the water column exposure thresholds by ten times in the top 20 m of the water column. The dissolved hydrocarbon 10 ppb exposure value has been used to inform the low exposure and EMBA. An exposure value of 10 ppb is appropriate as it is a concentration that could have some potential negative effect. **Response planning** Can assist in establishing planning area for scientific monitoring based on potential for exceedance of water quality triggers (NOPSEMA, 2019).

Dissolved hydrocarbons (ppb)	Exposure value	Description
50	**Moderate**	**Risk evaluation** Approximates potential toxic effects, particularly sublethal effects to sensitive species (see the above text). Consistent with NOPSEMA (2019). This value has been used to define the MEVA. Ecotoxicology tests on a broad range of representative taxa of ecological relevance for mainly tropical Australia were conducted to inform the assessment of the potential for toxicity impacts from unweathered (as in, fresh) and weathered Barossa condensate to sensitive marine biota. The ecotoxicity testing focused on the DAH concentration of the water-accommodated fraction, as these hydrocarbons are more biologically available to organisms through absorption into their tissues when compared with entrained hydrocarbons (Jacobs, 2016b). Based on the ecotoxicology tests, the dissolved aromatic exposure values applied in this GEP Coastal Waters OEMP are considered highly conservative for the Barossa condensate. Specifically, the moderate exposure values of 50 ppb for 95% species protection for DAH is approximately 23 times more conservative than that for the Barossa condensate (1146 ppb for the 95% species protection threshold). **Response planning** Encompassed by response to 10 ppb. There is nothing different for higher exposure values.
400	**High**	**Risk evaluation** Approximates toxic effects, including lethal effects to sensitive species (NOPSEMA, 2019). This value has been used to define the HEVA. **Response planning** Encompassed by response to 10 ppb. There is nothing different for higher exposure values.

Table 7-13: Entrained hydrocarbon exposure values

Entrained hydrocarbons (ppb)	Exposure value	Description
10	**Low**	**Risk evaluation** Entrained hydrocarbons, as opposed to DAHs, are hydrocarbon droplets suspended in the water column and insoluble. Entrained hydrocarbons are not as bioavailable to marine organisms compared with DAHs and on that basis are considered to be less toxic, especially over shorter exposure timeframes. Entrained hydrocarbons still have potential effects on marine organisms through direct contact with exposed tissues and ingestion (National Research Council, 2005). However, the level of exposure causing effects is considerably higher than for DAHs. Much of the published scientific literature does not provide sufficient information to determine if toxicity is caused by entrained hydrocarbons, but rather the toxicity of total hydrocarbons which includes both dissolved and entrained components. Variations in the methodology of the total water-accommodated fraction (entrained and dissolved) may account for much of the observed wide variation in reported exposure values, which also depend on the test organism types, duration of exposure, hydrocarbon type and the initial hydrocarbon concentration. Total hydrocarbon toxicity acute effects of total hydrocarbon as LC50 for molluscs range from 500 to 2000 ppb (Clark et al., 2001; Long & Holdway, 2002). A wider range of LC50 values have been reported for species of crustacea and fish from 100 to 258,000,000 ppb (Gulec et al., 1997; Gulec & Holdway, 2000; Clark et al., 2001) and 45 to 465,000,000 ppb (Gulec & Holdway, 2000; Barron et al., 2004), respectively. The 10 ppb exposure value has been used to inform the EMBA and represents the very lowest concentration and corresponds generally with the lowest trigger levels for chronic exposure for entrained hydrocarbons in the ANZECC & ARMCANZ (2000) water quality guidelines. This is consistent with NOPSEMA (2019) guidance. **Response planning** Can assist in establishing planning area for scientific monitoring based on potential for exceedance of water quality triggers (NOPSEMA, 2019).
100	**Moderate**	**Risk evaluation**

Entrained hydrocarbons (ppb)	Exposure value	Description
		The 100 ppb exposure value is considered to be more representative of sub-lethal impacts to most species and lethal impacts to sensitive species, based on toxicity testing as described above. This is considered conservative, as toxicity to marine organisms from hydrocarbon is likely to be driven by the more bioavailable dissolved aromatic fraction, which is typically not differentiated from entrained hydrocarbon in toxicity tests using water-accommodated fractions. Given entrained hydrocarbon is expected to have lower toxicity than dissolved aromatics, especially over time periods where these soluble fractions have dissolved from entrained hydrocarbon, the higher moderate exposure value for entrained hydrocarbon over DAH (100 versus 50 ppb) is considered appropriate. This value has been used to define the MEVA. Note NOPSEMA does not define a moderate exposure value for entrained hydrocarbon and 100 ppb is defined as the high exposure value. However, Santos has adopted 100 ppb as the moderate exposure level for impact assessment purposes in the absence of a NOPSEMA-defined moderate value and based on existing literature (Bridges et al., 2018; French-McCay, 2016; French-McCay, 2018). **Response planning** Encompassed by response to 10 ppb. There is nothing different for higher exposure values.

7.6.6 Spill risk assessment approach

A consistent risk assessment approach is applied to each unplanned hydrocarbon release scenario. The approach for hydrocarbon spills involves several steps outlined below:

1. Identify the spatial extent of the EMBA. The EMBA is used to describe the existing environment and the values and sensitivities within it (Section 3)
2. Identify the MEVA where there is the potential for impact to biological receptors at moderate exposure levels or above
3. Identify areas of high environmental value (HEV) within the MEVA
4. Identify areas of HEV within the EMBA (HEVs are described in Section 7.6.6.2)
5. Identify hotspots and evaluate the impacts and risks to them (as described in Section 4). Hot spots are a subset of HEVs and their determination is described in Section 7.6.6.3.
6. Identify priorities for response (for consideration in the GEP NT waters OPEP) and monitoring (for consideration in the Northern Australia Operational and Scientific Monitoring Bridging Implementation Plan).

7.6.6.1 Spill environment that may be affected

For activities where there is the potential for multiple spill scenarios, the spill scenario, or combination of spill scenarios (e.g., vessel collision), resulting in the greatest spatial extent for potential contact with hydrocarbons is used to define the overall EMBA for the Activity. In this case, the vessel collision spill has a far greater EMBA than the refuelling scenario. The MEVA is also defined as the area within the EMBA with greater concentrations of hydrocarbons which may result in impacts to receptors (Section 7.6.3).

7.6.6.2 Areas of high environmental value

Within the EMBA areas that are considered to have high environmental value (HEV), include the following:

- protected area status – used as an indicator of the biodiversity values contained within that area, where a World Heritage Property, Ramsar wetland and Marine Protected Area will score higher than areas with no protection assigned
- BIAs and HC of listed Threatened species – spatially defined areas where aggregations of individuals of a species are known to display biologically important behaviour, such as breeding, feeding, resting or migration. Each one of these within the predefined areas contributes to the score.
- sensitivity of habitats to impact from hydrocarbons in accordance with the guidance document Sensitivity Mapping for Oil Spill Response produced by International Petroleum Industry Environmental Conservation Association (IPIECA) (2022), the IMO and International Association of Oil and Gas Producers (IOGP)
- sensitivities of receptors with respect to hydrocarbon-impact pathways

- status of zones within protected areas (as in, IUCN [1a] and sanctuary zones compared to IUCN [VI] and multiple use zones)
- listed species status and predominant habitat (surface versus subsurface)
- social values; as in, socioeconomic and heritage features like commercial fishing, recreational fishing, defence and military exercises, tourism, amenities, aquaculture and cultural features.

Tallied scores for each predefined area are then ranked from 1 to 5, with an assignment of 1 representing areas of the highest ecological value and those with 5 representing the areas of the lowest ecological value.

7.6.6.3 Hot spots

While the modelled EMBA will be considered during risk assessment and spill response planning, it is best practice to concentrate greatest effort and level of detail on those parts of the EMBA that have:

- the greatest intrinsic ecological value – as in, HEVs ranked 1 to 3
- the highest probability of contact by hydrocarbons (either floating or entrained)
- the greatest potential concentration or volume of hydrocarbon accumulating at the receptor.

These areas are termed ‘Hot Spots’. Defining Hot Spots is typically the first step in undertaking detailed spill risk assessment and spill response planning. Hot Spots are a subset of HEVA areas that:

- Have the highest probability of contact (at least higher than 5%) above the impact assessment exposure value for surface hydrocarbons and shoreline accumulation based on modelling results
- Receive the greatest concentration or volume of oil, either floating or stranded oil, entrained oil or dissolved aromatic hydrocarbons above contact exposure values described in Section 7.6.5
- Additional areas may be selected as Hotspots for detailed risk assessment, for example if stakeholder consultation has identified areas of particular concern that are not already included in the risk assessment. Additional discretionary hotspots may also be included where they do not strictly meet all of the criteria of a hotspot e.g. a HEV ranked 1-3 with <5% probability, or a HEV ranked 4 or 5 with >5% probability, depending on the concentrations and volumes of hydrocarbons presented in the modelling report. When a discretionary hotspot is added it will be identified as ‘discretionary’ and the rationale for its inclusion as a hotspot will be described.

Two ‘Hot Spots’ have been identified under the spill scenarios in this GEP Coastal Waters OEMP (refer to Section 7.6.10.1).

7.6.7 Potential hydrocarbon impact pathways and nature and scale of impact

To help inform the hydrocarbon spill risk assessment, receptors within the EMBA and potential impact pathways have been defined (Table 7-14). The potential impact pathways consider physical and chemical pathways. Physical pathways include contact from floating hydrocarbon, accumulated shoreline hydrocarbon, or entrained hydrocarbon droplets. Chemical pathways include ingestion, inhalation or contact from any hydrocarbon phase. These are summarised in Table 7-14 and the information is drawn upon within the hydrocarbon risk assessment for the spill scenario.

Table 7-15 further describes the nature and scale of the hydrocarbon spills for this Activity on marine fauna and socioeconomic receptors found within the MEVA.

Table 7-14: Physical and chemical pathways for hydrocarbon exposure and potential impacts to receptors

Receptor	Physical pathway	Potential impacts	Chemical pathway	Potential impacts
Rocky shorelines	• Shoreline loading and attachment may result in thin and sporadic coating of hydrocarbon residues. Degree of hydrocarbon coating is dependent upon the energy of the shoreline area, the type of rock formation and continual biodegradation of the hydrocarbon • Lighter hydrocarbons, such as MDO are less likely to smother the rocks.	Impacts to flora (mangroves) and fauna further described below.	Chemical pathway to fauna and flora via adsorption through cellular membranes and soft tissue, ingestion, irritation or burning on contact and inhalation.	Impacts to flora (mangroves) and fauna further described below.
Sandy beaches	Shoreline loading and water movement may allow hydrocarbon residue to filter down into sediments, continue to biodegrade on the surface or remobilise into surf zone. Degree of loading is dependent upon the energy and tidal reach of the shoreline, the type of the sandy shore and continual weathering of the hydrocarbon.	• Direct impacts on birds and turtles from becoming exposed to the hydrocarbons at the beach (e.g. loss of food source, coating, inhalation, ingestion). • Direct impacts to infauna from exposure to hydrocarbons.	Chemical pathway to fauna and flora via adsorption through cellular membranes and soft tissue, ingestion, irritation or burning on contact and inhalation.	Indirect impacts to nesting and foraging habitats for birds and turtles. Direct impacts (mortality) to infauna through toxic effects and smothering.
Intertidal platforms	Shoreline loading and water movement may allow hydrocarbon residue to filter down into sediments (such as within wetlands) or continue to biodegrade on the surface or remobilise into surf zone. Degree of loading is dependent upon the energy and tidal reach of the shoreline, the type of the substrate and continual weathering of the hydrocarbon.	• Direct impacts on birds and turtles from becoming exposed to the hydrocarbons (e.g. loss of food source, coating, inhalation, ingestion) • Direct impacts to infauna from exposure to hydrocarbons • Impacts to shoreline habitats contacted within the MEVA are likely to be more prolonged from an HFO release due to its persistent nature.	Chemical pathway to fauna and flora via adsorption through cellular membranes and soft tissue, ingestion, irritation or burning on contact and inhalation.	Indirect impacts to foraging habitats for birds. Direct impacts (mortality) to infauna through toxic effects and smothering.

Receptor	Physical pathway	Potential impacts	Chemical pathway	Potential impacts
		• Light hydrocarbons such as MDO reaching intertidal platforms are likely to be heavily weathered, reducing the toxic effects.		
Shallow sub-tidal soft sediments	Hydrocarbon residue in the shallow waters adjacent to shorelines may settle to filter down into sediments. Degree of loading is dependent upon the energy and tidal reach of the shoreline, the type of the substrate and continual weathering of the hydrocarbon.	• Direct impacts on birds and turtles from becoming exposed to the hydrocarbons (e.g. loss of food source, coating, inhalation, ingestion) • Direct impacts to infauna from exposure to hydrocarbons.	Adsorption via cellular membranes and soft tissue, ingestion, irritation or burning on contact and inhalation.	Indirect impacts to foraging habitats for turtles and fish. Direct impacts (mortality) to infauna through toxic effects and smothering.
Mangroves	Coating of root system and pneumatophores, reducing air and salt exchange. Degree of coating is dependent upon the energy and tidal reach of the shoreline, the type of the substrate and continual weathering of the hydrocarbon.	• Yellowing of leaves • Defoliation • Increased sensitivity to stressors • Tree death • Reduced growth • Reduced reproductive output • Reduced seed viability.	External contact by hydrocarbon and adsorption across cellular membranes.	• Yellowing of leaves • Defoliation • Increased sensitivity to stressors • Tree death • Reduced growth • Reduced reproductive output • Reduced seed viability • Growth abnormalities.
Seagrasses and macroalgae	• Most seagrasses in the EMBA are sub-tidal, although there may be small areas of intertidal seagrasses. Sub-tidal seagrasses are unlikely to be exposed to floating hydrocarbons, but may be contacted by entrained or dissolved fractions, which can be absorbed into tissues. The potential for toxic effects of entrained hydrocarbons may be reduced by weathering processes that should lower	• Bleaching or blackening of leaves • Defoliation • Reduced growth • Fouling.	External contact by hydrocarbon and adsorption across cellular membranes.	• Mortality • Bleaching or blackening of leaves • Defoliation • Disease • Reduced growth • Reduced reproductive output • Reduced seed and propagule viability.

Receptor	Physical pathway	Potential impacts	Chemical pathway	Potential impacts
	the content of soluble aromatic components before contact occurs. Long-term impacts to seagrass are unlikely unless hydrocarbons are retained within the seagrass meadow for a sustained duration (Wilson and Ralph 2011). • If contacted by floating hydrocarbons, intertidal seagrasses are vulnerable to smothering, which can lead to mortality if it coats their flowers, leaves and stems (Taylor & Rasheed 2011).			
Hard and soft corals (coral reefs)	Coating of polyps, shading resulting in reduction on light availability. Degree of coating is dependent upon the metocean conditions, dilution, if corals are emergent at all and continual weathering of the hydrocarbon.	• Bleaching • Increased mucous production • Reduced growth.	External contact by hydrocarbon and adsorption across cellular membranes.	• Mortality • Cell damage • Reduced metabolic capacity • Reduced immune response • Disease • Reduced growth • Reduced reproductive output • Reduced egg and larval success • Growth abnormalities. (Loya & Rinkevich, 1980; White et al. 2012; Fisher et al. 2014).
Non-coral benthic invertebrates	• Coating of adults, eggs and larvae • Degree of coating is dependent upon the energy and tidal reach of the shoreline, the type of the receptor and continual	• Mortality • Behavioural disruption • Impaired growth.	• Ingestion and inhalation • External contact and adsorption across exposed skin and cellular membranes • Uptake of DAH across cellular membranes.	• Mortality • Increases in bacterial abundance leading to opportunistic community structure • Decrease in species richness, abundance and diversity

Receptor	Physical pathway	Potential impacts	Chemical pathway	Potential impacts
	weathering of the hydrocarbon.		• Reduced mobility and capacity for oxygen exchange.	• Reduced growth • Impaired growth • Growth abnormalities • Behavioural disruption. (Schwing et al. 2020; Montagna et al. 2013; Baguley et al. 2015).
Sharks, rays and other fish	Coating of adults but primarily eggs and larvae – reduced mobility and capacity for oxygen exchange.	• Mortality • Oxygen debt • Starvation • Dehydration • Increased predation • Behavioural disruption.	• Ingestion • External contact and adsorption across exposed skin and cellular membranes • Uptake of DAH across cellular membranes (for example, gills) • Due to the filter-feeding nature of whale sharks, they may be susceptible to ingesting floating and entrained hydrocarbons, particularly if foraging at or near the sea surface.	• Mortality • Decrease in biomass • Cell damage • Starvation • Increased predation • Delayed growth • Reduced reproductive output • Reduced egg and larval success • Growth abnormalities • Behavioural disruption • Reduced immune response • Change in community structure • Decrease in species richness, abundance and diversity. (Lewis et al. 2020; Ainsworth et al. 2018; Fisher, 2016).
Birds (seabirds and shorebirds)	Physical coating occurs upon contact of contaminated shorelines and/or exposure to floating oil during foraging at sea or resting at the sea surface.	Feather and skin irritation and damage, with the potential to cause secondary impacts such as: • physical restriction of flight and swimming movement • reduced buoyancy • more vulnerable to predation	Ingestion (during feeding or preening). External contact and adsorption across exposed skin and membranes.	• Reduced metabolic capacity • Reduced immune response • Reduced growth • Reduced hatchling success • Reduced reproductive output • Growth abnormalities • Behavioural disruption • Mortality

Receptor	Physical pathway	Potential impacts	Chemical pathway	Potential impacts
		• potential for secondary infections • mortality • hypothermia or impairing of the waterproofing of feathers • disruption to feeding or starvation • disruption to breeding • disruption to migration.		• Potential for secondary infections. (Deepwater Horizon Oil Spill Natural Resource Trustee Council, 2016; Unlu et al. 2018).
Marine reptiles	Physical coating occurs upon contact of contaminated shorelines and/or exposure to floating oil when at the sea surface. Eggs may also become contaminated during laying, either from the laying female or the contaminated sand.	Irritation of eyes and mouth and potential illness, which may cause secondary impacts such as: • mortality • disruption to feeding or starvation • physical restriction • behavioural disruption.	• Inhalation • Ingestion • External contact and adsorption across exposed skin and membranes • Contamination of eggs • Exposure of turtle habitats.	• Reduced metabolic capacity • Reduced immune response • Reduced growth • Reduced hatchling success • Reduced reproductive output • Growth abnormalities • Behavioural disruption • Mortality • Potential for secondary infections. (Deepwater Horizon Oil Spill Natural Resource Trustee Council, 2016; Unlu et al. 2018).
Marine mammals	• Coating of feeding apparatus in some species (baleen whales) from exposure to floating hydrocarbons • Potential to coat the sensory hairs around the mouths of dugongs which can impact feeding.	Irritation of eyes and mouth, damage to fur and potential illness, which may cause secondary impacts such as: • mortality • disruption to feeding and starvation • physical restriction • behavioural disruption.	• Inhalation • Ingestion • External contact and adsorption across exposed skin and membranes.	• Mortality • Cell damage, lesions • Secondary infections • Reduced metabolic capacity • Reduced immune response • Disease • Reduced growth • Reduced reproductive output • Growth abnormalities • Behavioural disruption

Receptor	Physical pathway	Potential impacts	Chemical pathway	Potential impacts
				• Lung, respiratory and adrenal impairment. (Deepwater Horizon Oil Spill Natural Resource Trustee Council, 2016; Bejder & Gartner, 2016).
Plankton	• Coating of feeding apparatus • Reduced mobility and capacity for oxygen exchange.	• Mortality • Behavioural disruption (for example, reduced mobility).	• Inhalation • Ingestion • External contact.	• Mortality • Impairment of biological activities (for example, feeding, respiration) • Reduced mobility • Cell damage • Reduced growth • Reduced reproduction • Increased opportunistic species impacting community structure • Decrease in species density and richness • Decrease in total primary production. (Ozhan, 2014).
Water quality and sediment quality	• Presence of hydrocarbon residue in the water, which may filter down to sediments or continue to biodegrade on the surface • Degree of loading in the water column is dependent upon the influence of wave energy and tidal range.	Impacts to flora and fauna, as discussed in rows above.	• Adsorption via cellular membranes and soft tissue, ingestion, irritation or burning on contact and inhalation • Impacts to flora and fauna, as discussed in rows above.	Impacts to flora and fauna, with emphasis on the ecosystem impacts of: • trophic shifts • community structure shifts • reduced growth • impaired reproduction • adverse health effects. (Deepwater Horizon Oil Spill Natural Resource Trustee Council, 2016).

Receptor	Physical pathway	Potential impacts	Chemical pathway	Potential impacts
Protected areas	Coating of benthic habitats and marine fauna and flora within protected areas, as discussed in rows above.	• Mortality, injury or behavioural disruption to marine fauna • Death or impairment of habitats within protected areas • Reduction in the quality of the marine environment within protected areas • Environmental value of protected areas is degraded.	Impacts to flora and fauna, as discussed in rows above.	• Mortality, injury or behavioural disruption to marine fauna • Death or impairment of habitats within protected areas • Reduced growth of benthic habitats • Reduction in the quality of the marine environment within protected areas • Environmental value of protected areas is degraded.
Socioeconomic environment (commercial and recreational fisheries, tourism, shipping, defence)	• Presence of hydrocarbon residue in the water, which may filter down to sediments or continue to biodegrade on the surface • Presence of weathered hydrocarbon on the shoreline	• Degradation of UCH sites • Disruption to tourism, recreation, defence and military exercises or shipping activities • Displacement of commercial or recreational fishing • Reduction in natural resources.	Impacts to water quality, sediment quality, flora and fauna, as discussed in rows above.	• Mortality, injury or behavioural disruption to marine fauna relevant to commercial, and recreational fisheries or to tourism • Loss or degradation of habitats within protected areas • Reduced growth of benthic habitats • Reduction in the quality of the marine and shoreline environment within protected areas • Socio-economic value of protected areas is degraded.
Cultural features (native title, ILUAs, IPAs, sacred sites, marine parks, cultural fishing, hunting and gathering, marine fauna representing totemic species or species associated with dreaming and sea country)	• Presence of hydrocarbon residue in the water, which may filter down to sediments or continue to biodegrade on the surface • Presence of weathered hydrocarbon on the shoreline.	• Hydrocarbons may be present in areas with cultural features (e.g. ILUAs, IPAs, sacred sites, marine parks, cultural fishing, hunting and gathering and sea country) • Displacement of traditional uses of environment.	Impacts to water quality, sediment quality, flora and fauna, as discussed in rows above.	• Mortality, injury or behavioural disruption to marine fauna. In accordance with First Nations people cultural beliefs, if totemic species (e.g. turtles, fish, marine mammals and birds) are impacted by the Activity some believe this in turn can impact First Nations

Receptor	Physical pathway	Potential impacts	Chemical pathway	Potential impacts
		• Reduction in natural resources with cultural significance, refer above rows for potential impacts on fauna.		people and make them sick. The potential impacts to culturally significant marine fauna species (such as dreaming and totem species including marine mammals, marine reptiles, fish and birds) are assessed separately above. • Loss or degradation of habitats of cultural value • Reduction in the quality of the marine and shoreline environment, including environment with cultural significance • Cultural value of cultural features is degraded.

Table 7-15: Nature and scale of hydrocarbon spills on environment and socioeconomic receptors within the moderate exposure value area (MEVA)

Receptor	Impacts of hydrocarbon spills	
	Entrained and dissolved aromatic hydrocarbons in the water column	Floating hydrocarbons
Threatened/Migratory fauna		
Marine mammals	There is potential for sublethal or lethal impacts to marine mammals and impacts to reproduction and behaviour from an accidental release of hydrocarbons. A wide range of effects from hydrocarbons have been reported in cetaceans including poor body condition, calcium imbalance, inflammation, reproductive failure, lung and adrenal gland damage, altered hepatobiliary function, immune changes and increased susceptibility to infections, impaired stress response, and death (Godard-Codding and Collier, 2018).	Marine mammals are at risk of direct contact with floating hydrocarbons at the moderate threshold when surfacing within slick. Effects include irritation of eyes or mouth and potential illness. The direct physical coating of marine mammals with hydrocarbons is more likely to occur with more persistent hydrocarbons such as. Surface respiration could lead to accidental inhalation of hydrocarbons or result in the coating of sensitive epidermal surfaces. Accidental ingestion could also occur through the ingestion of hydrocarbon during feeding or the ingestion of contaminated prey. Inhalation of vapours or the ingestion of hydrocarbons can potentially have lethal effects due to damage to the whale's respiratory and nervous systems. However, cetaceans and dugongs are highly mobile, capable of long migrations, and typically in low numbers/densities in the MEVA. Experimental

		and field observations indicate that whales and dolphins may be able to detect and actively avoid floating hydrocarbon slicks, but this may not always be possible and exposure to floating oil may still occur (Smith *et al*. 1983, Geraci and St. Aubin 1990).
	Marine mammal and the potential of them occurring within the MEVA are presented in Section 3.2.13.1. Of these, one is listed as Endangered (pygmy blue whale) and two as Vulnerable (fin whale and sei whale). There are no BIAs for pygmy blue whales or sei whales identified within the EMBA and, if present, they are likely to be transient and in low numbers. Fin whales are unlikely to occur in the EMBA. A vessel collision releasing large volumes of MDO in the OA has potential to encompass a small portion of the breeding BIA for the Indo-Pacific humpback dolphin in the vicinity of Darwin Harbour. Impacts may include behavioural impacts (such as avoidance of impacted areas), sub-lethal biological effects and, in rare circumstances, mortality. Dugongs are known to occur in coastal waters, including those of the Tiwi Island such as the seagrass sites on the north-west of Melville Island, and around Indonesian offshore islands, particularly in areas of seagrass. Direct impacts to dugongs could occur through foraging or ingesting seagrass coated with hydrocarbon or through direct exposure to hydrocarbons. Dugongs could also be indirectly affected if hydrocarbons cause the dieback of seagrass, reducing feeding areas.	
Marine reptiles	There is potential for sublethal or lethal impacts to marine reptiles from an accidental release of hydrocarbons. Exposure can alter biochemical and haematological parameters, weight, skin function, metabolism, immune responses, diving patterns, and respiration (Ruberg et al., 2021). Marine turtles are susceptible to the effects of hydrocarbon spills during all life stages and are not expected to exhibit avoidance behaviour if they encounter hydrocarbon spills.	Marine turtles are at risk of direct contact with floating hydrocarbons when surfacing within slick. Effects include irritation of eyes or mouth and potential illness as adults can suffer mucus membrane inflammation, increasing susceptibility to infection (ITOPF, 2011). Surface respiration could lead to accidental ingestion of hydrocarbons or result in the coating of sensitive epidermal surfaces. Breathing and inhalation of toxic vapours may occur from exposure to hydrocarbons in surface waters. Physical coating of marine turtles also occurs upon contact of contaminated shorelines. Eggs may also become contaminated during laying, either from the laying female or the contaminated sand.

<table>
<tr><td></td><td colspan="2">Marine reptiles and the potential of them occurring within the EMBA and MEVA are presented in Section 3.2.13. Seven species of threatened marine reptile were identified, including loggerhead, green, leatherback, hawksbill, flatback and olive ridley turtles. The migratory saltwater crocodile was also identified within the EMBA and MEVA.

Various BIAs and habitat critical to the survival of marine turtles in proximity to the Tiwi Islands are within the MEVA. This includes BIAs seven species of turtles.

A vessel releasing MDO in the OA may lead to a greater probability of impact to flatback and olive ridley turtles, given the proximity to the Tiwi Islands. Potential impacts offshore would be greatest during the internesting season: between June and September for flatback turtles and April to August for olive ridley turtles. Population level impacts are considered unlikely as the hydrocarbons are not predicted to contact the entire BIAs or areas of habitat critical to the survival of these species.

Hydrocarbons may accumulate on shorelines, including Tiwi Islands and Indonesian Islands where turtle nesting beaches are present. Marine turtles rely on nesting beaches seasonally to reproduce, which makes them vulnerable to impacts from hydrocarbon accumulated on shorelines, through oiling of nesting females and emergent hatchlings (Lauritsen et al., 2017). Potential impacts would be greatest during the peak nesting periods. A worst-case release of MDO as a result of vessel collision in the OA may result in small quantities of MDO accumulating on the Tiwi Islands (<1 m^3). Any accumulated hydrocarbons interacting with the nesting beaches is likely to represent the persistent fraction in the form of viscous liquid and as tar balls as the hydrocarbon weathers. As the hydrocarbon weathers, the potential impact of egg viability is reduced. Fresh hydrocarbons may have a significant impact on success rate (Milton et al., 2002). Adult and juvenile turtles during nesting seasons may become coated in the hydrocarbon as they move to and from shore and may also ingest hydrocarbons as they pass through the affected area. While turtle eggs are unlikely to be exposed to shoreline hydrocarbons, as most turtles nest well above the high tide level, they may be directly exposed through the transfer of hydrocarbons from the oiled female turtle (Shigenaka, 2003).

Seasnakes may be found throughout the MEVA, particularly at nearby shoals and banks.. While little is known about their sensitivity to hydrocarbons, impacts from direct contact with surface hydrocarbons are likely to be similar to those experienced by marine turtles; for example, potential skin damage and irritation of mucous membranes of the eyes, nose and throat. Saltwater crocodiles may be present in the inshore/coastal areas and could be contacted by hydrocarbons.</td></tr>
<tr><td rowspan="2">Birds (seabirds and migratory shorebirds)</td><td>There is potential for injury or mortality to seabirds and shorebirds and a change in their behaviour from an accidental release of hydrocarbons. Seabirds may encounter entrained hydrocarbons while diving and foraging. Seabirds and shorebirds encounter hydrocarbon contaminated materials when foraging at intertidal areas. Lethal or sub-lethal physical and toxic effects include those such as such as irritation of eyes or mouth and potential illness.</td><td>Seabirds are particularly vulnerable to floating hydrocarbons. As most fish survive beneath floating slicks, they will continue to attract foraging seabirds, which typically do not exhibit avoidance behaviour. Smothering can lead to reduced water-proofing of feathers and ingestion while preening. In addition, direct contact with hydrocarbons can erode feathers, causing chemical damage to the feather structure that subsequently affects ability to thermoregulate and maintain buoyancy on water.

Physical coating may also occur on contact of contaminated shorelines.</td></tr>
<tr><td colspan="2">Hydrocarbons from worst-case releases may accumulate on shorelines including the Tiwi islands. A worst-case release of MDO as a result of vessel collision in the OA may also result in smaller quantities of MDO accumulating on the Tiwi Islands (<1 m^3).

It is possible seabird populations can recover from large-scale spills. For example, species with long life spans and high survival rates contain a substantial number of non-breeders in the population that may buffer the loss of reproductive adults, while other species have a higher reproductive potential such that adult losses can be more rapidly replaced (Oates, 2016). Other long-term studies have indicated seabird populations affected by significant spills, such as the Prestige hydrocarbon spill in the North Atlantic, had not recovered to pre-spill levels eight to ten years after the spill occurred. However, it is acknowledged predicting population recovery times is difficult, as the effects of hydrocarbon pollution cannot always be differentiated from natural environmental variation and population dynamics (Oates, 2016).</td></tr>
</table>

Sharks, rays and fish	There is potential injury or mortality to sharks, rays and fish and a change in their behaviour from an accidental release of hydrocarbons. As fish dwell in the water column, impacts are most likely from exposure to entrained or dissolved hydrocarbons, through the pathways of ingestion or the coating of gill structures, resulting in reduced oxygen exchange and incidence of irritation and infection. Fish may also ingest hydrocarbon droplets or contaminated food, leading to reduced growth. There is potential for localised mortality of fish eggs and larva due to reduced water quality and toxicity. Based on the modelling results (Section 7.6.3), fish eggs and larva will be exposed to hydrocarbons in the top 25 m of the water column, with the highest concentrations in the upper 10 m of the water column and areas close to the spill source. Demersal fish are highly unlikely to be impacted by the hydrocarbon releases, as they generally inhabit waters near the seabed (hydrocarbons will be concentrated in the upper 25 m of the water column). Environmental monitoring of pelagic and demersal fishes immediately after the Montara oil spill indicated fish were exposed to hydrocarbons, although no adverse effects were detected (Gagnon & Rawson, 2011). Further sampling and testing over time indicated fish captured in proximity to the Montara wellhead were comparable to those collected from reference sites (Gagnon & Rawson, 2012).	While fish, sharks and rays do not generally break the sea surface, individuals may feed at the surface. Prolonged exposure to floating hydrocarbons by fish, shark and ray species is unlikely. Due to the filter-feeding nature of whale sharks, they may be susceptible to ingesting floating and entrained hydrocarbons, particularly if foraging at or near the sea surface.
	Seven threatened species of fish and sharks were identified by the PMST, including the white shark, whale shark, speartooth shark, freshwater sawfish, dwarf and green sawfish (NT-listed Vulnerable) and northern river shark. Site-attached fish associated with shallow shoals and banks in the MEVA may be exposed to hydrocarbons at harmful levels for longer durations. Whale sharks do not spend all their time in surface water; rather, routinely move between surface and to depths of greater than 30 m, and in offshore regions can spend most of their time near the seafloor, reducing the likelihood of impact, given the modelling (Section 7.6.3) predicts hydrocarbon concentrations are not expected to exceed depths greater than approximately 25 m.	
Plankton		

Plankton (including zooplankton, fish and coral larvae)	Direct exposure of plankton to hydrocarbons may result in lethal or sublethal impacts to plankton and impact mobility, feeding and respiration. Plankton could include the eggs and larvae of marine invertebrates and fish; therefore, entrained hydrocarbon could have secondary impacts on recruitment of invertebrate and fish species. Based on the modelling results (Section 7.6.3) plankton will be exposed to hydrocarbons in the top 25 m of the water column, with the highest concentrations in the upper 10 m of the water column and areas close to the spill source. Some studies have shown no obvious influence of hydrocarbon spills on plankton community structure (Varela et al., 2006), which could be a result of rapid replacement of stocks from adjacent areas due to water circulation (Batten et al., 1998). Other studies, however, have found the concentrations of phytoplankton reduced in the short term, and in the medium term, as outbreaks of algal blooms occurring where the Chlorophyll-a concentration increased (Lee et al., 2009; Sheng et al., 2011), particularly under warmer weather conditions (Tang et al., 2019) and in low energy environments such as coastal coves (Zhou et al., 2014). Once water quality returns to background levels, it is anticipated plankton communities can return to normal densities and community structures due to their ability to produce large numbers of eggs and juveniles, their wide distribution, and rapid water exchange.	Plankton utilising the sea surface layer could be impacted by floating hydrocarbon.
	The MEVA has the potential to overlap with spawning areas of fish species; however, the extent of impacts to plankton contact will depend on the spawning times for species. Some impacted spawn may be of commercial interest (refer socioeconomic receptors below). The typical mass over-production of eggs and larvae that occurs in the lifecycle of most fish species provides a buffer for recruitment, which further reduces the likelihood that a spill would have a significant detectable impact on adult fish populations (ITOPF, 2014).	
Benthic communities		
Benthic communities	Shallow banks and shoals within the top 20 m of the water column occur within the MEVA. Modelling results (Section 7.6.3) show entrained or dissolved hydrocarbons may contact Shepparton Shoal, Harries bank, and Van Cloon-Deep shoals. Banks and shoals support a diverse and varied range of benthic communities, reef-building soft corals, hard corals and filter-feeders. Surveys of Tassie, Evans and Blackwood shoals and Lynedoch Bank, which are adjacent to the EMBA, recorded coral and algae species, filter-feeder communities, sponges, demersal fish and pelagic fish (Heyward et al., 2012, 1997b). It is expected other shoals in the EMBA – such as Margaret Harris Bank and Van Cloon-Deep shoals – would be characterised by similar communities. Benthic communities on the banks and shoals are vulnerable to hydrocarbons. The loss of habitat-forming benthic biota may impact an entire bank or shoal ecosystem, affecting species of fish communities and other marine invertebrates. Filter feeders are particularly susceptible as they are likely to directly ingest hydrocarbons while feeding over the area. This may cause mortality or sublethal impacts such as alteration in respiration rates, decreases in filter-feeding activity and reduced growth rates.	

Shoreline habitats	
Shoreline habitats	Rocky and sandy shorelines occur within the MEVA throughout the coastlines of the NT. Based on the modelling (Section 7.6.3), there is the potential (albeit in low probabilities) for accumulation of hydrocarbons at the moderate threshold at multiple shorelines locations. A worst-case release of MDO as a result of vessel collision in the OA may also result in small quantities of MDO accumulating on the Tiwi Islands (<1 m^3). The severity of impact of hydrocarbon on rocky shorelines largely depends on the hydrocarbon type, the incline of the rocky shoreline and the energy environment. On steep or vertical rock faces on wave-exposed coasts, there is likely to be little impact from a spill event, as the hydrocarbon does not typically accumulate due to wave action. Lighter hydrocarbons, such as MDO and condensates, are less likely to smother the rocks. Sandy beach ecosystems are attributable to the benthic invertebrate fauna – such as polychaetes, molluscs, marine crustaceans, semi terrestrial crustaceans and insects – inhabiting the sediments. However, sandy beaches also provide important habitats for nesting turtles, breeding and foraging seabirds, and shorebirds (impacts discussed in prior section). The long-term persistence of the hydrocarbons on sandy beaches will depend on the wave exposure and concentrations within sediments. Shoreline contact at the low threshold is anticipated to result in a reduction in visual amenity of shorelines only.
Intertidal/subtidal habitats	
Seagrasses and macroalgae	Seagrasses and macroalgae occur within the MEVA along the coastlines of the NT. Based on the modelling (Section 7.6.3) there is the potential (albeit in low probabilities) for accumulation of hydrocarbons at the moderate threshold at multiple locations where seagrasses are present. A worst-case release of MDO as a result of vessel collision in the OA may also result in small quantities of MDO accumulating on the Tiwi Islands (<1 m^3). Most seagrasses are subtidal, although there may be relatively small areas of intertidal seagrasses. The potential for toxicity effects of entrained hydrocarbon may be reduced by weathering processes that should serve to lower the content of soluble aromatic components before contact occurs. Hydrocarbons are expected to be highly weathered before reaching shallow areas where seagrasses may occur. The highest impact on seagrasses have been observed when leaves of intertidal plants have been exposed to direct contact with hydrocarbons (Durako et al., 1993; Jackson et al., 1989). Smothering through algal blooms (Jacobs, 1980), shoot mortality (Peirano et al., 2005) and a reduction in seagrass tolerance to other stress factors (Zieman et al., 1984) have also been documented as a result of hydrocarbon spills. Long-term impacts to seagrass are unlikely unless hydrocarbon is retained within the seagrass meadow for a sustained duration (Wilson & Ralph, 2011).
Mangroves	Intertidal mangrove habitats occur within the MEVA, along the coastlines of the NT. Based on the modelling (Section 7.6.3), there is the potential (albeit in low probabilities) for accumulation of hydrocarbons at the moderate threshold at multiple locations where mangroves are present. A worst-case release of MDO as a result of vessel collision in the OA may also result in small quantities of MDO accumulating on the Tiwi Islands (<1 m^3). The severity of exposure for mangroves largely depends on the amount and type of hydrocarbon entering the intertidal zone (Duke, 2016). While heavy hydrocarbons are particularly proficient at coating and smothering small plants and aerial root systems, lighter hydrocarbons such as MDO with low specific gravity, are more toxic to mangroves (Hensel et al., 2014; Connolly et al., 2020). The potential for toxicity effects from hydrocarbons may be reduced overtime by weathering processes that should serve to lower the content of soluble aromatic components. Observations of offshore hydrocarbon spill events have shown large scale hydrocarbon spills can result in persistent or permanent loss of mangrove habitat, with some capacity to recover over time (Duke, 2016).
Intertidal platforms	Intertidal platforms and mudflats occur within the MEVA, along the coastlines of the NT and Tiwi islands. Based on the modelling (Section 7.6.3), there is the potential (albeit in low probabilities) for accumulation of hydrocarbons at the low threshold at multiple locations where intertidal sand and mudflats are present. A worst-case release of MDO as a result of vessel collision in the OA may also result in smaller quantities of MDO accumulating on the Tiwi Islands (<1 m^3). Intertidal platforms and mudflats are typically a low-energy environment heavily influenced by tidal cycle. They therefore have the potential to trap hydrocarbons, increasing their susceptibility to impacts. Sediment quality in mudflats will be reduced in the area of the mud or sand flat from hydrocarbon accumulation, with finer sediments being more susceptible as persistent hydrocarbons which can penetrate through animal burrows and root pores. Intertidal

	mudflats provide important resting and feeding areas for migratory bird species. MDO reaching intertidal platforms are likely to be heavily weathered, reducing the toxic effects.	
Socioeconomic		
Commercial, recreational and traditional fisheries	Hydrocarbons in the water column can have toxic effects on fish (as outlined above) and lead to a reduction in catch rates. Fish may also be tainted by the hydrocarbons, rendering them unsafe for human consumption. Impacts on spawning fish can also result in impacts to commercial fisheries.	In addition to the effects of entrained and DAHs, exclusion zones surrounding a spill can directly impact fisheries by restricting access for fishers. Weathered slicks may form tar balls, which may result in oiling of nets and fishing infrastructure.
	A number of commercial fisheries may operate within the MEVA, given the extent. Impacts to these fisheries from a spill include a disruption or displacement of fishing activities caused by the physical presence of the slick, loss of catch, decline in commercially important fish stocks and suspension of fishing operations. Southern bluefin tuna are known to spawn within the MEVA; therefore, a hydrocarbon spill occurring during spawning or movement from spawning grounds to the southern coast could have effects on the commercial fishery stock. It is likely other commercial fish that are targeted in the region (refer to Section 3.2.14.1) could also be affected if spawning occurs during a hydrocarbon spill event. Exposure to entrained and dissolved oils could result in the accumulation of hydrocarbon in fish tissues to the extent that could result in hydrocarbon taint of fish flesh. Connell and Miller (1981a, 1981b) compiled a summary of studies listing the exposure value concentrations at which tainting occurred for hydrocarbons. The results contained in their review indicate tainting of fish occurs when they are exposed to ambient concentrations of 4 to 300 ppm (4000 to 300,000 ppb) of hydrocarbons in the water, for durations of 24 hours or more, with response to phenols and naphthenic acids being the strongest. Given entrained hydrocarbons are predicted to exceed the moderate exposure value at some locations in the MEVA, hydrocarbon taint is possible in fish flesh. Although it is difficult to assess how long fish might be exposed for, small, less mobile fishes would be more susceptible. It is possible impacts could be detected to fisheries on a stock level, although it is more likely natural variation in fish abundance would be on a greater scale than any impacts attributable to a hydrocarbon spill. This would most likely be the case for fisheries species that use shallow waters around the banks and shoals and could occur through direct impacts to fish or to fish habitats (for example, seagrass, coral reef, mangrove habitats which are present within the MEVA). In general, fish are not expected to retain a taint for longer than a week after exposure to entrained or dissolved hydrocarbons (Gagnon & Holdway, 2000, cited in Westera & Babcock, 2016) The same negative impacts could also occur to important traditional Indonesian and recreational fish target species. Commercial, recreational and traditional fisheries may be impacted within the EMBA due to wider implications of taint on fish species.	
Recreation and tourism	There is limited tourism and recreation in remote, offshore waters; however, some shoals and banks may be frequented. A hydrocarbon spill may temporarily displace recreation and tourism users from the EMBA, and impact upon natural resources (such as fish) targeted and seascapes valued by these users. Contact at the low exposure threshold has the potential to result in a reduction in visual amenity of shorelines. It is considered highly unlikely there will be long-term impacts to tourism and recreation activities.	
Shipping	MDO in the water column will have no effect on shipping.	Exclusion zones surrounding a spill will reduce access for shipping vessels for the duration of the response undertaken for spill clean-up (if applicable. Ships may have to chart alternative routes, leading to potential delays and increased costs.
Defence	The level of defence activities performed near the OAs is low, though the MEVA does overlap some of the NAXA for the military training exercise. An exclusion zone surrounding a spill has the potential to adversely affect defence activities. Interference with defence activities due to a hydrocarbon spill is expected to be minimal.	

Shipwrecks	Floating hydrocarbons will have no impact on shipwrecks as all shipwrecks within the MEVA are submerged and therefore will not extensively be contacted by floating hydrocarbons. The potential for in-water hydrocarbons to impact on shipwrecks is poorly documented. Based on the modelling results (Section 7.6.3 hydrocarbons are present in the top 25 m of the water column; therefore, extensive contact with submerged shipwrecks is not anticipated. Exposure to hydrocarbon may alter bacterial community composition (biofilms) inhabiting shipwrecks, possibly altering corrosion potential (Salerno et al., 2018). The biofilms promote the recruitment of macro-organisms and can form protective surfaces that may decrease access for abiotic corrosion and may assist with the preservation of historic metal shipwrecks (dependent on the environmental conditions). Further studies have provided evidence that exposure of shipwreck surfaces to residual spill contaminants has the potential to alter biofilm taxonomy and functional potential, which may place the biodiversity and the preservation of historic metal structures in the deep sea at risk (Mugge et al., 2019).
Cultural features	Marine resource use by Indigenous people is generally restricted to coastal waters. Fishing, hunting and the maintenance of maritime cultures and heritage through ritual, stories and traditional knowledge continue as important uses of the nearshore region and adjacent areas. While the MEVA is largely offshore, it may overlap with cultural features. Impacts to these features from a spill include, but are not limited to, a disruption/displacement of cultural activities caused by the physical presence of hydrocarbon, decline in traditional food sources and / or mortality of fauna with cultural significance e.g. totemic species.
Existing energy industry	A number of energy industry operators have existing infrastructure within, and would transit through, the MEVA (such as Santos Bayu-Undan and INPEX Ichthys gas export pipelines). An exclusion zone surrounding a spill has the potential to adversely affect such operators. Interference of existing energy industry activities due to a hydrocarbon spill is expected to be minimal.
Protected areas	
Marine parks and Commonwealth heritage areas	A number of marine parks overlap the EMBA (listed in Table 3-8). The EMBA overlaps the: • Oceanic Shoals Marine Park • Joseph Bonaparte Gulf • Garig Gunak Barlu The marine parks are many kilometres from the OA, therefore any contact will be with highly weathered hydrocarbons, reducing the potential impacts. Hydrocarbons contacting marine parks may impact the value of the marine parks for a period. These values include: • natural • cultural • socioeconomic. Section 3.2.12.1 details the values of the individual marine parks. **Natural values** Extensive contact with deeper features such as KEFs associated with the marine parks is not predicted, given the modelling predicts hydrocarbon concentrations are not expected to exceed depths greater than approximately 25 m (Section 7.6.3). Marine parks support increased productivity or abundance of marine fauna that use the waters – including plankton, pelagic invertebrates and fish, marine mammals, marine reptiles and seabirds – which may be impacted by hydrocarbons, as previously described in this table. **Socioeconomic values** Marine parks may be used by a number of other users, including tourism and recreational fisheries, and may be impacted by hydrocarbons, as previously described in this table.
KEFs	KEFs are described in Section 3.2.12.3.

	Two KEFs overlap the EMBA: • Carbonate bank and terrace system of the Van Diemen Rise • Pinnacles of the Bonaparte Basin While some features associated with the KEFs are subtidal or submerged and would not be directly contacted by a surface slick, they all may support increased productivity or abundance of marine fauna that use surface waters above the features – including plankton, pelagic invertebrates and fish, marine mammals, marine reptiles, and seabirds – which may be impacted by hydrocarbons, as previously described in this table. KEFs are typically geomorphic features. The likelihood of extensive impact is reduced, given the modelling (Section 7.6.3) predicts hydrocarbon concentrations are not expected to exceed depths greater than approximately 25 m.
Ramsar wetlands	There are no Ramsar wetlands in the EMBA
Threatened ecological communities	There are no threatened ecological communities within the EMBA.

7.6.8 Stochastic spill dispersion modelling results

The spill modelling results at or above moderate exposure values (as used to define the MEVA) are summarised below for an MDO release from an IMMR vessel (Figure 7-3). More detailed results are provided in Appendix F.

7.6.8.1 Accumulated shoreline hydrocarbon

Modelling results for accumulated shoreline hydrocarbon indicate:

- the highest probability of shoreline hydrocarbon accumulation at the 10 g/m^2 threshold is predicted for the Vernon Islands Conservation Reserve (less than 2%) and Tiwi Islands (less than 1%), which has a maximum volume of hydrocarbon ashore of <1 m^3.
- the shortest time for shoreline hydrocarbon accumulation at the 10 g/m^2 threshold is predicted at Tiwi Islands after 230 hours (approximately six days) and 261 hours at the Vernon Islands Conservation Reserve after the commencement of the spill.

7.6.8.2 Floating hydrocarbon greater than 10 g/m^2

Modelling results for floating hydrocarbon greater than 10 g/m^2 indicate floating hydrocarbon may extend up to 38 km from the release location.

7.6.8.3 Entrained hydrocarbon greater than 100 ppb

Modelling results for entrained hydrocarbon greater than 100 ppb indicate:

- entrained hydrocarbon may occur within 0 to 25 m water depth, with a maximum distance from the release location of 74 km
- the shortest time for entrained hydrocarbon exposure at any receptor is predicted for Shepparton Shoal (15 hours)
- the worst-case concentration of entrained hydrocarbons is predicted at Shepparton Shoal as 1,435 ppb.

7.6.8.4 Dissolved hydrocarbon greater than 50 ppb

Modelling results for dissolved hydrocarbon greater than 50 ppb indicate that no sensitive receptors will be contacted.

7.6.9 Environmental performance outcomes and control measures

The EPOs relating to this event are:

- No injury, or mortality to, EPBC Act 1999 listed marine or marine fauna listed as threatened species under the *Territory Parks and Wildlife Conservation Act 1976* (NT) as a result of the Activity (EPO-08)
- Zero unplanned discharge of hydrocarbons or chemicals to the marine environment from the Activity (EPO-18)
- No significant impact to cultural features from the Activity (EPO-19)
- No impacts to underwater cultural heritage from the Activity (EPO-20).

An assessment of the environmental benefits and the potential costs or issues associated with control measures for this Activity are described in Table 7-16 to demonstrate the potential risks are ALARP. Control measures that are adopted have associated EPSs and measurement criteria and are presented in Table 8-2. Rejected control measures have an ALARP evaluation provided to justify their rejection.

Selection of oil spill response strategies and associated performance outcomes, control measures and performance standards, including those required to maintain preparedness and for response, are detailed within the Barossa GEP NT waters OPEP. The GEP NT waters OPEP contains an evaluation of oil spill preparedness arrangements to demonstrate that oil spills will be mitigated to ALARP.

Table 7-16: Control measures evaluation for surface release of MDO from a vessel

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.1.2	Vessels equipped and crewed in accordance with Australian maritime requirements, including Marine Order 30 (Prevention of Collisions) and Marine Order 21 (Safety and Emergency Arrangements) (administrative control)	Ensures contracted vessels are operated, maintained and crewed in accordance with industry standards and regulatory requirements. Ensures vessels meet Marine Assurance Standards to reduce the likelihood of vessel collision (such as minimum and working lighting for maritime safety).	Cost associated with implementing procedures.	**Adopted** – benefit of assuring vessels outweighs procedure compliance costs.
BAO-CM-6.4.10	Barossa Facilities and vessels planned maintenance system to confirm equipment integrity is maintained in accordance with manufacturers guidelines (administrative control)	Requires that equipment is maintained and certified, reducing the probability of an unplanned MDO spill. Reduces risk of vessel collision and refuelling incidents because equipment is operating within planned maintenance requirements.	High cost of maintaining vessel equipment and managing the maintenance system.	**Adopted** – environmental benefits of ensuring vessels are maintained outweigh the costs.
BAO-CM-6.6.1	Notify AHS and AMSA MSI prior to relevant Activity (administrative control)	Ensures other marine users are aware of the presence of the vessels and the relatively slow speed and restricted manoeuvrability. Alerts other marine users to the presence of Activity vessels and 500 m exclusion zone around the installation vessels, thus reducing the likelihood of vessel collision and fishing gear snagging.	Negligible costs.	**Adopted** – it is a regulatory requirement.
BAO-CM-6.6.4	Activity undertaken in accordance with Santos HSE management and marine vessel vetting processes (Santos' Offshore Marine Assurance Procedure) (administrative control)	Santos marine vetting process ensures vessel lighting, radios and equipment are inspected and maintained so that other marine users are aware of the vessel's physical presence, thus reducing the	Costs associated with personnel time in checking vessels.	**Adopted** – benefit of assuring vessels outweighs procedure compliance costs.

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
		potential for interaction and collision.		
BAO-CM-6.6.6	Vessel speed restrictions within 500 m of IMMR vessels and campaign vessels (substitution control)	Reduces the likelihood and consequence of collisions (causing harm) as fauna have longer to detect and avoid the vessel by restricting vessel speeds in the OA to 8 knots or less within 500m of IMMR vessels and campaign vessels. Reduces the potential impacts to culturally significant marine species, including totemic species, such as marine turtles and marine mammals.	Administrative costs to update existing Santos procedure and induction materials, and train personnel.	**Adopted**
BAO-CM-7.4.2	Bulk liquid transfer procedure (administrative control)	The procedure provides details about the fuel bunkering process to be undertaken. Implementing the procedure reduces the potential for release during bunkering. Requires use of dry-break coupling (bunkering hose) and breakaway coupling, which limit the fuel losses in an emergency.	Personnel costs associated with ensuring procedures are in place and implemented during refuelling.	**Adopted** – environmental benefits of ensuring the procedure is followed and measures implemented outweigh the costs.
BAO-CM-7.4.3	Vessel spill response plans (SOPEP/SMPEP) (administrative control)	Implements onboard response plans (SOPEP/SMPEP) to deal with unplanned hydrocarbon releases quickly and efficiently to reduce impacts to the marine environment.	Administrative costs of demonstrating vessel contractor compliance. Generally undertaken by vessel contractor so time for Santos personnel to confirm that a SOPEP/SMPEP is in place.	**Adopted** – it is a regulatory requirement.
BAO-CM-7.7.8.15	Accepted Barossa GEP NT waters OPEP (administrative control)	Implements response plans to deal with an unplanned hydrocarbon release quickly and efficiently to reduce impacts to the marine environment.	Personnel and administrative costs associated with preparing documents, ongoing management (spill response exercises) and implementation of OPEP.	**Adopted** – it is a regulatory requirement.
Additional control measures				
N/A	Response equipment above	May allow for quicker response to a spill as	Vessel storage restrictions. Large	**Not adopted** – not feasible due to lack of room on

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
	and beyond SOPEP/SMPEP requirements (such as booms) on vessels ready to respond to a loss of hydrocarbons (protective control)	resources will be within proximity.	costs associated with a dedicated resource on location.	vessels, the large cost associated with dedicated resources on location, and the proximity of response equipment in Darwin. Costs considered grossly disproportionate to the low risk of a vessel collision or large MDO release.
N/A	No fuel bunkering via hose (elimination control)	Removes spill risk from hose operations.	Cost associated with transfer of MDO via drums or containers and introduction of new risks related to dropped objects and vessel transfers. Not possible to modify vessel to allow additional fuel storage.	**Not adopted** – eliminating bunkering via hoses introduces new risks related to dropped objects and vessel transfers. The bunkering method is consistent with industry and maritime practices.
N/A	Require all support vessels to be double hulled (engineering control)	Reduces the likelihood of a loss of hydrocarbon inventory minimising potential environmental impact.	Vessels are subject to availability and must meet Santos' standards during activities. The requirement for a double hull on vessels would limit the number of vessels available. Also, there is a high cost associated with refitting vessels with double hulls if required.	**Not adopted** – large costs associated with vessel selection. Having the Activity schedule determined by vessel availability is considered grossly disproportionate compared to the low risk of a vessel collision or large MDO release.

7.6.10 Environmental impact and risk assessment

7.6.10.1 Identification of hotspots for consequence assessment

Hotspots that are predicted to be contacted by hydrocarbons within the LEVA and MEVA for an unplanned release of MDO are listed in Table 7-17. The values and sensitives associated with these areas are described in Section 3. These hot spots meet the criteria as described in Section 7.6.6.3.

Note the worst-case values were taken from the modelling scenarios to identify the hot spots and therefore is taken from any season and any hydrocarbon phase at any water depth.

Table 7-17: Identified high environmental value and hotspot receptors

Receptor	Exposure values			Hotspot
	Low (LEVA)	Moderate (MEVA)	High (HEVA)	
Afghan Shoal	✓	✓		No
Beagle Gulf-Darwin Coast (including Darwin Harbour)	✓			No
Cobourg Peninsula-Nhulunbuy	✓			No
Djukbinj NP	✓			No
Flat Top Bank	✓			No
Hancox Shoal	✓			No
Harris Reef	✓			No

Receptor	Exposure values			Hotspot
	Low (LEVA)	Moderate (MEVA)	High (HEVA)	
Joseph Bonaparte Gulf East Coast	✓			No
Joseph Bonaparte Gulf Marine Park	✓			No
Lowry Shoal	✓			No
Marsh Shoal	✓			No
Moresby Shoals	✓			No
Newby Shoal	✓			No
Shepparton Shoal	✓	✓	✓	**Yes**
Skottowe Shoal	✓			No
The Boxers Area	✓	✓		No
Tiwi Islands	✓	✓		**Yes**
Van Diemen Gulf Coast	✓			No
Van Diemen Gulf Shoal	✓			No
Vernon Islands Conservation Reserve	✓			No

7.6.10.2 Impact, likelihood and consequence ranking – surface release of MDO

Receptors	• Physical environment and habitat • Protected areas • Threatened, migratory or local fauna • Socio-economic • Cultural features
Consequence	III – Moderate

The consequence assessment for each receptor category is summarised below. Potential impact pathways (physical and chemical) of hydrocarbon exposure for receptors are summarised in Table 7-14, and potential impacts to receptors that may be found within the MEVA are further described in Table 7-15.

Physical environment and habitat

It is likely that water quality will be reduced due to hydrocarbon contamination, both at the sea surface and in the upper water column as a result of entrained and dissolved hydrocarbons, at the location of the spill as well as within surrounding marine waters. Given the light nature of MDO, it undergoes rapid spreading and evaporation losses in warm waters and any floating hydrocarbons will be temporary. Water quality changes within the water column are also expected to be temporary, due to the rapid natural degradation and dispersion of MDO in the marine environment.

Afghan Shoal, Shepparton Shoal, and The Boxers Area are within the MEVA. Banks and shoals support a diverse and varied range of benthic communities, reef-building soft corals, hard corals and filter-feeders (Heyward et al., 2017, 2015b). Shoals and banks close to the release have the greatest potential to be contacted by entrained hydrocarbons; however, at relatively low probabilities (for example, up to 24% at Shepparton Shoal).

Shallower shoals (for example, the top of the shoal is within the top 25 m of the water column) within the MEVA are more likely to be contacted by entrained hydrocarbons. Lethal and sub-lethal effects to filter feeders from hydrocarbons include mortality and changes in population recruitment, growth and reproduction which may lead to changes in community composition and structure (Wei et al., 2012). Filter feeders are particularly susceptible as they are likely to directly ingest hydrocarbons while feeding. This may cause mortality or sub-lethal impacts such as alteration in respiration rates, decreases in filter-feeding activity, reduced growth rates, biochemical effects (Keesing & Edgar, 2016). However, as the hydrocarbon concentration decreases and weathers, the communities are expected to recover.

The Tiwi Islands shoreline may accumulate hydrocarbons in low volumes. This location includes areas of benthic coral reefs, seagrass and mangroves. Hydrocarbon coating of prop roots of mangroves can occur from surface hydrocarbons when they are deposited on the aerial roots. Hydrocarbons deposited on the aerial roots can block the pores used by the plants to breathe or interfere with the trees' salt balance resulting in sub-lethal and potentially lethal effects. Mangroves can also be impacted by entrained aromatic hydrocarbons that may adhere to sediment particles. In low-energy environments such as mangroves, deposited sediment-bound hydrocarbons are unlikely to be removed naturally by wave action and may be deposited in layers by successive tides (NOAA, 2014).

Tidal mudflats, like mangroves, are a low-energy environment and are, therefore, susceptible to potential impacts from persistent surface or stranded hydrocarbons. Hydrocarbons in contaminated sediments can persist for years and significantly

impact benthic infauna and their dependent migratory shorebird populations (Duke and Burns, 2003). Saenger (1994) noted that mudflats were the most severely affected habitat 2 years after the Gulf War spill, with no sign of living epibiota. However, the hydrocarbon type in the Gulf was crude oil with a larger fraction of persistent components, compared to MDO. Given the low persistent hydrocarbons in MDO, the persistence of hydrocarbons is expected to be short-term.

Seagrasses in the subtidal and intertidal zones have different degrees of exposure to hydrocarbon spills. Subtidal seagrass is generally considered much less vulnerable to surface hydrocarbon spills than intertidal seagrass, primarily because freshly spilled hydrocarbons float under most circumstances. Dean et al. (1998) found that hydrocarbons mainly affect flowering. Therefore, species that can spread through apical meristem growth (growth at the tips of the root) are not as affected (such as Zostera, Halodule and Halophila species).

MDO tends to entrain within the water column, which can lead to seagrass coming into contact with or absorbing the water-soluble fraction. Contact and absorption have the potential to reduce photosynthesis and tolerance to other stress factors (Runcie et al., 2010; Taylor and Rasheed, 2011). Seagrass in the intertidal zone, such as that of the Tiwi Islands, is particularly vulnerable as it may come into direct contact with surface hydrocarbons and entrained components, which can smother and kill seagrasses if it coats their leaves and stems (Taylor and Rasheed, 2011). This conclusion is supported by Howard et al. (1989), who noted that surface hydrocarbon spills that become stranded on the seagrass and smother it during the rise and fall of the tide could result in reduced growth rates, blackened leaves and mortality. Wilson and Ralph (2011) concluded that long-term impacts to seagrass are unlikely unless hydrocarbon is retained within the seagrass meadow for a sustained duration.

Contact by hydrocarbons may result in a localised decrease in ecological value of the shoreline due to the associated toxic components of hydrocarbons. Secondary impacts may occur to the fauna using the shoreline, as described in the next subsection.

Potential impacts to the physical environment and habitat are expected to be III-Moderate, due to the potential for a significant loss of area and/or function of the local physical environment and habitat. Though the evaporative and dispersive nature of MDO, which largely remains in the top 25 m of the water column, and the low volume of shoreline accumulation (for example, <1 m^3 at Tiwi Islands) does reduce the potential for long term effects.

Water soluble hydrocarbon fractions associated with surface slicks also cause high coral mortality (Shigenaka, 2001) via direct physical contact of hydrocarbon droplets with sensitive coral species (such as the branching coral species). Inter-tidal and shallow water corals may be impacted by surface and entrained hydrocarbons. Impacts may include increased mortality and sub-lethal effects such as changes in feeding, bleaching (loss of zooxanthellae), and increased mucous production, resulting in reduced growth rates and impaired reproduction (Negri and Heyward, 2000). The habitat around the Tiwi Islands is restricted to coastal reef areas and inter-tidal platforms. Given the patchy distribution of inter-tidal and shallow water corals and the non-persistent nature of the hydrocarbon, impacts to corals in the event of an MDO release are expected to be restricted to sub-lethal impacts.

Threatened or Migratory fauna

In the event of a surface release of MDO, a reduction in water quality (described above) has the potential to impact marine fauna within the MEVA, as described in Table 7-15. Impacts would be greatest within several kilometres of the release location, where the hydrocarbon is at its thickest on the sea surface and where the toxic aromatic components of the MDO will be at their highest concentration. Given the nature of the release (at surface), hydrocarbons are predicted to remain the top 25 m of the water column; therefore, extensive contact with marine fauna below this level is not anticipated. Upon release to the marine environment, the MDO will also rapidly lose toxicity with time and will spread thinner at the surface as evaporation continues or due to entrainment within the water column.

Plankton

Plankton communities may be impacted by a hydrocarbon release, particularly entrained fractions. Toxic effects from exposure to entrained hydrocarbons may cause impacts such as blocked filter feeding organs and impacts resulting from ingesting hydrocarbons. Modelling of the credible release scenario predicts that entrained hydrocarbons above impact thresholds are expected to be highly localised around the release location. Given the high productivity of planktonic communities and the nature and scale of the credible release, these impacts are expected to be temporary and highly localised to the release location.

Seabirds and migratory shorebirds

The Wildlife Conservation Plan for Seabirds (CoA, 2020) identified pollution as a threat to seabirds and their habitats. As outlined in the Wildlife Conservation Plan for Seabirds (CoA, 2020), one of the objectives is to enhance contingency plans to prevent and respond to environmental emergencies that impact seabirds and their habitats, which is adopted in the control measure OPS-7.5.2 (refer to Table 7-16).

Marine mammals

The MEVA does not overlap any marine mammal BIAs, however a number of marine mammal species may come into contact with hydrocarbons either on the sea surface or within the water column. Potential impacts are likely to be limited to individuals that may be transiting through the area, with potential for coating of baleen (in whales) and ingestion of oiled prey (plankton and fish), as described in Table 7-15. Impacts to overall population viability or ecosystems are not anticipated.

Dugongs are known to occur in coastal waters, including those of the Tiwi Islands such as the seagrass sites on the north-west of Melville Island. Direct impacts to dugongs could occur through foraging or ingesting seagrass coated with hydrocarbon. Dugongs could also be indirectly affected if the released hydrocarbons cause the dieback of seagrass, reducing dugong feeding area. Impacts at a population level are considered highly unlikely as the extent of the MDO release is not anticipated to result in the loss of entire seagrass meadow habitats.

Pelagic and demersal fish communities (including sharks and rays)

Fish mortalities are rarely observed to occur as a result of hydrocarbon releases (ITOPF, 2014). This has generally been attributed to the possibility that pelagic fish can detect and avoid surface waters underneath hydrocarbon releases by swimming into deeper water or away from the affected areas. Fish that have been exposed to dissolved aromatic hydrocarbons are capable of eliminating the toxicants once in clean water, thus individuals exposed to a release are likely to recover (King et al. 1996). Where fish mortalities have been recorded, the releases (resulting from the groundings of the Amoco Cadiz [1978] and Florida [1969] tankers, which were significantly bigger than the worst-case credible release scenario considered in this GEP Coastal Waters OEMP) occurred in sheltered bays, which limited the ability of fish to access clean water and eliminate toxicants. Given the nature and scale of the credible release scenario and the open-ocean environment of the credible release location, impacts to pelagic and demersal fish are expected to be highly localised and temporary.

Marine reptiles

The MEVA overlaps various marine turtle BIAs and internesting buffer HC in proximity to the Tiwi Islands. Marine turtle species may come into contact with hydrocarbons either on the sea surface or within the water column, but any potential impacts (as described in Table 7-15) are likely to be limited to individuals that may be transiting through the area or feeding at nearby submerged shoals and banks. Hydrocarbons are not predicted to contact the entire BIAs or areas of habitat critical to the survival of these species.

Approximately 260 km of sandy beaches surround the Tiwi Islands, many of which are documented to host turtle nesting. It is important to acknowledge that turtles have a strong affinity for specific nesting beaches and are unlikely to relocate to an alternative beach if their preferred nesting site is affected by hydrocarbons. Deterministic modelling predicts that the longest length of oiled shoreline at the moderate exposure threshold was 3 km with a low probability (0.33%) of occurring. At the end of this modelling simulation (30 days), less than 1% of the total MDO volume remained ashore. No high (>1,000 g/m^2) shoreline exposure was predicted during the model simulation. Therefore, even considering the longest length of oiled shoreline predicted by the model, it will not have a significant impact on the nesting turtle population, and the duration of the impact will be limited.

Turtle nests are also typically located above the high water mark, typically the highest point along the shoreline that stranded oil will reach. Direct contact between turtle eggs and the stranded hydrocarbons is very unlikely. Nesting females and hatchlings emerging from nests may be exposed to stranded hydrocarbons when moving on nesting beaches, potentially resulting in contamination. Exposure may result in light oiling of nesting females and hatchlings, subsequently leading to sub-lethal effects such as skin irritation; no mortality is expected. Given the non-persistent nature of MDO and low levels of hydrocarbons potentially stranding on shorelines, the potential for impacts to nesting turtles, egg clutches and hatchlings on beaches is considered low.

Given the non-persistent nature of the MDO, along with the expected rapid evaporation and dispersion, the timeframe during which marine turtles may be exposed to hydrocarbons above impact thresholds is low. The spatial extent of the MEVA, along with the wide distribution of turtle species in the region, indicates impact to overall population viability or ecosystems is not anticipated. Potential impacts would be greatest during the internesting season for flatback and olive ridley turtles; between June and September for flatback turtles and April to August for olive ridley turtles.

Summary

The Tiwi Islands may accumulate a very small amount of hydrocarbons, which could impact marine fauna that use these areas such as shorebirds and turtles. Impacts to turtles could occur from hydrocarbons that accumulate on turtle nesting beaches, with the greatest impact being during nesting seasons. Turtle nests are typically made above the high water mark, which is typically the highest point along the shoreline that hydrocarbon will reach. As such, direct contact between turtle eggs and the hydrocarbons is very unlikely. Given the low volumes (<1 m^3) and non-persistent nature of MDO on shorelines, the impact to nesting beaches (including nesting turtles, egg clutches and hatchlings) is anticipated to relate to a very temporary local disruption of individual turtles using the nesting beach, if the spill was to occur during nesting season.

The potential sensitive receptors in the surrounding areas of the hydrocarbon release include fish, marine mammals, marine reptiles, and seabirds. Potential impacts (as described in Table 7-15) to Threatened or Migratory fauna are expected to be III – Moderate and relate to a temporary disruption to local populations. Impact to overall population viability or ecosystems is not anticipated.

Protected areas

The MEVA does not overlap with any marine protected areas.

Socio-economic (fisheries, tourism, recreation, and other third-party operators)

There is potential for temporary disruption to fishing activities (traditional, recreational and commercial) and tourism and recreational activities if the surface, shoreline or entrained hydrocarbons moves through frequented areas. However, the high rate of evaporation means that little MDO will become entrained and few aromatic hydrocarbons to become dissolved. Given the volume of MDO that could potentially be released, it is unlikely that impacts could be detected to fisheries on a stock level although it is more likely that natural variation in fish abundance would be on a greater scale than any impacts attributable to a hydrocarbon spill. A hydrocarbon release may also temporarily displace activities such as fishing, tourism and recreation from within sections of the MEVA. This displacement would be localised and short-term (days). A hydrocarbon release may result in tainting of fished species. This could potentially result in commercial fishers being unable to sell their catch, which may result in a loss of income or other fishers unable to eat their catch. Spilt hydrocarbons may also contaminate fishing gear, which may require cleaning. Potential impacts to fishing activity are expected to relate to a short-term, but potentially significant, loss of value to the local industry due to local disruptions and displacement of fishing ground.

Other energy operations in the region may also be disrupted in the event of a hydrocarbon release (such as Santos' Bayu-Undan operations) and defence and military exercises and commercial shipping may be excluded or displaced temporarily.

Potential impacts (as described in Table 7-15) to socio-economic receptors are expected to be III-Moderate and relate to a temporary, local disruption or displacement in activities.

Cultural features

An important outcome of Dr Corrigan's research is that no sacred sites or dreamings are shown to be directly impacted by the DPD project footprint (where this Activity OA is located), although this is not to say that some persons do not have fears that this could be the case in the event of an unplanned event (Corrigan, 2024). The EMBA overlaps cultural features (Section 3.2.14.7). Impacts to cultural features, including a disruption/displacement of cultural activities caused by the physical presence of the hydrocarbon, decline in traditional food sources and / or mortality of fauna with cultural significance and contact to sacred sites, may result in the event of a significant spill of hydrocarbons. In the 2022 Statement of Reasons Requests, the Tiwi clan members raised their concern regarding traditional hunting of marine species and totem species. The First Nations people maintain a continuing spiritual connection with sea country, including caring for sea country and access to cultural food sources. Potential impacts to cultural features from a hydrocarbon spill may also include a decline in traditional food sources or mortality of fauna with cultural significance. The potential impacts to culturally significant marine fauna species (such as dreaming and totem species including marine mammals, marine reptiles, fish and birds) are assessed separately above. The Tiwi Islands have been listed as a hotspot (Table 7-17) on the basis of First Nations cultural heritage significance. Potential impacts (as described in Table 7-15) to cultural features are expected to be III-Moderate and relate to a temporary, local disruption or displacement in activities.	
Likelihood	B – Unlikely
The likelihood of a hydrocarbon release occurring due to a vessel collision is unlikely, given the set of mitigation and management controls in place. External impacts to vessels have not occurred within Santos and controls are in place that limit such events. The OA is close to the Commonwealth/Territory waters boundary, is an area of high shipping traffic due to its proximity to Darwin and is therefore considered a greater risk of collision The likelihood of a collision event occurring in the OA is unlikely. The likelihood of a vessel collision releasing hydrocarbons to the environment resulting in an III-Moderate consequence is considered to be B – Unlikely.	
Residual risk	The residual risk is considered Low.

7.6.11 Demonstration of as low as reasonably practicable

The use of vessels is integral to the Activity. Therefore, vessels and associated risks of unplanned hydrocarbon releases cannot be completely eliminated.

All reasonably practicable control measures have been reviewed and those adopted are considered appropriate to manage the residual risk to a Low level. The proposed management controls are in accordance with the Santos risk management criteria and are considered appropriate to manage the risk to ALARP.

In terms of spill response activities, Santos will implement hydrocarbon spill response as specified within the Barossa GEP NT waters OPEP. A detailed ALARP assessment on the adequacy of arrangements available to support spill response strategies and control measures is presented in the Barossa GEP NT waters OPEP.

7.6.12 Acceptability evaluation

Is the risk ranked between Very Low to Medium?	Yes – residual risk is ranked as Low.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available.
Are risks and impacts consistent with the principles of ESD?	Yes – Activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline which considers principles of ESD: • The impacts from the spill scenario are inherently inconsistent with principles of ESD, given the nature and scale of impacts. Control measures are applied to ensure the impacts and risks from activities are managed to ALARP and an acceptable level.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans, conservation advice, wildlife conservation plans and Australian marine park zoning objectives)?	Yes – Control measures implemented will reduce the risk of an unplanned release of MDO to species identified in the following relevant species recovery plans, conservation advice, wildlife conservation plans and other management plans/guidelines, as also set out in Table 3-13. **Conservation advice** • Approved Conservation Advice for *Pristis clavata* (Dwarf Sawfish) (DEWHA, 2009) • Approved Conservation Advice for Green Sawfish (DEWHA, 2008c) • Approved Conservation Advice for *Pristis pristis* (largetooth sawfish) (DoE, 2014b) • Approved Conservation Advice for *Glyphis garricki* (northern river shark) (TSSC, 2014a)

	• Approved Conservation Advice for *Glyphis glyphis* (speartooth shark) (DoE, 2014a) • Approved Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g) • Approved Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015c) • Approved Conservation Advice for *Balaenoptera borealis* (sei whale) (TSSC, 2015b) • Approved Conservation Advice for *Limnodromus semipalmatus* (Asian dowitcher) (DCCEEW, 2024f) • Approved Conservation Advice for *Limosa limosa* (black-tailed godwit) (DCCEEW, 2024e) • Approved Conservation Advice for *Calidris tenuirostris* (great knot) (DCCEEW, 2024d) • Approved Conservation Advice for *Charadrius leschenaultii* (greater sand plover) (DCCEEW, 2023e) • Approved Conservation Advice for *Pluvialis squatarola* (grey plover) (DCCEEW, 2024d) • Approved Conservation Advice for *Limosa lapponica baueri* (Alaskan bar-tailed godwit) (DCCEEW, 2024k) • Approved Conservation Advice for *Calidris canutus* (red knot) (DCCEEW, 2024c) • Approved Conservation Advice for *Arenaria interpres* (ruddy turnstone) (DCCEEW, 2024l) • Approved Conservation Advice for *Calidris acuminata* (sharp-tailed sandpiper) (DCCEEW, 2024b) • Approved Conservation Advice for *Xenus cinereus* (terek sandpiper) (DCCEEW, 2024i) • Approved Conservation Advice for *Rostratula australis* (DSEWPaC, 2013) • Conservation Advice for *Charadrius mongolus* (lesser sand plover) (DCCEW, 2024a) • Approved Conservation Advice for *Rostratula australis* (Australian painted snipe) (TSSC, 2013) • Approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle) (DEWHA, 2008b) • Conservation Advice for *Tringa nebularia* (common greenshank) (DCCEEW, 2024h) • Approved Conservation Advice for *Calidris ferruginea* (Curlew Sandpiper) (TSSC, 2015e) • Approved Conservation Advice for *Numenius madagascariensis* (Eastern Curlew) (TSSC, 2015f) **Recovery plans** • Sawfish and River Sharks Multispecies Recovery Plan (CoA, 2015b) • Recovery Plan for the White Shark (*Carcharodon carcharias*) (Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC, 2013) • Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*) (CoA, 2014b) • Conservation Management Plan for the Blue Whale - A Recovery Plan under the *Environment Protection and Biodiversity Conservation Act 1999* 2015–2025 (CoA, 2015a) • Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b) • National Recovery Plan for the Australian Painted Snipe (*Rostratula australis*) (DCCEEW, 2022a) • Wildlife Conservation Plan for Seabirds (CoA, 2020) • Wildlife Conservation Plan for Migratory Shorebirds (CoA, 2015c) **Other management plans/guidelines** • Marine bioregional plans for the NMR (CoA, 2012).

	For the identified plans, the objectives of those plans are achieved through the adoption of the performance outcomes and control measures outlined in Section 7.6.9. Santos considers that the level of risk of an unplanned release of MDO is not inconsistent with these plans.
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – management consistent with Safety Case, *Marine Safety (Domestic Commercial Vessel) National Law Act* 2012, *Navigation Act 2012,* Marine Order 30: Prevention of Collisions, Marine Order 21: Safety of Navigation and Emergency Procedures, *Protection of the Sea (Prevention of Pollution from Ships) Act* 1983, MARPOL Annex I (Prevention of Pollution by Oil), Marine Order 91: Marine Pollution Prevention – Oil and National Plan for Maritime Environmental Emergencies (AMSA, 2020). Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B. The GEP Coastal Waters OEMP is also compliant with the conditions of EPBC approval EPBC 2022/09372.
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable Operations EPs accepted by NOPSEMA have been reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback	Yes – Relevant Persons feedback received during consultation for this activity has been considered when evaluating performance outcomes, control measures and associated performance standards. Where relevant, control measures implemented based on Relevant Persons feedback for other Barossa EPs have been adopted in this GEP Coastal Waters OEMP. Santos will notify all Relevant Persons who have requested notification in the event of a spill. As a result, Table 8-6 and the OPEP have also been updated to reflect additional requests for notifications in the event of a spill.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, with no additional control measures adopted.

7.7 Contingency spill response operations

7.7.1 Spill response strategies

The spill response strategies that may be adopted in the event of a hydrocarbon spill from this Activity have been identified in the Barossa GEP NT waters OPEP. These are generally strategies that have been implemented in the past or are considered good industry practice. The Barossa GEP NT waters OPEP contains an evaluation of hydrocarbon spill preparedness arrangements to demonstrate hydrocarbon spills will be mitigated to ALARP. An environmental assessment of these spill response strategies has been conducted as presented below.

An overview of the hydrocarbon spill scenario considered for this Activity and relevant to spill response operations is provided in Section 7.6.

7.7.2 Description of event

Event	In the event of a hydrocarbon spill, response strategies will be implemented to reduce environmental impacts to ALARP. Strategies will be selected through a net environmental benefit analysis (NEBA). Spill response will be under the direction of the relevant control agency, as defined in the Barossa GEP NT waters OPEP, which may be Santos, another agency or both. In all instances, Santos will undertake a 'first-strike' spill response and will act as the Control Agency until the designated Control Agency assumes control. The response strategies considered to be appropriate for the worst-case hydrocarbon spill scenarios identified for the Activity are provided in the Barossa GEP NT waters OPEP and comprise: • monitor and evaluate • containment and recovery • mechanical dispersion • shoreline protection and deflection • shoreline clean-up • oiled wildlife response • operational and scientific monitoring • waste management. While response strategies are intended to reduce the environmental consequences of a hydrocarbon spill, poorly planned and coordinated response activities can result in a lack of or inadequate information being available upon which poor decisions can be made, exacerbating or causing further environmental harm. An inadequate level of training and guidance when implementing spill response strategies can also result in environmental harm over and above that already caused by the spill.
Extent	Spill response could occur anywhere within the EMBA for the worst-case spill scenarios.
Duration	The spill response effort as a whole will exceed the duration of the worst-case spill, due to persistence of the hydrocarbon in the environment and the requirement to remove hydrocarbons and monitor impacts and recovery to sensitive receptors. The Barossa GEP NT waters OPEP provides further detail about the likely duration of specific response strategies.

7.7.3 Nature and scale of environmental impacts

Potential receptors: Physical environment and habitat, protected areas, threatened, migratory, or local fauna, socio-economic and cultural features.

Light emissions	
Spill response activities will involve the use of vessels, which are required, at a minimum, to display navigational lighting. Vessels may operate near shoreline areas during spill response activities. Spill response activities will also involve onshore operations, including the use of vehicles and temporary camps, which may require lighting.	
Potential receptors	• Protected areas • Threatened, migratory or local fauna • Cultural Features
Lighting may cause behavioural changes to fish, mammals, birds and marine turtles that can have a heightened consequence during key lifecycle activities, such as turtle nesting and hatching. Turtles and birds, which include Threatened and Migratory fauna (Section 3.2.13), have been identified as key fauna susceptible to lighting impacts. Section 6.2 provides further detail about the nature and scale of light emission impacts. Spill response activities that require lighting may occur anywhere within the MEVA (refer to Section 7.7.1), including in protected areas and close to shoals. This could result in indirect impacts on the values of the protected areas.	

During nesting and hatching season (primarily over summer months), lighting may cause behavioural impacts to turtles, including aborted nesting attempts and disorientation of newly hatched turtles, which may increase the hatchling mortality rate.

Spill response activities may also occur on shorelines used by nesting and feeding birds, including seabirds and shorebirds. Lighting can cause disorientation in flying birds, disrupt nesting and breeding behaviours, and impact on the ability of birds to forage. Disturbance to feeding migratory shorebirds may reduce their ability to replenish energy reserves and alter the timing and success of migratory flights.

Lighting impacts to fauna are not considered to have the potential to impact supported industries such as tourism.

Lighting from response activities may impact marine fauna of cultural significance.

Noise emissions

Spill response activities will involve the use of aircraft and vessels, which will generate noise both offshore and in nearshore locations within the EMBA.

Spill response activities will also involve the use of equipment on coastal areas during clean-up of shorelines, such as pumps and vehicles, for accessing shoreline areas; and for supporting temporary camps, such as diesel generators.

Potential receptors	• Threatened, migratory or local fauna • Protected areas • Socio-economic receptors • Cultural Features

Underwater noise from the use of vessels may impact marine fauna, such as fish (including commercial species), marine reptiles and marine mammals, in the worst instance causing physical injury to hearing organs but more likely causing short-term behavioural changes; for example, temporary avoidance of the area, which may impact key lifecycle processes such as spawning, breeding and calving. Underwater noise can also mask communication or echolocation used by cetaceans. Section 6.1 provides details about potential noise emission impacts.

Vessels may also need to enter marine parks and other areas used for tourism, commercial and recreational fishing, and traditional purposes.

Noise and vibration from terrestrial activities on shorelines has the potential to cause behavioural disturbance to coastal fauna, including protected seabirds and turtles. Shoreline activities involving the use of noise-generating equipment may occur in important nesting areas for turtles and roosting and feeding areas for shorebirds.

As a consequence of impacts to fauna – including shorebirds, marine mammals, fish – noise has the potential to impact supported industries such as tourism and commercial fishing and recreational values of marine parks.

Noise from response activities may impact marine fauna of cultural significance.

Atmospheric emissions

The use of fuels to power vessel engines, generators and mobile equipment used during spill response activities will result in emissions of GHG, such as CO_2, CH_4 and N_2O, along with non-GHGs such as SO_x and NO_x. Emissions will result in a localised decrease in air quality.

Potential receptors	• Physical environment and habitat • Threatened, migratory or local fauna • Socio-economic

Atmospheric emissions from spill response equipment will be localised, and the use of mobile equipment, vessels and vehicles is not considered to create emissions on a scale where noticeable impacts would be predicted. Emissions may occur in protected areas and areas where tourism is important; however, the scale of the impact relative to potential hydrocarbon spill impacts is not considered great. Section 6.3 provides further details about the nature and scale of air emission impacts.

Operational discharges and waste

Operational discharges include those routine discharges from vessels used during spill response, which may include:

- deck drainage
- putrescible waste and sewage
- cooling water from operation of engines
- bilge water
- ballast water
- brine discharge.

In addition, there are specific spill response discharges and waste creation that may occur, including:

- cleaning of oily equipment, vessels and vehicles
- decanting of water back into the marine environment from containment and recovery operations
- flushing water for the cleaning of shoreline habitats
- sewage and putrescible and municipal waste at offshore staging sites
- creation, storage, transport and disposal of oily waste and contaminated organics.

Potential receptors	• Physical environment and habitat • Protected areas • Threatened, migratory or local fauna • Socio-economic • Cultural Features

Operational discharges from vessels may create a localised and temporary reduction in marine water quality. Effects include nutrient enrichment, toxicity, turbidity, and temperature and salinity increases, as detailed in Section 6.4. Discharge could potentially occur adjacent to marine habitats, such as corals, seagrass and macroalgae, and in protected areas, which support a more diverse faunal community; however, discharges are still expected to be localised and temporary.

Cleaning of hydrocarbon-contaminated equipment, vehicles and vessels has the potential to spread hydrocarbon from contaminated areas to areas not impacted by a spill, potentially spreading the impact area and moving hydrocarbon into a more sensitive environment.

The decanting of oily water back into the marine environment during containment and recovery activities has the potential to impact marine organisms from the toxic effects from hydrocarbons, however, given the marine environment would already be contaminated with hydrocarbons there is limited potential for an increase in impact, unless the discharge spreads the contamination to a previously uncontaminated area.

Flushing of hydrocarbon from shoreline habitats is a clean-up technique designed to remove hydrocarbon from the receptor that has been oiled and remobilise it back into the marine environment. It results in further dispersion of the hydrocarbon. The process of flushing has the potential to physically damage shoreline receptors such as mangroves and rocky shoreline communities, increase levels of erosion, and create an additional and potentially higher level of impact than if the habitat was left to bioremediate.

Sewage and putrescible and municipal waste will be generated from offshore activities at temporary staging and mooring areas, and onshore activities at temporary camps, which may include toilet and washing facilities. These wastes have the potential to impact water quality, attract fauna, impact habitats, flora and fauna, and reduce the aesthetic value of the environment, which may be within protected areas. Disturbance may also impact cultural values of an area. The creation, storage, transport and disposal of oily waste and contaminated organics has the potential to spread impacts of hydrocarbon to areas, habitats and fauna not previously contaminated. Sewage and putrescible and municipal waste generated onshore will be stored and disposed of at approved locations.

Operational discharges from response operations may impact marine fauna of cultural significance.

Seabed and habitat disturbance, marine fauna interaction

The movement and operation of vessels, vehicles, personnel and equipment, the undertaking of clean-up activities, and the setup of temporary camp areas during spill response activities have the potential to disturb the physical environment and marine and coastal habitats and fauna, which may occur within protected areas. Disturbance may also impact socio-economic values of an area.

Vessel movement and transportation could potentially introduce to nearshore areas invasive marine species attached as biofouling, while vehicle and equipment movement could spread non-indigenous flora and fauna. Spill response operations can impact on wildlife via vessel strikes and behavioural changes due to physical presence of personnel and equipment. Oiled wildlife response activities may also involve deliberate disturbance (hazing), capture, handling, cleaning, rehabilitation, transportation, and release of wildlife, which could lead to additional impacts to wildlife.

Potential receptors	• Physical environment and habitat • Protected areas • Threatened, migratory and local fauna • Socio-economic • Cultural Features

The use of vessels may disturb benthic habitats in coastal waters, including corals, seagrass, mangroves and macroalgae. Impacts to habitats from vessels include damage through the deployment of anchors, nearshore booms, mooring lines and from grounding.

Vessel use in shallow coastal waters also increases the chance of contact with or physical disturbance of marine megafauna such as turtles and dugongs. Booms create a physical barrier on the surface waters that has the potential to injure or entangle passing marine fauna that are either surface-breathing or -feeding.

Vehicles, equipment, personnel and cleaning activities during shoreline response activities have the potential to damage coastal habitats, such as dune vegetation, mangroves and habitats important to threatened and migratory fauna, including nests of turtles and birds and bird roosting and feeding areas. Shoreline clean-up may involve the physical removal of substrates that could cause impact to habitats and coastal hydrodynamics and alter erosion or accretion rates.

The presence of camp areas, although relatively short-term, may disrupt normal behaviour of coastal species, such as shorebirds and turtles, and could potentially interfere with nesting and feeding behaviours.

Oiled wildlife response may include the hazing, capture, handling, cleaning, rehabilitation, transportation, cleaning and release of wildlife susceptible to oiling, such as birds and marine turtles. While oiled wildlife response is aimed at having a net benefit, poor responses can potentially create additional stress and exacerbate impacts from oiling, interfere with lifecycle processes, hamper recovery and, in the worst instance, increase levels of mortality.

Impacts and risks from invasive marine species are described in Section 7.2 and are not described further in this section. Impacts from invasive terrestrial species are similar in that the invasive species, such as weeds, can outcompete local

species and interfere with ecosystem processes. Non-native species may be transported attached to equipment, vehicles and clothing. Such an introduction would be especially detrimental to wilderness areas or protected terrestrial reserves, which may have a relatively undisturbed flora and fauna community. The disturbance to marine and coastal natural habitat, as well as the potential for disruption to culturally sensitive areas, may occur in specially protected areas such as marine parks, and may have flow-on impacts to socio-economic values and industry, such as tourism and fisheries.
Interactions with other marine users
Spill response activities may involve the use of vessels and equipment in areas used by the general public or industry in Australia and potentially Indonesia. The mobilisation of spill response personnel into Forward Operating Bases may also place increased demands on local accommodation and other businesses.
Potential receptors Socio-economic
The use of vessels in the offshore environment and the undertaking of spill response activities may exclude the general public and industry use of the affected environment. As well as impacting recreational activities (such as recreational fishing) of the general public, this may impact on revenue with respect to industries such as commercial fishing and interrupt military exercises. The mobilisation of personnel to regional communities has the potential to affect the local community through demands on local accommodation and business, reducing the availability of services to members of the public.

7.7.4 Environmental performance outcomes and control measures

An assessment of the environmental benefits and the potential costs or issues associated with control measures relevant to response vessels for this Activity are described in Table 7-18 to demonstrate that the potential impacts from this aspect are ALARP. Control measures that are adopted have associated EPSs and measurement criteria and are presented in Table 8-2.

Control measures that are more specific to spill response are presented in the Barossa GEP NT waters OPEP. Control measures that are adopted have associated EPSs and measurement criteria, which are presented in the relevant strategy sections of the Barossa GEP NT waters OPEP.

Table 7-18: Control measures evaluation for contingency spill response operations

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
Standard control measures				
BAO-CM-6.1.1	Apply Santos' Protected Marine Fauna Interaction Procedure to vessel and helicopter activities when in vicinity of cetaceans and turtles (isolation control)	Refer to Table 7-4	Refer to Table 7-4	**Adopted** – refer to Table 7-4
BAO-CM-6.2.1	Lighting limited to that required for safe work conditions and navigational purposes. (isolation control)	Refer to Table 6-13	Refer to Table 6-13	**Adopted** – refer to Table 6-13
BAO-CM-6.3.17	Pursuant to Marine Order 97 (vessels), relevant vessels will have a current International Air Pollution Prevention (IAPP) Certificate or equivalent and Ship Energy Efficiency Management Plan (SEEMP) (administrative control)	Refer to Table 6-18	Refer to Table 6-18	**Adopted** – refer to Table 6-18
BAO-CM-6.4.5	HSE inductions will include applicable	Ensures that crew are aware of the stringent Coastal Waters OEMP, Santos and	Administrative costs to update existing Santos procedure and induction materials,	**Adopted**

CM reference	Control measure	Environmental benefit	Potential cost/issues	Evaluation
	environmental requirements (administrative control)	legislative requirements.	and train personnel.	
BAO-CM-6.7.2	Routine discharges of treated sewage and grey water, in accordance with Marine Order 96 (Marine Pollution Prevention – Sewage), (administrative control)	Refer to Table 6-22	Refer to Table 6-22	**Adopted** – refer to Table 6-22
BAO-CM-6.7.5	Apply the Santos chemical selection process for chemicals planned to be discharged (Section 2.7) (administrative control)	Refer to Table 6-22	Refer to Table 6-22	**Adopted** – refer to Table 6-22
BAO-CM-6.7.6	Routine discharges of treated bilge and deck water from vessels will comply with Marine Order 91 and *Marine Pollution Act 1999* (NT), as applicable (administrative control)	Refer to Table 6-22	Refer to Table 6-22	**Adopted** – refer to Table 6-22
BAO-CM-7.7.8.15	Accepted Barossa GEP NT waters OPEP (administrative control)	Refer to Table 7-16 and the Barossa GEP NT waters OPEP	Refer to Table 7-16 and the Barossa GEP NT waters OPEP	**Adopted** – refer to Table 7-16 and the Barossa GEP NT waters OPEP

7.7.5 Environmental impact assessment

Key receptors	Consequence level
Spill response operations – light emissions	
Threatened, migratory or local fauna	The receptors considered most sensitive to lighting from vessel operations are seabirds, migratory shorebirds and marine turtles. After restricting night-time operations of spill response vessels, which will demobilise to mooring areas offshore with safety lighting only (as specified by controls in the Barossa GEP NT waters OPEP), impacts from vessels are considered to be I – Negligible.
Physical environment and habitat	
Threatened ecological communities	
Protected areas	
Socio-economic	
Cultural Features	
Overall worst-case consequence	I – Negligible
Spill response operations – noise emissions	
Threatened, migratory or local fauna	The receptors considered most sensitive to vessel noise are cetaceans. However, after adopting control measures to limit close interaction with protected fauna (as in, Protected Marine Fauna Interaction and Sighting Procedure), a temporary behavioural disturbance is expected only with a consequence of I – Negligible.
Physical environment and habitat	
Threatened ecological communities	
Protected areas	
Socio-economic	

Key receptors	Consequence level
Cultural Features	
Overall worst-case consequence	I – Negligible
Spill response operations – atmospheric emissions	
Threatened, migratory or local fauna	Atmospheric emissions from spill response equipment will be localised, and impacts to even the most sensitive fauna, such as birds, are expected to be I – Negligible.
Physical environment and habitat	
Threatened ecological communities	
Protected areas	
Socio-economic	
Overall worst-case consequence	I – Negligible
Spill response operations – operational discharges and waste	
Threatened, migratory or local fauna	Operational discharges from vessels may create a localised and temporary reduction in marine water quality, which has the potential to impact shallow marine habitats in particular. However, after adopting regulatory requirements for vessel discharges, which prevent discharges close to shorelines, discharges will have a negligible impact to habitats, fauna or protected area values. Decanting from containment and recovery operations would only occur if approval was provided by the relevant Jurisdictional Authority (as specified by controls in the Barossa GEP NT waters OPEP), otherwise all collected oil and water will remain in the collection tanks, and all will be treated as collected waste. Washing of vessels and equipment will occur only in defined offshore hot zones, preventing impacts to shallow habitats. Sewage, putrescible waste and municipal waste generated onshore will be stored and disposed of at approved locations. The storage, transport and disposal of hydrocarbon-contaminated waste arising from spill response operation actions will be managed by Santos' appointed waste management contractor, and dedicated waste containment areas will prevent the spreading or leaching of hydrocarbon contamination. Operational discharges from spill response operations are expected to be II – Minor.
Physical environment and habitat	
Threatened ecological communities	
Protected areas	
Socio-economic	
Cultural Features	
Overall worst-case consequence	II – Minor
Spill response operations – seabed and benthic habitat disturbance, marine fauna interaction	
Threatened, migratory or local fauna	The use of vessels has the potential to disturb benthic habitats, including sensitive shoal habitats such as corals and macroalgae. A review of shallow water habitats and of bathymetry and the establishment of demarcated areas for access and anchoring will reduce the level of impact to I – Negligible. These habitats or environments are likely to be values of the protected area they occur in, and the impact to the protected areas from physical disturbance is therefore also considered II – Minor. In the event of shoreline clean-up operations there is the potential for ground disturbance from removal of oiled habitat. Impact is considered II – Minor. The main direct disturbance to fauna would be the hazing, capture, handling, transportation, cleaning and release of wildlife susceptible to oiling impacts, such as birds and marine turtles. This would only be done if this intervention were to deliver a net benefit to the species, but it may result in a II – Minor consequence after complying with the Santos Oiled Wildlife Response Framework and Northern Territory Oiled Wildlife Response Plan.
Physical environment and habitat	
Threatened ecological communities	
Protected areas	
Socio-economic	
Cultural Features	
Overall worst-case consequence	II – Minor

Key receptors	Consequence level
Spill response operations – disruption to other users of marine and coastal areas and townships	
Socio-economic	The use of vessels in the offshore environment and spill response activities may exclude general public and commercial industries (such as fishing). Note this is distinct from the socio-economic impact of a spill itself, as described in Section 7.6. After applying control measures, it is considered the additional impact of spill response activities on affected industries would be II – Minor.
Overall worst-case consequence	II – Minor

7.7.6 Demonstration of as low as reasonably practicable

A NEBA is the primary tool used during spill response to evaluate response strategies and has the goal of selecting strategies that result in the least net impact to key environmental sensitivities. The NEBA process will identify and compare net environmental benefits of alternative spill response options, and will consider stakeholder input where relevant to inform the evaluation of impacts to socioeconomic sensitivities. The NEBA will effectively determine whether an environmental benefit will be achieved through implementing a response strategy or by undertaking no response. The NEBA will be undertaken by the relevant Controlling Agency for the Activity. For those activities under the control of Santos, the Incident Management Team (IMT) Environment Unit Leader will be responsible for reviewing the priority receptors and selected response strategies identified in this GEP Coastal Waters OEMP and coordinating the NEBA for each operational period. This will demonstrate that, at the strategy level, the response operations reduce additional environmental impacts to ALARP.

Spill response activities will be conducted in offshore waters using vessels and aircraft. The greatest potential for additional impacts from implementing spill response is considered to be on wildlife in offshore waters from oiled wildlife response activities.

Santos, together with the Controlling Agency for spill response, will apply appropriate processes and standards to ensure spill response impacts are reduced to a level that is ALARP.

All reasonably practicable control measures have been reviewed and those adopted are considered appropriate to manage the impacts such that the residual consequence is assessed to be II – Minor. The proposed control measures are in accordance with the Santos risk management criteria and are considered appropriate to manage impacts to ALARP.

7.7.7 Acceptability evaluation

Is the consequence ranked as I or II?	Yes – maximum consequence is II – Minor from contingency spill response operations.
Is further information required to validate the consequence assessment?	No – potential impacts and risks are well understood through the information available.
Are the risks and impacts consistent with the principles of ESD?	Yes – Activity evaluated in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline which considers principles of ecologically sustainable development.
Have the acceptable levels of impact and risks been informed by relevant species recovery plans, threat abatement plans, conservation advice , wildlife conservation plans and Australian marine park zoning objectives)?	Yes – Control measures implemented will reduce the impact of contingency spill response operations to species identified in the following relevant species recovery plans, conservation advice, wildlife conservation plans and other management plans/guidelines, as also set out in Table 3-13. **Conservation advice** • Approved Conservation Advice for *Pristis clavata* (Dwarf Sawfish) (DEWHA, 2009) • Approved Conservation Advice for Green Sawfish (DEWHA, 2008c) • Approved Conservation Advice for *Pristis pristis* (largetooth sawfish) (DoE, 2014b) • Approved Conservation Advice for *Glyphis garricki* (northern river shark) (TSSC, 2014a) • Approved Conservation Advice for *Glyphis glyphis* (speartooth shark) (DoE, 2014a) • Approved Conservation Advice for *Rhincodon typus* (whale shark) (TSSC, 2015g) • Approved Conservation Advice for *Balaenoptera physalus* (fin whale) (TSSC, 2015c)

	• Approved Conservation Advice for *Balaenoptera borealis* (sei whale) (TSSC, 2015b) • Approved Conservation Advice for *Limnodromus semipalmatus* (Asian dowitcher) (DCCEEW, 2024f) • Approved Conservation Advice for *Limosa limosa* (black-tailed godwit) (DCCEEW, 2024e) • Approved Conservation Advice for *Calidris tenuirostris* (great knot) (DCCEEW, 2024d) • Approved Conservation Advice for *Charadrius leschenaultii* (greater sand plover) (DCCEEW, 2023e) • Approved Conservation Advice for *Pluvialis squatarola* (grey plover) (DCCEEW, 2024d) • Approved Conservation Advice for *Limosa lapponica baueri* (Alaskan bar-tailed godwit) (DCCEEW, 2024k) • Approved Conservation Advice for *Calidris canutus* (red knot) (DCCEEW, 2024c) • Approved Conservation Advice for *Arenaria interpres* (ruddy turnstone) (DCCEEW, 2024l) • Approved Conservation Advice for *Calidris acuminata* (sharp-tailed sandpiper) (DCCEEW, 2024b) • Approved Conservation Advice for *Xenus cinereus* (terek sandpiper) (DCCEEW, 2024i) • Approved Conservation Advice for *Rostratula australis* (DSEWPaC, 2013) • Conservation Advice for *Charadrius mongolus* (lesser sand plover) (DCCEW, 2024a) • Approved Conservation Advice for *Rostratula australis* (Australian painted snipe) (TSSC, 2013). **Recovery plans** • Sawfish and River Sharks Multispecies Recovery Plan (CoA, 2015b) • Recovery Plan for the White Shark (*Carcharodon carcharias*) (Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC, 2013) • Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*) (CoA, 2014b) • Conservation Management Plan for the Blue Whale - A Recovery Plan under the *Environment Protection and Biodiversity Conservation Act 1999* 2015–2025 (CoA, 2015a) • Recovery Plan for Marine Turtles in Australia 2017–2027 (CoA, 2017b) • National Recovery Plan for the Australian Painted Snipe (*Rostratula australis*) (DCCEEW, 2022a) • Wildlife Conservation Plan for Seabirds (CoA, 2020) • Wildlife Conservation Plan for Migratory Shorebirds (CoA, 2015c). **Other management plans/guidelines** • National Light Pollution Guidelines for Wildlife (DCCEEW, 2023c) • Marine bioregional plans for the NMR (CoA, 2012). For the identified plans, the objectives of those plans are achieved through the adoption of performance outcomes and the control measures outlined in Section 7.7.4. Santos considers that the level of potential impact from contingency spill response operations is not inconsistent with these plans. Management is also consistent with the zoning of the Australian marine parks in that risks have been reduced to ALARP; for example, implementation of spill response activities will limit impacts, thereby conserving the marine park values as required by the North Marine Parks Network Management Plan (DNP, 2018a) and North-West Marine Parks Network Management Plan (DNP, 2018b).
Are performance outcomes, control measures and associated performance standards consistent with legal and regulatory requirements?	Yes – management consistent with and National Plan for Maritime Environmental Emergencies (AMSA, 2020), among other legislation identified in Appendix B. Through acceptance of this GEP Coastal Waters OEMP, legislative and regulatory requirements will be met as per Appendix B.

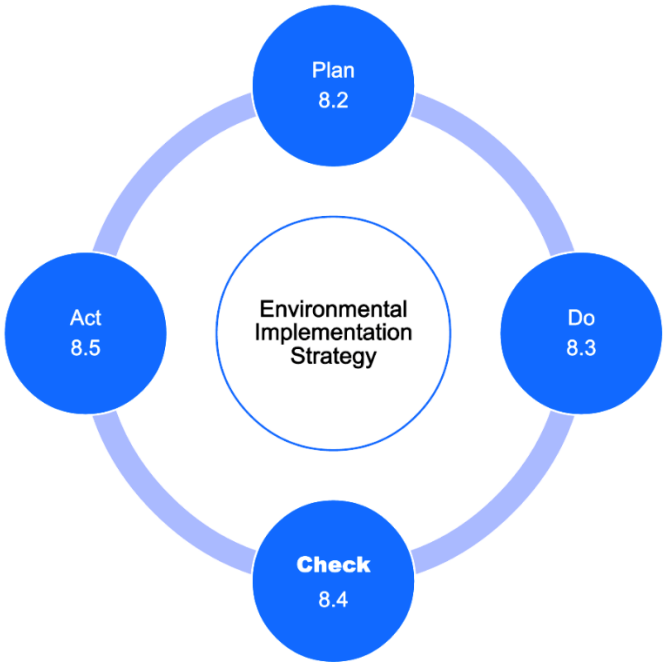
Are performance outcomes, control measures and associated performance standards consistent with Santos' Environment, Health and Safety Policy?	Yes – aligns with Santos' Environment, Health and Safety Policy (Appendix A).
Are performance outcomes, control measures and associated performance standards consistent with industry standards?	Yes – the most recent and comparable Operations EPs accepted by NOPSEMA have been reviewed for consistency with the performance outcomes, control measures and associated performance standards proposed in this GEP Coastal Waters OEMP.
Have performance outcomes, control measures and associated performance standards taken into consideration Relevant Person feedback	Yes – Relevant Persons feedback received during consultation for this activity has been considered when evaluating performance outcomes, control measures and associated performance standards. Where relevant, control measures implemented based on Relevant Persons feedback for other Barossa EPs have been adopted in this GEP Coastal Waters OEMP. Additional EPOs adopted. No additional CMs adopted.
Are performance standards such that the impact or risk is considered to be ALARP?	Yes – ALARP assessment conducted, with no additional control measures adopted.

The consequence of spill response operations on receptors is assessed as II – Minor. Based on an assessment of Santos' acceptability criteria and with the control measures in place, potential impacts are considered acceptable.

8. Implementation strategy

Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (OPGGS(E)R 2023) requirements
Section 22 Implementation strategy for environment plan
22(1) The environment plan must contain an implementation strategy for the activity in accordance with this section. *Consultation and compliance* 22(16) The implementation strategy must comply with the Act, this instrument, any other regulations made under the Act, and any other environmental legislation applying to the activity.

This section describes the implementation strategy for this GEP Coastal Waters OEMP which follows a PLAN-DO-CHECK-ACT cycle and is structured accordingly. The implementation strategy is based on the assessment of impacts and risks and describes how the control measures (Table 8-2) will be implemented to achieve the environmental performance outcomes (Table 8-1) and performance standards (Table 8-2). It describes the systems, practices and procedures in place to plan, implement, monitor and manage the activities so environmental risks and impacts are continually being reduced to ALARP and are acceptable.



8.1 Environmental performance outcomes, control measures and performance standards

8.1.1 Environmental performance outcomes and standards

OPGGS(E)R 2023 Requirements
Section 21 Environmental assessment
Environmental performance outcomes and standards 21(7) The environment plan must: a) set environmental performance standards for the control measures identified under paragraph (5)(c); and b) set out the environmental performance outcomes for the activity against which the performance of the titleholder in protecting the environment is to be measured; include measurement criteria that the titleholder will use to determine whether each environmental performance outcome and environmental performance standard is being met.

To ensure environmental risks and impacts will be reduced to ALARP and be of an acceptable level, environmental performance outcomes have been defined and are listed in Table 8-1, except those relating to hydrocarbon spill response, which are listed in the Barossa GEP NT Waters OPEP . These outcomes will be achieved by

implementing the identified control measures to the defined environmental performance standards (Table 8-2), noting some control measures are applicable to multiple environmental performance outcomes.

Table 8-1: Environmental performance outcomes

Reference	Environmental performance outcomes
EPO-01	No vessel collisions or adverse interactions with other marine users.
EPO-02	Vessel speeds in operational areas will not exceed applicable restrictions, to reduce the risk of physical interactions between cetaceans / marine reptiles and vessels.
EPO-03	Zero incidents of injury/mortality of cetaceans/marine reptiles from collision with vessels.
EPO-04	Seabed disturbance to be limited to planned activities and impacts described as part of the Activity and will not occur outside the Operational Area.
EPO-05	No anchoring or mooring of vessels on shoals/banks.
EPO-06	No loss of equipment or cargo overboard from vessels.
EPO-07	No introduction, establishment or spread of IMS in the natural environment as a result of the Activity.
EPO-08	No injury of, or mortality to, EPBC Act 1999 listed marine fauna or marine fauna listed as threatened species under the *Territory Parks and Wildlife Conservation Act 1976* (NT) as a result of the Activity.
EPO-09	Atmospheric emissions associated with the Activity will meet all regulatory source emission standards.
EPO-10	Manage indirect GHG emissions associated with the Activity consistent with the temperature objectives of the Paris Agreement, including by implementing company-wide targets and strategies for Scope 3 emissions reduction at the Barossa Gas Project as appropriate (having regard to joint venture arrangements and Barossa operations) and supporting customers and suppliers to reduce their GHG emissions.
EPO-11	Undertake the Activity in a manner that is compliant with the requirements of the Safeguard Mechanism.
EPO-12	No light emissions from the Activity except as required for safe operations and working requirements.
EPO-14	Planned discharges will meet relevant maritime obligations and Santos chemical assessment and approval process.
EPO-15	No displacement of marine turtles from habitat critical during nesting/breeding (including internesting periods for turtles) and ensure biologically important behaviour can continue in biologically important areas.
EPO-16	Zero unplanned discharge of hazardous and non-hazardous wastes into the marine environment from the Activity.
EPO-18	Zero unplanned discharge of hydrocarbons or chemicals to the marine environment from the Activity.
EPO-19	No significant[1] impact to cultural features from the Activity.
EPO-20	No impacts to underwater cultural heritage from the Activity.

Note 1: Significant is defined in the Santos Environment Consequence Descriptors (Appendix G).

8.1.2 Control measures and performance standards

Hazards and associated environmental risks and impacts for the proposed activities have been systematically identified and assessed in this GEP Coastal Waters OEMP in accordance with Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline. The control measures that will be used to manage identified environmental impacts and risks and the associated statements of performance required of the control measure (Environmental Performance Standards) are listed in Table 8-2. Measurement criteria outlining how compliance with the control measure and the expected environmental performance could be evidenced are also listed.

All control measures and EPSs and associated measurement criteria relating to hydrocarbon spill preparedness and response operations are contained within the Barossa GEP NT Waters OPEP.

Table 8-2: Environmental performance standards and measurement criteria

EPO no	Control measure	Environmental performance standard	Measurement criteria
EPO-03 EPO-08 EPO-15 EPO-16 EPO-19	BAO-CM-6.1.1 Apply Santos' Protected Marine Fauna Interaction and Sighting Procedure to vessel and helicopter activities when in the vicinity of cetaceans and turtles	Vessel/s comply with Santos' Protected Marine Fauna Interaction and Sighting Procedure, which ensures compliance with EPBC Regulations 2000- Part 8 which includes controls for minimising the risk of collision with marine fauna.	Conformance checked on receipt of marine fauna sighting datasheets.
			Completed vessel statement of conformance.
		Any vessel strikes with cetaceans will be reported in the National Ship Strike Database.	Conformance checked on Santos' receipt of incident report.
		Helicopter contractor procedures comply with Santos' Protected Marine Fauna Interaction and Sighting Procedure, which ensures compliance with Part 8 of the Environment Protection and Biodiversity Conservation Regulations 2000, which includes controls for minimising interaction with marine fauna.	Helicopter contractor procedures align with Santos' Protected Marine Fauna Interaction and Sighting Procedure.
		The vessel master or crew will act as a wildlife observer and record sightings of cetaceans and turtles.	Recorded marine fauna observations demonstrate adherence to EPBC Regulations – Part 8 Division 8.1 Interacting with cetaceans (and applied for marine turtles), including initiation of management measures for when the vessel was operated within a caution zone.
EPO-01 EPO-08 EPO-09 EPO-12 EPO-15 EPO-16 EPO-19 EPO-20	BAO-CM-6.1.2 Vessels equipped and crewed in accordance with Australian maritime requirements, including Marine Order 30 (Prevention of Collisions) and Marine Order 21 (Safety and Emergency Arrangements)	Vessels will be equipped and crewed in accordance with the Navigation Act 2012 (Cth) (as applicable for vessel size, type, and class), including implementing: • Marine Order 21 (Safety and emergency procedures), including safety measures such as manning and watchkeeping. • Marine Order 27 (Safety of navigation and radio equipment), including: ○ radio equipment and communications ○ navigation safety measures and equipment ○ danger, urgency and distress signals and messages. • Marine Order 30 (Prevention of Collisions), including: lights and signals as applicable to vessel class per COLREGS requirements. • Marine Order 70 (Vessel marine crew are trained and competent to navigate vessels • Marine Order 71 (master's and Deck Officers), including: all master, mate and watchkeeper officer duties undertaken by crew certified as applicable to vessel class per International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 (STCW) requirements.	A Minimum Safe Manning Certificate is in place and identifies minimum crew qualifications to meet the STCW requirements (as applicable for vessel size, type and class).
			Records of Santos marine vessel vetting process (as applicable for vessel size, type and class) to demonstrate the following: • Global Maritime Distress and Safety System (GMDSS) radio logbook maintained • radio equipment available, working and tested at regular intervals • electronic and/or paper-based charts are available.
			A Vessel Cargo Ship Safety Equipment Certificate demonstrates the vessel has lights, shapes, and means of making sound signals and distress signals in accordance with COLREGS requirements (as applicable for vessel size, type, and class).
			Records of vessel crew STCW qualifications align with the Minimum Safe Manning Certificate (as applicable for vessel size, type, and class)
			Non-compliance with relevant Marine Orders 21, 27, 30 70 and 71 and corrective action undertaken documented (as applicable for vessel size, type and class).
EPO-19 EPO-20	BAO-CM-6.1.4 Inductions for all site-based workforce will include information on cultural heritage to raise awareness about the cultural and spiritual belief of First Nations people	Activity inductions contain information on cultural heritage and are completed by all site-based workforce prior to commencement of Activity.	Records demonstrate cultural heritage awareness inductions completed by site-based workforce
EPO-12 EPO-19	BAO-CM-6.2.1 Lighting limited to that required for safe work conditions and navigational purposes	Vessel navigation lighting and equipment is compliant with COLREGS/Marine Orders 30: Prevention of Collisions, Marine Orders 21: Safety of Navigation and Emergency Procedures, Navigation Act 2012 (Cth). Work lighting will be the minimum required to maintain safe working conditions for all areas where the crew are operating on the deck.	Vessel certification confirms compliance with applicable regulations. Vessel crew induction outlines requirement to keep work lighting to a minimum to maintain safe working conditions Inspection verifies no excessive light being used beyond that required for safe work/navigation.
		HSE induction to crew includes minimising light emissions from vessel during night hours where possible.	Records demonstrate all project personnel have attended the Activity HSE Induction that includes minimising light emissions.

EPO no	Control measure	Environmental performance standard	Measurement criteria
EPO-12 EPO-19	BAO-CM-6.2.2 Additional lighting management (as recommended in the National Light Pollution Guidelines for Wildlife (DCCEEW, 2023h) implemented in the OA when undertaking activities within 3.3 km of turtle BIA or HC, where it does not impact the ability of light to safely illuminate the work area	When undertaking activity within 3.3. km of known turtle BIA or habitat critical, additional measures implemented to minimise direct light spill on the ocean surface will include: • turning off lights not in use • closing curtains • adjusting orientation of lights • installing shielding where it does not impact the ability of light to safely illuminate the work area.	Completed vessel statement of conformance.
EPO-12 EPO-19	BAO-CM-6.2.3 Vessel searchlights will only be operated when retrieving AUVs at night or in the event of an emergency	Vessel searchlights shall only be operated when retrieving AUVs at night or in the event of an emergency to minimise light emissions.	Training and induction records for Vessel Masters detail that search lights are to be operated only in an emergency or when retrieving AUVs at night.
EPO-11	BAO-CM-6.3.1 Monitoring of vessel fuel consumption and vessel speed management to reduce fuel use	Daily vessel fuel use monitoring. Vessels instructed, prior to vessel sailing, to sail at 'economic' speed specific to each vessel to reduce fuel use, subject to operational requirements.	Fuel use monitoring recorded in daily vessel performance reports. Vessel speed instructions issued to vessel prior to vessel sailing and statement of compliance recorded in daily vessel performance reports.
EPO-11	BAO-CM-6.3.9 Reporting of GHG emissions as per the NGER Scheme	NGERS reporting is compliant with requirements set by Clean Energy Regulator and NGER report is lodged annually.	Records show that National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 has been used to measure, report, and manage the relevant Barossa facility emissions and they are compliant with the requirements set by the Clean Energy Regulator.
EPO-11	BAO-CM-6.3.11 The purchase and/or surrender of Australian Carbon Credit Units (ACCUs) or Safeguard Mechanism Credits (SMCs) required under the NGER (Safeguard Mechanism) Rule 2015 for any non-reservoir emissions from the Barossa facility above the annual baseline as determined by the Clean Energy Regulator.	If there are non-reservoir emissions from the Barossa facility above the annual baseline Australian Carbon Credit Units (ACCUs) or Safeguard Mechanism Credits (SMCs) will be purchased or surrendered as required under the NGER (Safeguard Mechanism) Rule 2015.	Records demonstrate net GHG emissions managed within the applicable baseline under the Safeguard Mechanism.
EPO-11	BAO-CM-6.3.12 Implement an Operations GHG Emissions Management Plan (GHGEMP) as described in Section 8.3.2.12 to manage facility direct GHG emissions to ALARP over the life of the Activity, inclusive of: • Emissions Performance target setting (Section 8.2.4) • Critical Equipment Maintenance (Section 8.3.2.3.1) • Methane emissions management (Section 8.3.2.11) • Decarbonisation opportunity management (Section 8.5.6)	The GHGEMP will be implemented in accordance with Section 8.3.2.12. The GHGEMP will be reviewed annually.	Records demonstrate implementation of the GHGEMP against the performance standards listed for this control measure. Records demonstrate annual revision of the GHGEMP.
		Emissions performance targets are set and tracked as described in Section 8.2.4	Records demonstrate both ongoing monthly reviews against emissions performance targets and annual review against emissions estimates.
		Emissions monitoring or emissions control equipment maintenance as described in Section 8.3.2.3.1.	Records demonstrate maintenance for emissions monitoring and emissions control equipment according to system/equipment criticality requirements.
		Implementation of the Decarbonisation Opportunity Management process for the Barossa facility as described in Section 8.5.6	Records demonstrate Decarbonisation Opportunity Management plan developed and reviewed annually in accordance with the process described in Section 8.5.6. Records demonstrate progress in implementing Decarbonisation Opportunity Management plan.
EPO-09	BAO-CM-6.3.16 MARPOL-compliant (Marine Order 97) fuel oil will be used by vessels to reduce atmospheric emissions.	Vessels contracted whose practices comply with Marine Order 97 (including use of fuel oil) as applicable to vessel size, type, and class to reduce atmospheric emissions.	Fuel supply specifications show fuel is MARPOL-compliant on vessels.
EPO-09	BAO-CM-6.3.17 Pursuant to Marine Order 97, relevant vessels will have a current International Air Pollution	Vessels contracted will maintain a current International Air Pollution Prevention (IAPP) Certificate and/or Engine IAPP Certificate and/or International Energy Efficiency Certificate (IEEC) (or equivalent)', which certifies that measures to prevent	Current IAPP Certificate or equivalent in place for relevant vessels

EPO no	Control measure	Environmental performance standard	Measurement criteria
	Prevention (IAPP) Certificate or equivalent Ship Energy Efficiency Management Plan (SEEMP)	ozone-depleting substance emissions and reduce NOx, SOx and incineration emissions during the activity are in place.	
EPO-09	BAO-CM-6.3.18 Santos' vessel vetting process to include evaluation of vessel emissions and the potential for use of alternative fuels.	Vessel vetting includes evaluation of vessel emissions and the potential for use of alternative fuels to reduce scope 3 emissions.	Completed documentation of evaluation
EPO-10	BAO-CM-6.3.21 GHG emissions reduction initiatives of suppliers for the Barossa Gas Project will be evaluated in the tender evaluation process via development and implementation of a framework for identifying, assessing and implementing emissions reduction opportunities for all Barossa Gas Project supplier contracts of $30m+ value. Through the data collection and tender evaluation process, opportunities to collaborate on emissions reduction initiatives and low carbon alternatives will be sought, including the potential to support suppliers in respect of: • investments in innovations in technology; • research programs; • education and training relating to the adoption of emissions reduction policies and processes; and/or • monitoring programs The tender evaluation framework will be reviewed and refined to ensure it is adaptive to advancements in technology, data collected and other opportunities to encourage reductions in GHG emissions.	Data will be collected and recorded via the tender process. GHG emissions reduction initiatives will be evaluated during the tender process via a tender evaluation framework. Collaborating with Barossa Gas Project suppliers on initiatives may be adopted subject to a feasibility analysis, the willingness of suppliers to collaborate, and value to the environment. Annual review of the threshold spend will be conducted to ensure the most emissions intensive activities are captured. The tender evaluation framework will be reviewed and refined annually to ensure it is adaptive to advancements in technology, data collected and other opportunities to encourage reductions in GHG emissions.	Records demonstrate development and utilisation of tender evaluation framework, tender scope of work and evaluation forms. Records will evidence collaboration with Barossa Gas Project suppliers including investment spend and the implementation of initiatives and programs, including explanation where this has not occurred. Records demonstrate that annual review of threshold spend has been conducted. Records demonstrate annual revisions of the tender evaluation framework to ensure it is adaptive to advancements in technology, data collected and other opportunities to encourage reductions in GHG emissions.
EPO-10	BAO-CM-6.3.22 Annual engagement with suppliers with Barossa Gas Project supplier contracts of $30m+ value to request GHG emissions data for Barossa activities. Data sought would include: • quantitative and qualitative climate-related targets (including for Scopes 1, 2 and 3 emissions); • information about the supplier's approach to setting, reviewing and monitoring progress against each target; • information about the supplier's performance against each climate-related target, including GHG emissions data and measurement approach, inputs and assumptions, over the past year; • the supplier's use over the past year, and planned use, of carbon credits to offset GHG emissions; • information regarding the supplier's climate-related risks and opportunities, including	Data will be collected annually and evaluated on an annual basis against Santos' scope 3 emissions estimations, Santos' Scope 3 equivalent climate targets and Climate Transition Action Plan. Review to be undertaken annually of options for improvements in the management of or reduction of Scope 3 emissions arising from this engagement.	Records will evidence annual supplier data requests, responses received and evaluation of responses. Records will evidence annual verification of GHG emissions estimates associated with Barossa Gas Project suppliers and evaluation against Scope 3 equivalent climate targets and Climate Transition Action Plan to the extent practicable through the above engagement with suppliers. Records will demonstrate review of any options for improvements in the management of or reduction of Scope 3 emissions arising from this engagement.

EPO no	Control measure	Environmental performance standard	Measurement criteria
	information regarding the supplier's emissions reduction initiatives (if any). Data will be used to verify GHG emissions estimates associated with our suppliers and track performance against Santos' Scope 3 equivalent targets and Climate Transition Action Plan.		
EPO-10	BAO-CM-6.3.24 Supporting Barossa Gas Project suppliers to reduce GHG emissions by: • promoting global measurement and reporting standards by participating in relevant industry associations and collaboration initiatives; and • advocating for policy frameworks that enable a consistent approach to carbon emissions management.	Annual review of current or new industry forums, associations and initiatives warranting participation/involvement will be undertaken. Participation will take the form of attendance at events and actions arising, which may include ongoing collaboration and/or engagement with policy makers and other stakeholders, as relevant. Review to be undertaken annually of any options for improvement in GHG emissions management or GHG emissions reductions arising from such engagement.	Records will demonstrate annual review of current or new industry forums, associations and initiatives warranting participation/involvement. Records will demonstrate participation in relevant industry association and collaboration initiatives, and engagement with policy makers and other stakeholders, as relevant. Records will demonstrate consideration of any potential for improvements in GHG emissions management or emissions reductions arising from this engagement.
EPO-09	BAO-CM-6.4.1 Ozone depleting substance (ODS) and lower global warming potential (GWP) refrigerants use and handling procedures	ODS on vessels is managed in accordance with Marine Order 97 (vessels) and MARPOL Annex VI to reduce the risk of an accidental release of ODS to air.	Completed ODS Record Book or recording system is on vessel in accordance with Marine Order 97 (vessels) and MARPOL VI.
EPO-09	BAO-CM-6.4.3 Vessel waste incineration management	Waste incineration on vessels is managed in accordance with Marine Order 97/MARPOL Annex V to minimise atmospheric emissions.	Completed vessel waste record book or recording system in accordance with Marine Order 97
EPO-09	BAO-CM-6.4.4 National Pollutant Inventory (NPI) Reporting	NPI reporting is lodged as per the NPI submission requirements.	Records show that NPI reports have been lodged as per NPI submission
All	BAO-CM-6.4.5 HSE inductions will include applicable environmental requirements	All project personnel will attend HSE inductions which will include environmental requirements as required by this GEP Coastal Waters OEMP to reduce environmental impacts and risks to ALARP and acceptable levels.	Records demonstrate all project personnel have attended the Activity HSE Induction and that HSE inductions include environmental requirements as required by this GEP Coastal Waters OEMP to reduce environmental impacts to ALARP and acceptable levels.
EPO-08 EPO-09 EPO-13 EPO-14 EPO-15 EPO-16 EPO-17 EPO-19	BAO-CM-6.4.10 Barossa Facilities and vessels planned maintenance system to confirm equipment integrity is maintained in accordance with manufacturers guidelines.	Documented maintenance program is in place for lifting equipment on vessels that provides a status on the maintenance of equipment in accordance with manufacturers guidelines.	Records from Santos vessel vetting process confirm planned maintenance of cranes and lifting equipment on vessels undertaken in accordance with manufacturer guidelines.
		Ensure bunkering equipment is maintained to reduce the likelihood of loss of integrity events during transfers: • visual inspection of the integrity of the prior to bunkering • test date/certification of the hose is checked prior to bunkering	Completed pre-bunkering checklist show bunkering equipment is checked and the test date/certification is valid
		Documented maintenance program is in place for discharge monitoring equipment to ensure they are operating within their design parameters and analysers are calibrated in accordance with manufacturer guidelines.	Records show maintenance of discharge monitoring equipment in accordance with manufacturer guidelines.
EPO-04	BAO-CM-6.5.2 Maintain a subsea infrastructure inventory	Maintain a comprehensive and accurate inventory of subsea infrastructure and locations, including tracking of subsea infrastructure brought into the OA. An accurate inventory will reduce permanent seabed disturbance as it will enable Santos to fulfill future decommissioning/removal responsibilities.	Subsea infrastructure inventory records completed and maintained throughout the project.
EPO-04	BAO-CM-6.5.3 Span correction procedures to be developed, if required	If required, a span-correction procedure will be developed to provide clear direction on how spans shall be rectified and surveyed to minimise seabed disturbance.	A copy of a span rectification procedure (or similar) demonstrating alignment to requirements.

EPO no	Control measure	Environmental performance standard	Measurement criteria
EPO-04 EPO-05 EPO-20 EPO-21	BAO-CM-6.5.4 Vessels will not anchor under routine operations within the OA however may anchor during emergency conditions.	Vessels will not anchor under routine operations within the OA however may anchor during emergency conditions	No reported or recorded incidents of anchoring occurring within the OA, unless in the event of emergency conditions.
EPO-01 EPO-04 EPO-19 EPO-20 EPO-21	BAO-CM-6.6.1 Notify AHS and AMSA MSI prior to relevant Activity	AHS Notice to Mariners and AMSA MSI will be notified prior to relevant Activity to reduce the likelihood of unplanned interactions with other vessels.	Consultation records demonstrate AHS and AMSA MSI provided sufficient information to generate Notice to Mariners prior to relevant activities.
EPO-01 EPO-07 EPO-09 EPO-17 EPO-18 EPO-19 EPO-20	BAO-CM-6.6.4 Activity undertaken in accordance with Santos HSE management and marine vessel vetting processes (Santos' Offshore Marine Assurance Procedure)	Vessels selected and onboarded in accordance with Santos' Offshore Marine Assurance Procedure to ensure contracted vessels equipment is maintained in accordance with Santos and industry standards, and regulatory requirements to ensure other marine users are aware of physical presence thus reducing the potential for interaction or collision.	Completed documentation in accordance with Santos' Offshore Marine Assurance Procedure.
EPO-02 EPO-19 EPO-20 EPO-21	BAO-CM-6.6.6 Vessel speed restrictions within 500m around the IMMR vessels and campaign vessels	Restrict vessel operating speeds to 8 knots or less within 500m safety zone around IMMR vessels and campaign vessels to reduce the likelihood of unplanned interactions with other vessels with the exception of other fast rescue craft undertaking drills and training or responding to an emergency situation"	Vessel speeds in exceedance of 8 knots are contained in incident reports documentation and corrective action undertaken documented. With the exception of other fast rescue craft undertaking drills and training or responding to an emergency situation".
		Project induction material includes an environmental requirements section that details speed limit requirements to reduce the likelihood of unplanned interactions with other vessels.	Induction records confirm all project personnel have completed the project induction, and that induction includes information specified in the EPS.
EPO-01	BAO-CM-6.6.7 Communications plan will be implemented for engagement prior to and during the Activity that may impact marine users, to raise awareness of the activity.	A communications plan will be developed by end of the first quarter of each year that identifies key Barossa activities that may impact other marine users and set out how we will communicate the location, timing, and nature of the identified Barossa activities to marine users that may be impacted. Communications will occur in accordance with Table 8-13	Consultation records demonstrate implementation and annual review of a communications plan, and any consultation feedback received.
EPO-01	BAO-CM-6.6.8 Charting of infrastructure on nautical charts	Activity infrastructure will be clearly marked on Australian nautical charts published by the AHO to reduce the likelihood of unplanned interactions with other vessels.	Evidence of confirmation that Australian nautical charts published by the AHO show infrastructure installed as part of the activities described in the GEP Coastal Waters OEMP.
EPO-14 EPO-17 EPO-20	BAO-CM-6.7.2 Routine discharges of treated sewage and grey water, in accordance with Marine Order 96 (Marine Pollution Prevention – Sewage)	Valid International Sewage Pollution Prevention (ISPP) Certificate (as relevant to vessel class and type) that details the vessel has a: • MARPOL approved sewage treatment plant • sewage comminuting and disinfecting system • sewage holding tank sized appropriately to contain all generated waste (black and grey water).	A copy of valid International Sewage Pollution Prevention (ISPP) Certificate demonstrating the vessel has a MARPOL approved sewage treatment plant (as relevant to relevant to vessel class and type).
			Where the vessel does not have a MARPOL approved sewage treatment plant, records of sewage treated using an approved comminuted and disinfecting system are maintained in an Official Log Book (or similar) that records discharge locations and volumes and verifies that discharge occurred at a distance of more than 3 NM from the nearest land.
			Where the vessel does not have a MARPOL approved sewage treatment plant, records of sewage not comminuted or disinfected are maintained in an Official Log Book (or similar) that records discharge locations and volumes and verifies that discharge occurred at a distance of more than 12 NM from the nearest land.

EPO no	Control measure	Environmental performance standard	Measurement criteria
EPO-14 EPO-19 EPO-20	BAO-CM-6.7.3 Deck cleaning product selection according to MARPOL Annex V (and Marine Order 93: Noxious liquid)	Deck cleaning products planned to be released to sea from the vessels meet the criteria for not being harmful to the marine environment according to MARPOL Annex V.	Safety Data Sheet and product supplier supplementary data as required show deck cleaning products comply with MARPOL Annex V.
			Records demonstrate the chemical selection process has been implemented for all deck cleaning chemicals.
			Completed vessel inspection checklists.
EPO-13 EPO-14 EPO-19 EPO-20	BAO-CM-6.7.5 Apply the Santos chemical selection process for chemicals planned to be discharged (Section 2.7).	Chemicals planned to be discharged to sea are Gold/Silver/D or E rated through OCNS, or PLONOR substances listed by OSPAR, or have a complete risk assessment as per Santos Offshore Division Operations Chemical Approval Procedure so that only environmentally acceptable products are discharged.	Records demonstrate the chemical selection process (Section 8.3.2.10) has been implemented for all chemicals planned to be discharged.
EPO-14 EPO-19 EPO-20	BAO-CM-6.7.6 Routine discharges of treated bilge and deck water from vessels will comply with Marine Order 91 and *Marine Pollution Act 1999* (NT), as applicable.	Pursuant to Marine Order 91, support vessels larger than 400 t will have an International Oil Pollution Prevention Certificate, which certifies that required measures to reduce impacts of planned oil discharges are in place	A copy of a current International Oil Pollution Prevention (IOPP) certificate
		Machinery space bilge/oily water for support vessels larger than 400 t shall have IMO approved oil filtering equipment (oil/water separator) with an on-line monitoring device to measure Oil in Water (OIW) content to be less than 15 ppm prior to discharge.	Supplement to the IOPP Certificate that indicates that the vessel has an approved oil / water separator with online monitoring calibrated to discharge at less than 15 ppm OIW (as relevant to relevant to vessel class and type).
		Oily mixtures (bilge water) only discharged to sea in accordance with Marine Order 91 and *Marine Pollution Act 1999* (NT), as applicable.	Evidence of a current and maintained Oil Record Book.
EPO-22	BAO-CM-6.7.11 Contractor contingency pipeline preservation procedure and specification	Contractor contingency pipeline preservation procedure and specification will be implemented and will include: • treatment chemicals selected will be Gold (OCNS) or pseudo-CHARM rated Gold	A copy of the contractor contingency pipeline preservation procedure and specification are aligned with requirements listed in the EPS of BAO-CM-6.7.11
			Records demonstrate the chemical selection procedure was implemented for all relevant chemicals.
			Records demonstrate that the chemical treatment product selected is a Gold (OCNS) or pseudo-CHARM rated Gold.
EPO-20 EPO-22	BAO-CM-6.7.12 Contractor contingency pipeline major repair procedure to be developed in the event a major repair is required.	The contractor will develop a major repair procedure, in the case that a major repair is required, and will include management of treated seawater to reduce the likelihood of an unplanned treated sea water release.	Records confirm a pipeline major repair procedure (or similar) is in place in the event of a major repair is required and includes management of treated seawater.
EPO-06 EPO-17 EPO-19 EPO-20 EPO-21	BAO-CM-7.1.1 Implement standards and procedures for lifting equipment to reduced risk of dropped objects during lifting.	Lifting operations comply with lifting IMMR procedures that include provision for: • lift plans as required • ROV monitored lifts, where required • establishing and maintaining communications between relevant parties (e.g. ROV / crane operator) in line with roles and responsibilities • Weather / sea state restrictions • operational procedural guidelines lifting equipment (inspection and certification) • training and competency.	Records and Lifting Equipment Register shows lifting equipment is certified.
		A vessel undertaking lifting activities that do not require a Safety Case will have an activity-specific procedure in place to manage lifts and avoid dropped objects.	Activity-specific procedure includes management of lifts and avoidance of dropped objects.
		When safe and practicable objects dropped overboard are recovered per BAO-CM-7.1.2.	Fate of dropped objects detailed in incident documents.

EPO no	Control measure	Environmental performance standard	Measurement criteria
EPO-06 EPO-17 EPO-19 EPO-20 EPO-21	BAO-CM-7.1.2 Dropped objects (incident) management.	For all dropped objects, dropped object (incident) management includes the following: • assessment of environmental risk • assessment of feasibility of object recovery, where safe and practicable to do so • implementing outcomes of the assessment.	Incident documentation details the dropped objects management assessment, considerations and outcomes.
EPO-06 EPO-17 EPO-18 EPO-19 EPO-20 EPO-21	BAO-CM-7.1.3 International Maritime Dangerous Goods Code.	Dangerous goods managed in accordance with International Maritime Dangerous Goods Code to reduce the risk of an environmental incident, such as an accidental release to sea or unintended chemical reaction.	Records demonstrate that dangerous goods carried on Registered Australian Vessels (RAVs) and foreign vessels are shipped in accordance with Marine Order 41 (Division 4, Regulation 16), and appropriate records including a completed multimodal dangerous goods form are kept.
EPO 18 EPO 19	BAO-CM-7.1.4 Chemicals and hydrocarbons will be managed in accordance with SDS to reduce risk of release to the marine environment.	Chemicals and hydrocarbons managed in accordance with SDS in relation to safe handling and storage, spill response and emergency procedures, and disposal considerations.	Records of contractor vessel audits and/or inspections demonstrate compliance with chemical and hydrocarbon storage and handling requirements.
EPO-07 EPO-18 EPO-19	BAO-CM-7.2.1 Develop and implement a biosecurity management plan in consultation with and approved by the Department of Agriculture Forestry and Fisheries (DAFF).	Vessels on contract to Santos are managed to low risk in accordance with the biosecurity management plan and Santos Offshore Division Invasive Marine Species Management Plan before movement or transit into or within the invasive marine species management zone, which requires: • compliance with the Biosecurity Act 2015 • assessment of applicable vessels using the IMS Management Plan risk assessment • the management of immersible equipment to low risk • accurately reporting information in accordance with Section 193 of the Biosecurity Act 2015 • compliance with the Biosecurity Status Document conditions • maintain a Biofouling Management Plan and Ballast Water Management Plan as required • read and understand the Biosecurity Status Document directions and conditions and keep a copy of the current version on board the vessel, for the duration of the voyage in Australia.	Record of Biosecurity Status Document for applicable vessels. Completed Pre-Arrival forms.
		Vessels mobilising from international locations will complete an IMS risk assessment, before first mobilisation to the OA, as described in Santos Offshore Division Invasive Marine Species Management Plan. The IMS risk assessment assigns a final risk category of low, acceptable, uncertain or high to vessels based on a range of information including last port of call, age of antifouling coating, internal sea water systems and niche management. If a risk category of uncertain or high is assigned, management responses will include inspections, cleaning or treatment of internal seawater systems (or a combination of these actions).	Records of IMS risk assessment.
		Vessels receive entry clearance from DAFF (Seaports) as necessary (or as applicable to their location and movements).	Records show a completed Questionnaire for Biosecurity Exemptions for Biosecurity Control Determination issued to Seaports at least one month in advance where practicable. Letter received from DAFF indicating that the vessels (as necessary) achieve a low IMS risk status and entry clearance is granted.
			Records show ballast water management is implemented.

EPO no	Control measure	Environmental performance standard	Measurement criteria
		Pursuant to the Biosecurity Act 2015 and Australian Ballast Water Management Requirements 2017, vessels carrying ballast water and engaged in international voyages shall manage ballast water so marine pest species are not introduced.	Completed ballast water record book or log is maintained.
EPO-07 EPO-18 EPO-19	BAO-CM-7.2.2 Vessels undertake ballast water management or treatment to achieve low risk ballast water.	Ballast water discharges will comply with the Australian Ballast Water Management Requirements (DAWE, 2020a), which implements the requirements of the Biosecurity Act 2015 (Cth) and the International Convention for the Control and Management of Ships' Ballast Water and Sediments (as appropriate for vessel class)	Records demonstrating a ballast water record system (electronic or in hard copy) is maintained.
			If the vessel cannot demonstrate it meets D-2 standards, records of ballast water discharge logs confirm no discharge within 12 nautical miles of coastlines including any ports.
			An International Ballast Water Management Certificate is in place for vessels and demonstrates the principal ballast water management method is in accordance with D-2 standards.
			A Biosecurity Status Document showing an approved ballast status (for vessels arriving from international locations) or a low-risk exemption through a domestic ballast water risk assessment (for domestic vessels).
EPO-07 EPO-18 EPO-19	BAO-CM-7.2.3 Vessels equipped with effective anti-fouling coatings.	Vessels will have a suitable anti-fouling coating in accordance with the Protection of the Sea (Harmful Anti-fouling Systems) Act 2006 (Cth) (as applicable for vessel class and type), including: • Marine Order 98 (Marine Pollution – Anti-fouling Systems) including (as required by vessel class): • a valid international anti-fouling system certificate. • Vessel anti-foulant system maintained in compliance with International Convention on the Control of Harmful Anti Fouling Systems on Ships where applicable.	A copy of an approved international anti-fouling system certificate, as relevant to each vessel class and type.
EPO-07 EPO-18 EPO-19	BAO-CM-7.2.4 Vessels equipped with Marine Growth Prevention System (MGPS).	Vessels will have a marine growth prevention system or appropriate manual treatment systems.	Biosecurity management records demonstrate vessels have a marine growth prevention system or appropriate manual treatment systems.
EPO 18 EPO 19	BAO-CM-7.4.1 ROV operations undertaken in accordance with good industry practice.	Scheduled preventive maintenance on ROV completed as per manufacturer specifications to reduce the risk of hydraulic fluid releases to sea.	Vessel contractor written verification demonstrates compliance with manufacturer specifications.
		ROV pre-mobilisation audit completed to reduce the risk of hydraulic fluid releases to sea.	Records show a pre-mobilisation audit completed for all ROV operations.
EPO-17 EPO-18 EPO-19	BAO-CM-7.4.2 Bulk liquid transfer procedure	Bunkering operation procedure is in place and includes key requirements to prevent spills to the environment such as: • when bunkering activities can occur (hose connection restricted to daylight hours) • roles and responsibilities for bunkering operations • hoses have dry break couplings • bunkering activity communication requirements • hose integrity inspection • requirement to be DP Class 2 vessels.	Records show a completed bunkering checklist prior to any bunkering is undertaken.

EPO no	Control measure	Environmental performance standard	Measurement criteria
EPO-19 EPO-20	BAO-CM-7.4.3 Vessel spill response plans (SOPEP/SMPEP)	Vessels have and implement checklists and a SOPEP or SMPEP pursuant to MARPOL Annex I. These measures reduce the likelihood of a spill entering the marine environment is reduced.	Approved SOPEP or SMPEP in place.
			Spill details contained in incident documentation.
		Spill response exercises conducted in accordance with SOPEP/SMPEP to ensure personnel are prepared.	Spill exercise records or evidence of a spill exercise aligned with the vessel SOPEP/SMPEP requirements.
EPO-17 EPO-18 EPO-19	BAO-CM-7.4.4 Spill clean-up kits available in high-risk areas	Selection of vessel contractor is subject to Santos marine vessel vetting processes, specifically spill kits stocked and ready for use by trained personnel in the event of a spill to the marine environment.	Vessel audit process confirm spill kits stocked and ready for use in accordance with the manufacturer's guidance.
EPO-09 EPO-18 EPO-19 EPO-20	BAO-CM-7.6.1 Emergency response plan (ERP)	ERP details the requirements for preparedness and response to emergencies and crises to protect people and the environment. ERP is initiated to activate isolation of the flowline, pipeline and wells in the event the integrity of a pipeline and valve is compromised or there is an unplanned hydrocarbon release.	Completed incident documentation shows ERP implemented as applicable if triggered by a release of hydrocarbons.
EPO-09 EPO-18 EPO-19 EPO-20	BAO-CM-7.6.2 Pipeline operating procedures	The Pipeline is operated within design envelope and maintained consistent with the Pipeline operating procedures reducing the potential of a pipeline rupture/subsea leak and hydrocarbon release.	Record logs show pipeline operation has been in accordance with the relevant procedure. Inspection, review and maintenance records.
EPO-09 EPO-18 EPO-19 EPO-20	BAO-CM-7.6.3 Pipeline Integrity Management Plan	The integrity of the pipeline is maintained consistent with the Pipeline Integrity Management Plan reducing the potential of a pipeline rupture/subsea leak and hydrocarbon release.	Pipeline maintenance and inspection records.
EPO-09 EPO-18 EPO-19 EPO-20	BAO-CM-7.6.5 Repairs to the Pipeline carried out to design specification	Pipeline repairs are carried out consistent with design specifications, including Pipeline Integrity Management Plan and Offshore Standard for Submarine Pipeline Systems, ensuring that infrastructure integrity remains in line with standards and specifications. The above reduced the possibility of a release of hydrocarbons resulting from a loss in infrastructure integrity.	Records demonstrate repairs to the Pipeline carried out in accordance with the Pipeline Integrity Management Plan and DNV Offshore Standard for Submarine Pipeline Systems.
EPO-09 EPO-18 EPO-19 EPO-20	BAO-CM-7.6.9 Barossa Nearshore Gas Export Pipeline Operations Pipeline Management Plan	Barossa Nearshore Gas Export Pipeline Operations Pipeline Management Plan will be in place to identify hazards that have the potential to cause a loss of containment, detail the risks and identify physical barriers and safety management systems required to reduces risks to ALARP. If a loss of containment from the Pipeline was to occur, it will be managed in accordance with the Barossa Nearshore Gas Export Pipeline Operations Pipeline Management Plan, which details alarms and required emergency response in the event of a loss of containment.	Records demonstrate alarms are maintained and emergency response enacted in accordance with the Barossa Nearshore Gas Export Pipeline Operations Pipeline Management Plan.

EPO no	Control measure	Environmental performance standard	Measurement criteria
EPO-18 EPO-19 EPO-20	BAO-CM-7.7.8.6 Inspection of hydrocarbon containing equipment	The Barossa Project Integrity Management Plan – Subsea is implemented to ensure subsea infrastructure integrity is maintained, reducing likelihood of release to the marine environment. The plan includes: • inspection frequencies aligned with the RBI plan, including 3-yearly GVI of the GEP • inspections methodologies (including GVI and CP) • post-cyclone survey requirements, after a significant cyclonic event.	Campaign-specific inspection records demonstrate ongoing inspection and maintenance with the Barossa Project Integrity Management Plan – Subsea. GEP integrity records detailing CP surveys and inspection campaigns including inspection schedules, along with the current status of the GEP. Any finding, maintenance or future monitoring will also be recorded and presented within the Maintenance records.
EP-19 EP-20	BAO-CM-7.7.8.15 Accepted Barossa GEP NT waters OPEP	In the event of an oil spill to the sea, the Barossa GEP NT Waters OPEP requirements are implemented to mitigate the environmental impact.	Completed incident documentation shows the Barossa GEP NT Waters OPEP implemented as applicable.

8.2 Plan

The activities covered under 'Plan' describe an established and defined environmental management system, leadership commitments, and specific measures in the EMS that demonstrate how the activity will be managed and monitored to ensure that the EPOs and EPSs are met, within an ALARP performance target setting framework.

8.2.1 Environmental Management System

OPGGS(E)R 2023 Requirements
Section 22 Implementation strategy for environment plan
Environmental management system 22(2) The implementation strategy must contain a description of the environmental management system for the activity, including specific measures to be used to ensure that, for the duration of the activity: (a) the environmental impacts and risks of the activity continue to be identified and reduced to a level that is as low as reasonably practicable; and (b) control measures detailed in the environment plan are effective in reducing the environmental impacts and risks of the activity to as low as reasonably practicable and an acceptable level; and (c) environmental performance outcomes and environmental performance standards in the environment plan are being met.

Santos as a titleholder and Operator of the Barossa facilities, including the GEP, is accountable for implementation and compliance with this GEP Coastal Waters OEMP. BW Offshore (BWO) is the owner of the BW Opal FPSO and provides crewing for its day-to-day operation and maintenance under a service contract with Santos.

Santos operates the Barossa facilities in accordance with an asset-specific management system: the Barossa Management System (BMS). The BMS is the environmental management system for the Activity. The BMS provides the framework and sets the mandatory requirements to manage and operate the Barossa facilities, including complying with the requirements of this GEP Coastal Waters OEMP.

As the transfer of dry gas in the GEP is reliant on the operation of the FPSO and any GEP IMMR activities are managed under the FPSO permit to work, the Barossa Management System is presented in its entirety as shown in the Barossa Production Operations EP. However, FPSO specific personnel are not directly responsible for IMMR activities in coastal waters and therefore no FPSO-specific roles are reflected in the roles and responsibility section of this GEP Coastal Waters OEMP.

8.2.1.1 Barossa Management System

The Barossa Management System integrates the relevant parts of the Santos and BWO management systems into a cohesive framework through the alignment of policies, standards and procedures.

Given the FPSO is provided under a service contract from BWO, the Barossa Management System was developed to leverage the BWO management system for the FPSO. The Barossa Management System comprises:

- BWO documents, procedures, and applications from the BWO management system that apply to Barossa FPSO work activities; and
- Santos documents from the Santos Management System that apply to operation of the Barossa subsea infrastructure, including the GEP, and supporting activities.

The BMS supports implementation of this GEP Coastal Waters OEMP requirements. The BMS also meets the minimum requirements of the Santos Policies and Operating Standards related to environment, health, and safety (EHS), and security. Santos as the operator of the Barossa facilities is accountable for the health and safety of all personnel, and the environmental performance of the Barossa facilities.

To ensure that all users and stakeholders of the BMS can identify and access applicable management system documentation for respective Barossa infrastructure and activities, the Barossa Management System Interface Plan serves to clearly explain the system hierarchy, scope boundaries and content of the BMS. The BMS is jointly managed by BWO and Santos and is hosted in an online location accessible to all persons engaged in Barossa related activities.

Future changes to BMS documentation and tools are managed via a change management process (Section 8.5.5). If the change under consideration results in an OEMP requirement no longer being met, or if a conflicting requirement is proposed for implementation, such changes are required to be assessed via the Environment Plan MoC process (Section 8.5.2) to determine if an OEMP revision or resubmission is required.

All field work, including subsea operations, is controlled by the FPSO Permit Process (Section 8.3.2.4), and all environmental incidents are recorded in Santos' incident management database.

The Santos Risk Matrix is the foundation for all risk assessments and management of change activities. BWO risk assessment and management of change applications are used for the FPSO, with Santos' systems applied to subsea infrastructure, including the GEP. Where a risk assessment or management of change is required to span both topsides and subsea, including the GEP, the Santos application governs the overall process. BWO risk assessment and management of change processes align with the Santos Risk Matrix. Risk management processes are further described in Section 8.3.2.1.

The BMS implements the requirements of the Barossa Production Operations EP and this GEP Coastal Waters OEMP at the Barossa facilities through the relevant, standards, procedures, processes, and tools. This includes:

- The standards, procedures, and tools for FPSO operations (out of scope of this OEMP). These standards, procedures and tools satisfy the minimum EHS requirements of Santos' Policies and Operating Standards and key procedures, and the requirements of this EP.
- The Santos standards, procedures, and tools for operating the subsea infrastructure, including the GEP.
- The Santos standards, procedures, and tools for business and supporting activities, including logistics / helicopter operations, drilling and completions activities, project management, etc.

Specific standards, procedures, processes and tools relevant to implementation of this GEP Coastal Waters OEMP , are described in the subsequent sections of the implementation strategy.

The BMS is continually improved and updated over the life of the Activity, responding to learnings from internal or industry wide incidents, changes in technology, regulations, processes, plant, and systems.

The Santos General Manager – Darwin is accountable for implementation of the BMS.

Figure 8-1 presents the key aspects of the BMS.

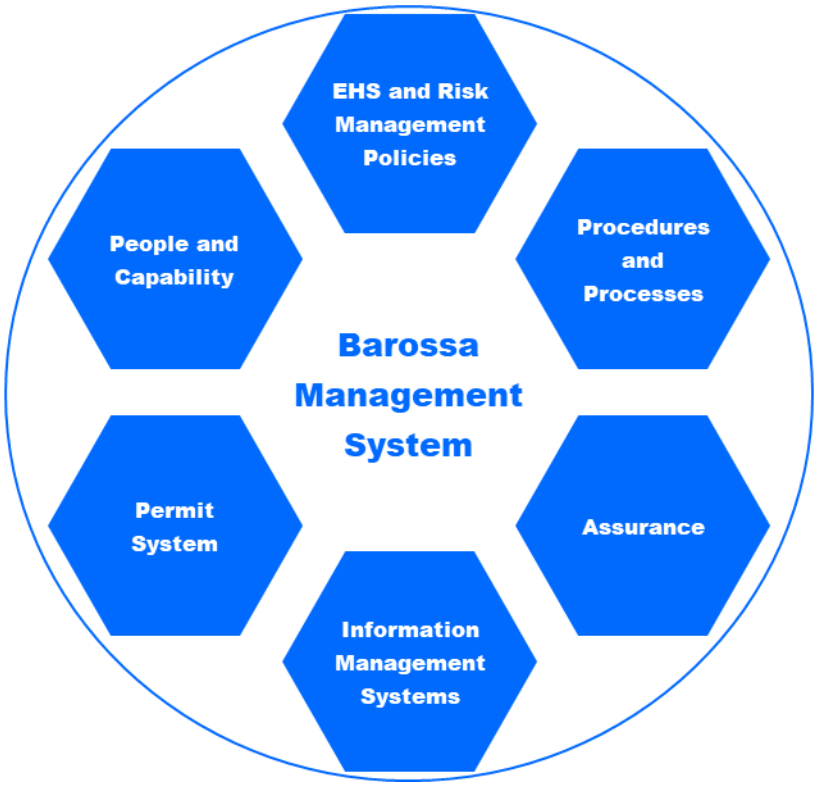


Figure 8-1: Key elements of the Barossa Management System

8.2.1.2 Environment, Health and Safety Policy

Santos' Environment, Health and Safety Policy (Appendix A) clearly sets out Santos' strategic environmental objectives and the commitment of the management team to continuously improving environmental performance. This GEP Coastal Waters OEMP has been prepared in accordance with this policy.

8.2.1.3 Standards, procedures and tools

The standards, processes, procedures, and tools contained within the BMS, support the implementation of control measures to achieve environmental performance outcomes and standards identified in this GEP Coastal Waters OEMP. The OEMP requirements have been mapped to relevant standards, processes, procedures and tools within the BMS, and those relevant to OEMP implementation are described in the subsequent sections of the implementation strategy. For example, processes for equipment maintenance to manage related impacts/risks of the Activity.

8.2.2 Leadership, accountability and responsibility

OPGGS(E)R 2023 Requirements
Section 22 Implementation strategy for environment plan
Responsibilities of employees and contractors 22(3) The implementation strategy must establish a clear chain of command, setting out the roles and responsibilities of employees and contractors in relation to the implementation, management and review of the environment plan, including during emergencies or potential emergencies.

8.2.2.1 Organisation

Figure 8-2 presents the indicative Barossa offshore organisation structure in place throughout all activities conducted under the Production Operations EP and IMMR activities relevant to this GEP Coastal Waters OEMP.

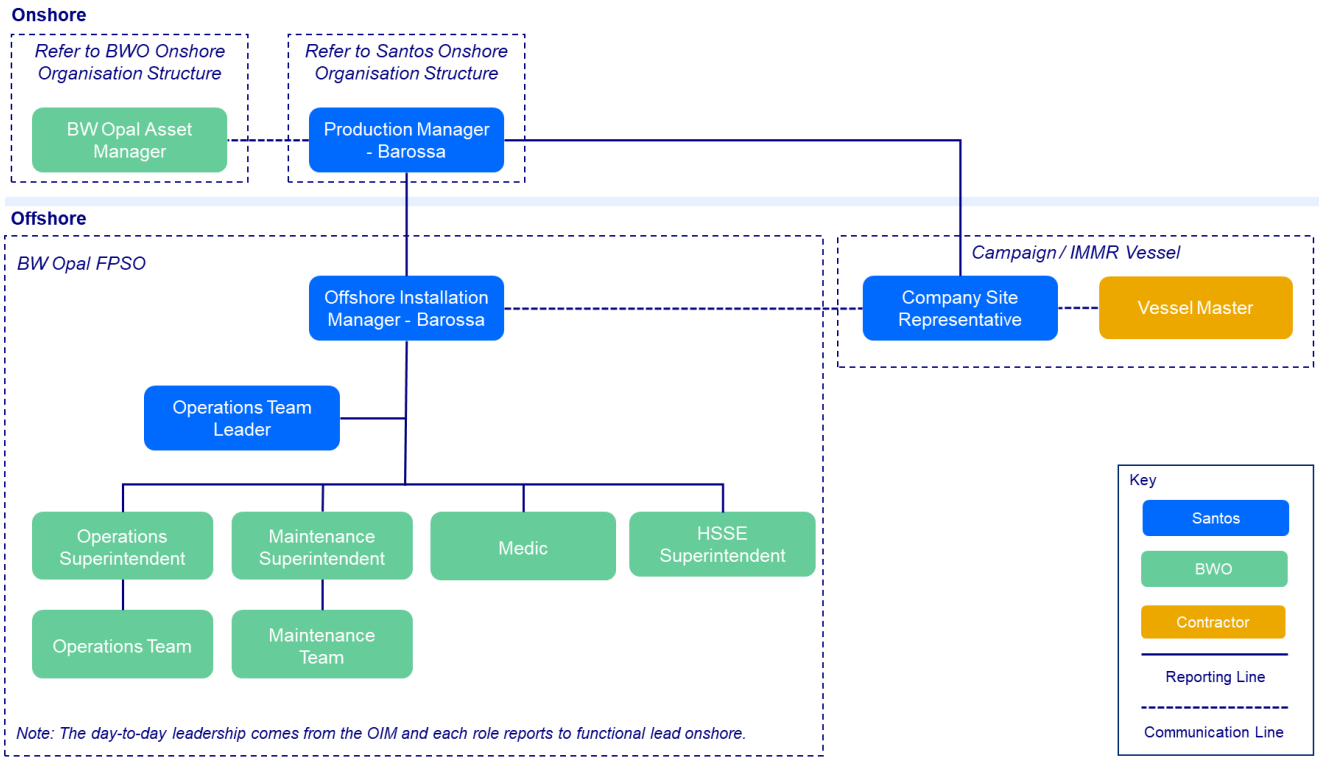


Figure 8-2: Barossa Offshore Organisation Structure[47]

The primary interface between the Santos and Campaign/ IMMR vessel is between the Santos IMMR Project Manager and the Santos Company Site Representative.

Figure 8-3 presents the indicative Barossa onshore organisation structures for the operations phase.

[47] *All organisation charts used in this OEMP are accurate at the time of submission.*

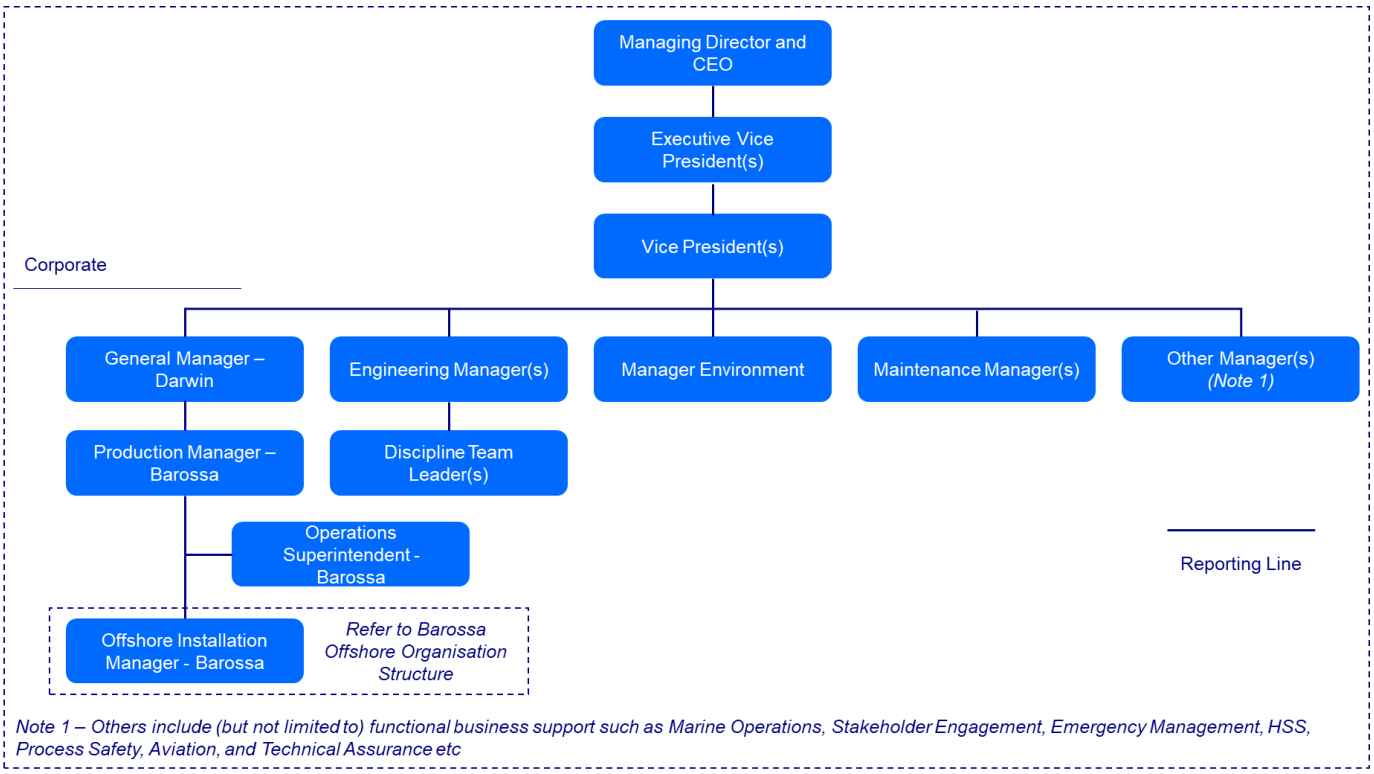


Figure 8-3: Santos Onshore Organisation Structure

8.2.2.2 Roles and Responsibilities

The Santos General Manager - Darwin is the owner of the BMS and has accountability for implementation.

The Santos' Barossa Production Manager reporting to the Santos General Manager - Darwin, is responsible for all aspects of the Barossa facilities' performance and is accountable for ensuring compliance with all internal and external regulatory requirements, including the implementation, management and review of this GEP Coastal Waters OEMP.

The Santos' Offshore Installation Manager (OIM) is the individual (the 'Operator's representative' at the facility) who has day-to-day management and control on board of the facility, and absolute authority for the safety of the facility and all personnel on board, following connection of the FPSO to the STP Buoy. The OIM is responsible for operating the Barossa facilities in compliance with the GEP Coastal Waters OEMP, regulations and procedures.

The effective implementation of this GEP Coastal Waters OEMP requires collaboration and cooperation among Santos and its contractors. The chain of command and accountabilities of personnel in relation to implementation, management and review of this GEP Coastal Waters OEMP is outlined in Table 8-3. It is also outlined in the Barossa GEP NT Waters OPEP for spill response. All commitments in this GEP Coastal Waters OEMP will be tracked and monitored against the performance standards and the responsible role.

Table 8-3: Chain of command, key leadership roles and responsibilities

Role	Accountabilities/Responsibilities
All Personnel	
Office-based roles and offshore roles	• Understand the relevant standards and procedures that apply to their area of work. • Understand the environmental risks and control measures that apply to their area of work. • Carry out assigned activities in accordance with approved procedures and the GEP Coastal Waters OEMP. • Follow instructions from relevant supervisor with respect to environmental protection. • Cease operations which are deemed to present an unacceptable risk to the environment. • Participate in environmental assurance activities and inspections as required. • Prompt reporting of environmental hazards/incidents to their supervisor and assist in event investigation.

Role	Accountabilities/Responsibilities
Office-based roles	
Executive Vice President Western Australia (WA), Northern Australia (NA) & Timor Leste (TL)	• Accountable for HSE at Santos operated WA, NA, and TL facilities. • Approval of any changes with a risk level of 'High', if acceptable and ALARP.
General Manager – Darwin	• Accountable for implementation of the Barossa Management System. • Approval of any changes with a risk level of 'High'. • Enforces compliance with local laws and ensure that regulatory requirements are maintained. • Drives development of strategy to deliver continuous improvement in all aspects of Santos Operations. • Ensures that positive relationships are developed and maintained with internal and external stakeholders.
Production Manager – Barossa (Santos)	• Accountable for compliance with all internal and external regulatory requirements, including the overall management and implementation of the Barossa Management System. • Accountable for subsea processes and procedures that support this GEP Coastal Waters OEMP implementation • Responsible for leading annual GEP Coastal Waters OEMP performance reviews to review effectiveness of control measures in reducing environmental impacts and risks of the activity to ALARP and acceptable levels and identifying opportunities for continuous improvement. • Responsible for communication of any changes to the Activity that may affect the risk and impact assessment, EPOs, control measures, EPSs and MC detailed in this OEMP to the Santos HSE team. • Responsible for all aspects of the asset's performance. • Responsible for driving continuous improvement. Develops, monitors, and improves strategies to ensure KPIs are met or exceeded. • Accountable for managing marine vessel vetting as per the Marine Assurance Standard for field vessels as per Section 8.3.2.5 and 8.4.6. • Provides visible leadership and demonstrable commitment to the development and sustainability of Santos HSE culture. • Accountable for implementation of the Operations management processes and plans. • Provides resources for HSE management. • Accountable for training and competency program for Santos Barossa personnel. • Responsible for the implementation of risk management as per Section 8.3.2.1.
Manager – Environment (Santos)	• Provides leadership and guidance in all matters relating to environmental performance. • Drives the application of consistent environment culture and behaviours to ensure alignment with the overall Santos values and objectives. • Responsible for obtaining environment-related regulatory approvals. • Accountable for this GEP Coastal Waters OEMP compliance assurance program and activities. • Accountable for environmental performance monitoring activities • Responsible for analysis of environmental performance data and communication of findings to the Santos production manager • Provides implementation oversight of the environment components of the Barossa Management System. • Provides oversight and leadership in security and emergency management to ensure that adequate capability and structure is in place to respond to an oil pollution emergency as per the Barossa GEP NT Waters OPEP . • Leads environmental incident investigations as per Section 8.4.5.
Environmental Advisor (Santos)	• Responsible for the management and review of this GEP Coastal Waters OEMP. • Responsible for this GEP Coastal Waters OEMP compliance assurance program and activities. • Prepares, maintains and distributes the GEP Coastal Waters OEMP assurance register.

Role	Accountabilities/Responsibilities
	• Completes GEP Coastal Waters OEMP inspections and audits. • Completes GEP Coastal Waters OEMP inductions and promotes general awareness. • Responsible for this GEP Coastal Waters OEMP performance monitoring, collation of associated data and records for analysis. • Contributes to environmental incident management and investigations. • Provides operational HSE oversight and advice. • Facilitates the development and implementation of MoC documents. • Provides incident reports, compliance reports and notifications to DME. • Responsible for fulfilment of Relevant Person consultation and communication requirements. • Responsible for communicating this GEP Coastal Waters OEMP requirements to subcontractors.
Stakeholder Coordinator (Santos)	• Responsible for implementation of the steps described in Section 8.4.9 relating to post acceptance consultation throughout the duration of the Activity • Maintains a Relevant Persons contact and information database • Maintains a Relevant Persons Notification Log specific to the GEP Coastal Waters OEMP • Maintains records of all Relevant Persons correspondence specific to the GEP Coastal Waters OEMP • Before the Activity begins and on advice of the Santos Barossa Environmental Adviser, notifies the Relevant Persons listed, or as revised, in Table 8-13 • Is available before, during and after the Activity to ensure opportunities are available for Relevant Persons to provide feedback • Prepares quarterly updates
Emergency Response Advisor (Santos)	• Providing overarching incident and crisis management responsibility • Manages the Crisis Management Team and IMT personnel training program • Reviews and assesses competencies for Crisis Management Team, IMT, and field based Incident Response Team members • Manages the duty roster system for Crisis Management Team and IMT personnel • Manages the maintenance and readiness of incident response resources and equipment
Oil Spill Response Advisor (Santos)	• Provides ongoing guidance, framework and direction on preparing the Barossa GEP NT Waters OPEP relevant to this Activity • Develops and maintains arrangements and contracts for incident response support from third parties • Develops and defines objectives, strategies and tactical plans for response preparedness defined in the Barossa GEP NT Waters OPEP and IRP • Undertakes assurance activities on arrangements outlined within the Barossa GEP NT Waters OPEP
Manager – Engineering WA (Santos)	• Responsible for Santos Engineering Change Management Process as per Section 8.5.5 • Responsible for the implementation of the subsea maintenance and integrity management plan • Provides engineering support and technical assurance resources to subsea, through MoC processes and risk assessments as required.
Santos Construction and Fixed Assets Programme Lead – WA, NA & TL	• Responsible for assigning a suitable IMMR Project Manager to complete the activities in accordance with this GEP Coastal Waters OEMP • Accountable for ensuring the IMMR Activity has sufficient resources to execute the activities in accordance with this GEP Coastal Waters OEMP • Responsible for coordination of Subsea IMMR Project Managers across Santos Assets • Responsible ensuring compliance with the systems and processes used by Santos to execute the activities in accordance with this GEP Coastal Waters OEMP • Responsible for collating and reviewing the reporting and KPIs associated with the execution of IMMR activities across Santos Assets (including environmental incidents) • Responsible for collating the IMMR budget and delivering the scope across the Santos subsea assets in conjunction with the subsea integrity engineering team

Role	Accountabilities/Responsibilities
Santos Manager Maintenance – WA, NA & TL	• Accountable for ensuring that there are sufficient IMMR Project Manager resources to execute subsea IMMR activities across Santos Assets • Accountable to Santos Production Manager for the reporting and KPIs associated with the execution of IMMR activities across Santos Assets (including environmental incidents) • Accountable for delivering the IMMR budget across the Santos subsea assets to each Asset Production Manager (budget owner) in conjunction with the subsea integrity engineering team lead.
Santos IMMR Project Manager	• Accountable for managing marine vessel vetting for vessel required for GEP IMMR as per hierarchy of procedures in Section 8.3.2.5 • Accountable for inclusion of the HSE exhibit in contract tender documents, and evaluation of tenders against this GEP Coastal Waters OEMP requirements • Accountable for implementation of IMMR activities in accordance with this GEP Coastal Waters OEMP • Accountable for communicating any changes to the Activity that may affect the risk and impacts assessment, EPOs, EPSs and MC detailed in this GEP Coastal Waters OEMP to the Santos HSE team • Responsible for providing the resources required to enable the commitments in this GEP Coastal Waters OEMP to be maintained • Accountable for confirming the reporting of environmental incidents meets both external and Santos incident reporting requirements • Responsible for liaising with Santos Environmental Advisor on environmental incidents and what constitutes a reportable incident • Accountable for tracking and closing out of any corrective actions raised from environmental audits as required by this GEP Coastal Waters OEMP • Accountable for the Control of Work process and procedures onboard IMMR vessels as per Section 8.3.2.4
Santos IMMR Contractor Project Manager	• Responsible for implementing the IMMR activity in accordance with this GEP Coastal Waters OEMP • Responsible for providing the resources required to enable the IMMR commitments as relevant to this GEP Coastal Waters OEMP to be implemented • Responsible for biosecurity assurance for all activity vessels mobilised to the OAs (Section 8.3.2.9). • Responsible for all crew attending HSE inductions and saving attendance records • Responsible for reporting and investigating incidents, as required
Santos Aviation Specialist	• Responsible for approving aircraft operators and aircraft types in accordance with Aviation Procedure as per Section 8.3.2.6
Offshore roles	
Santos Barossa Offshore Installation Manager (OIM)	• Person in charge on board the FPSO (noting the FPSO is out of scope of this GEP Coastal Waters OEMP). • Person in charge for any matter which may affect the safety of people, cause damage to the Barossa facilities or the environment. • Responsible for compliance with control measures identified in this GEP Coastal Waters OEMP to achieve EPOs and EPSs. • Responsible for implementation of supporting processes described in the GEP Coastal Waters OEMP implementation strategy e.g. Santos chemical management • Acts as Emergency Commander during emergency response situations. • Responsible for all works meeting the requirements of the Permit To Work (PTW) system (Section 8.3.2.4). • Responsible for ensuring the Barossa facilities are maintained as per the Maintenance Management System. • Responsible for operating the Barossa facilities in compliance with the GEP Coastal Waters OEMP, regulations and procedures. • Responsible for ensuring personnel on the facility are suitably trained and competent for their roles and duties. • Promotes an HSE culture amongst offshore crew. • Responsible for investigating and reporting all incidents in a timely manner.

Role	Accountabilities/Responsibilities
Santos Company Site representative (IMMR and Vessel activities)	• Confirms contractors undertake the Activity in a manner consistent with this GEP Coastal Waters OEMP • Confirms the management measures detailed in this GEP Coastal Waters OEMP are implemented • Confirms that the Vessel Master and all crew adhere to the requirements of this GEP Coastal Waters OEMP • Advises the Santos IMMR Project Manager of any activity changes that may lead to a non-conformance with the requirements with this GEP Coastal Waters OEMP • Reports environmental incidents to the IMMR Project Manager • Management of offshore greenhouse gas emission sources.
Contractor Vessel Masters (IMMR and Vessels)	• Responsible for compliance with all HSE laws, conventions and approvals (such as safety case) • Responsible for conformance with the GEP Coastal Waters OEMP as relevant to vessel activities • Reports any new, or increase in, HSE risk or impact • Responsible for compliance with MoC procedures • Empowers personnel to 'stop the job' due to HSE concerns • Responsible for compliance with reporting requirements for all HSE incidents, hazards and non-conformances • Facilitates HSE investigations and is responsible for the implementation of corrective actions • Responsible for compliance with requirements for crew to be competent and prepared to respond to HSE incidents
HSE Advisers (Santos and/or contractor)	• Responsible for supporting the Santos OIM and/or Senior Client Site Representative to implement the requirements within this GEP Coastal Waters OEMP and assisting to collect and record environmental assurance evidence • Responsible for supporting the Santos OIM and/or Senior Client Site Representative to report environmental incidents or breaches of outcomes or standards outlined in this GEP Coastal Waters OEMP and develop, track and close out corrective actions for incidents and breaches are in a timely manner • Responsible for completing periodic environmental inspections/reviews, including waste audits, and developing, tracking and closing out corrective actions from inspections are in a timely manner • Responsible for reviewing contractors' procedures and providing input into toolbox talks and job safety analyses • Responsible for providing day-to-day environmental support for activities in consultation with the Santos Barossa Environmental Adviser

8.2.3 Adverse weather preparedness

Adverse weather preparedness is described in Section 8.2.3 of the Barossa Production Operations EP and is out of scope of this GEP Coastal Waters OEMP. The FPSO Adverse Weather Plan outlines operational precautions leading up to and during a cyclone, which may impact the transport of dry natural gas from the Barossa field through the GEP in Coastal Waters. Requirements for resuming operations post adverse weather events are also described in the FPSO Adverse Weather Plan.

The Barossa Nearshore Gas Export Pipeline Operations Pipeline Management Plan (of relevance to this OEMP) outlines requirements for inspecting the GEP post cyclone events.

IMMR vessels working in the cyclone season would have their own adverse weather plan.

8.2.4 GHG Emissions Management

The GHG emissions management for the Barossa Gas Project are considered on the basis of all the facilities including the GEP. Estimates for GHG and atmospheric emissions included in the Barossa Production Operations EP and this OEMP are the basis for evaluation of impacts and risks from the Activity and represent a threshold that if exceeded would trigger an EP MoC assessment (Section 8.5.2).

In demonstrating that risks and impacts relating to Barossa Gas Project's GHG and atmospheric emissions are reduced to ALARP over the life of the Activity, targets are set annually and progress tracked monthly and annually, before new annual targets are set. In support of reducing emissions to ALARP, emissions performance targets are

also designed to drive continuous improvement in emissions performance. Figure 8-4 shows the emissions target setting cycle for the Barossa Gas Project during steady state operations.

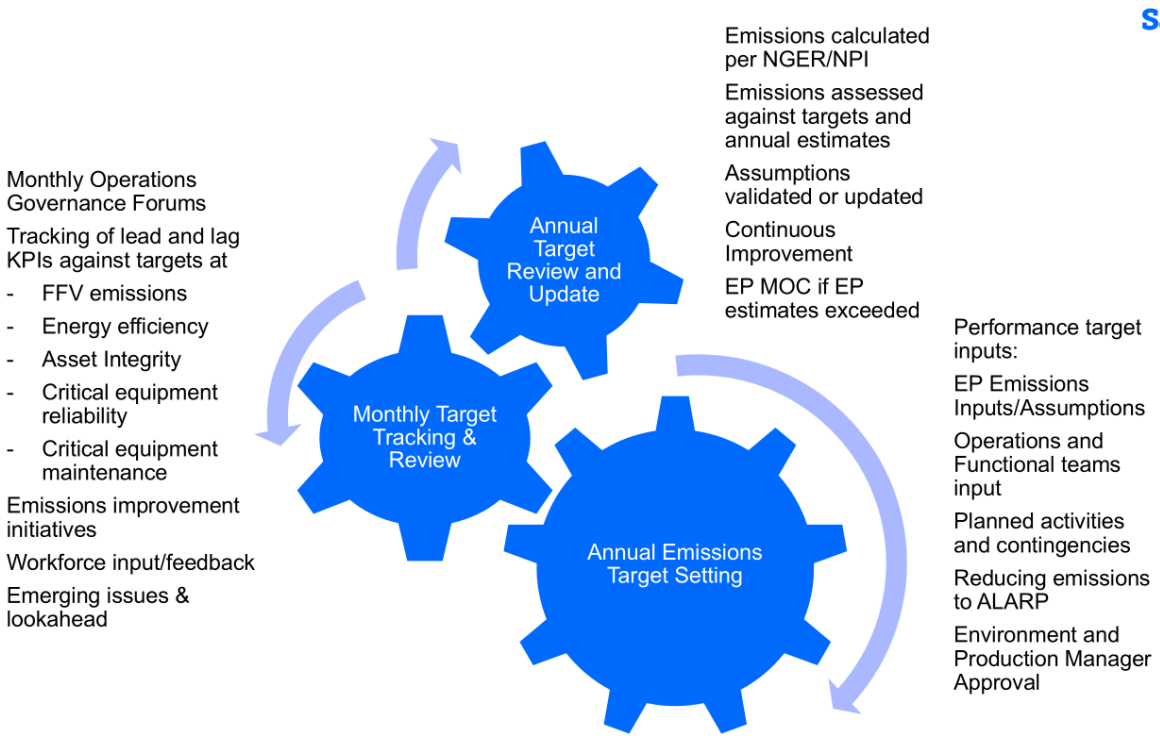


Figure 8-4: Emissions Target Setting Cycle

Inputs to setting the performance targets consider:

- EP emissions estimate inputs and assumptions
- Operating experience
- Forecast activities – planned and contingency

Annual performance targets require approval of both the relevant Santos Environment Manager for the Barossa asset, and the Barossa Production Manager.

Performance targets will be tracked on a monthly frequency as part of Operations Governance Forums (Section 8.5.3.1), which include separate forums with representatives from both Asset leadership and Regional Business Unit leadership. Operations Governance Forums will track both leading and lagging indicators of relevance to performance targets e.g. emissions control equipment performance and reliability and will consider both year to date performance and forecast performance against targets. In reviewing monthly performance, emissions improvement initiatives are considered. Where improvement opportunities are identified and endorsed for further evaluation, they are managed per the decarbonisation opportunity management process (Section 8.5.6). Operations governance KPI dashboards are shared with the workforce for awareness, and to solicit feedback about improvement opportunities (Section 8.3.1.1.2).

If deviations against annual performance targets are forecast to occur, an internal performance target deviation is developed, which requires an ALARP justification and approval from both the relevant Environment Manager and Barossa Production Manager. If the emissions estimates are likely to be exceeded, a management of change assessment (Section 8.5.2) is undertaken to determine if a revision and resubmission is required.

A baseline facility “energy efficiency” target will be established after the first year of steady state operations to inform monthly tracking of energy efficiency performance, and potential improvement opportunities. Efficiency improvement opportunities will be managed via the Barossa decarbonisation opportunity management process (Section 8.5.6).

At the end of the 12-month cycle, performance against targets and emissions estimates is reviewed, continuous improvement opportunities and adaptive management measures considered, and assumptions and targets are reviewed and re-set for the next 12-month cycle.

The majority of Barossa Gas Project direct (Scope 1) emissions are associated with FPSO processing activities and control measures to address associated impacts and risks can be found in the Production Operations Environment Plan in Section 8.2.4. Methane emissions management for Scope1 emissions over the life of the

Barossa Gas Project is addressed in Section 8.3.2.11. Control measures to address Activity GHG emissions for this OEMP are addressed in Section 6.3 of the OEMP.

8.2.5 Santos Decommissioning Strategy

Decommissioning lifecycle planning covers:

- Decommissioning considerations for new facilities or modifications to existing facilities (Appraise, Select and Define).
- Decommissioning and maintenance considerations during facility Operate phase facility management.
- Managing decommissioning opportunities when preparing for End of Field Life (EOFL) and surrender of production license/lease.
- Development and maintenance of restoration cost estimates for use in financial provisioning.

The Barossa GEP infrastructure in the GEP Coastal Waters OEMP is planned to be fully utilised over the lifecycle of the Barossa Gas Project, which is expected to be approximately 25 years. While no Activity infrastructure is planned to be decommissioned as part of this GEP Coastal Waters OEMP, all infrastructure has been selected and designed to allow for removal when no longer used or to be used.

As part of Santos' assets life cycle management requirements, decommissioning execution strategies will be matured throughout the life of the project. Santos' decommissioning strategy is to manage all equipment over the life cycle of the activity to facilitate removal at the time of decommissioning through appropriate design, inspection and maintenance practices.

Decommissioning and removal of property with no further use prior to end of field life, will be addressed under the future decommissioning plan. The future decommissioning plan for infrastructure within the OA will meet all applicable regulatory requirements in force at the relevant time. Santos decommissioning strategy is described below.

8.2.5.1 Decommissioning in operations

Decommissioning planning forms part of the strategic planning for how an operational asset is effectively and efficiently managed throughout the Operate phase in accordance with the Asset Long Term Plan (LTP) and Asset Reference Plan (ARP) for each Santos operated asset.

8.2.5.2 Facility decommissioning planning

Decommissioning planning and costing start early during field development to ensure development decisions account for decommissioning strategy and costs. In accordance with the Santos Opportunity Development Process, decommissioning philosophies must be identified, and for high risk/complexity and high opportunity cost assets, considered during selection of a preferred concept.

During Field Development Planning for any opportunity, consideration must be given to the means of decommissioning and how this may impact on the design, key decisions, and economics. The regulatory environment may change during the life of an asset; therefore, all equipment must be designed for the base case of full removal and (in the case for offshore developments) onshore disposal. Further guidance on typical expectations for offshore developments can be found in the Australian Government's offshore petroleum decommissioning guideline and NOPSEMA's information paper on Planning for proactive decommissioning.

Santos Decommissioning Project Delivery Process can be seen presented within **Figure 8-5**.

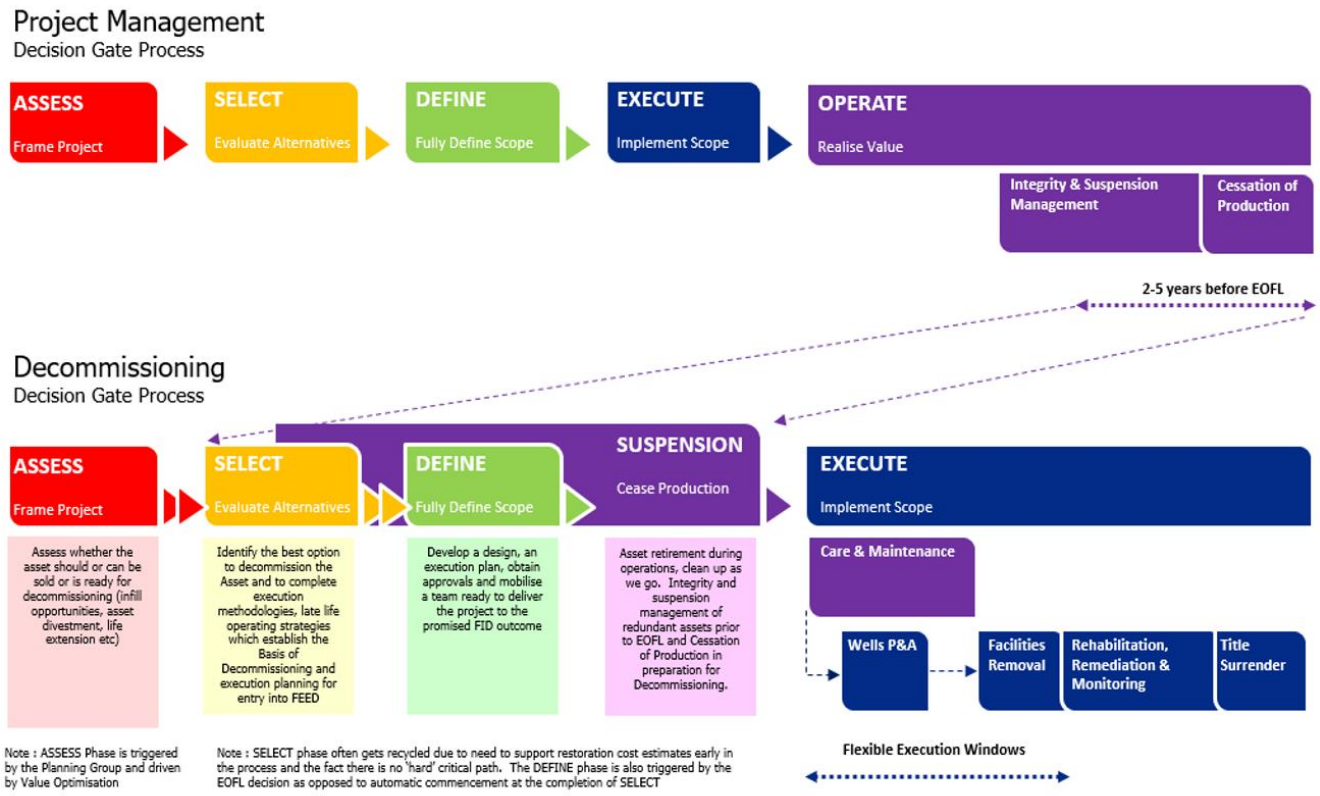


Figure 8-5: Santos Project Delivery Process for Decommissioning

8.2.5.3 Barossa decommissioning planning

Barossa will have a documented decommissioning strategy or plan that considers all obligations, including regulatory requirements, Joint Venture agreements, timing constraints and credible cost estimates, at all stages of it's lifecycle:

- Decommissioning planning will be aligned with Project Delivery Process requirements (**Figure 8-5**)
- Financial provisioning for decommissioning will be underpinned by reasonable cost estimates and comply with the relevant Accounting Practice. The basis of the cost estimate will be in compliance with the regulatory requirements of the relevant jurisdiction governing the project. Timing assumptions for the realisation of decommissioning liabilities shall be in accordance with the governing regulatory requirements
- Regulator engagement and notification will be maintained at a level of detail and frequency suitable to the life cycle stage and regulations applying to the asset. Santos holds regular decommissioning update meetings with relevant regulators to update them on planning progress across all assets.

The asset systems identified as key for decommissioning are designed to facilitate infrastructure flushing, cleaning, and decommissioning processes, and will be maintained as required. These systems will continue to operate in compliance with standard IMMR protocols until the conclusion of the operational lifespan. To ensure that the systems used in conjunction with operations are adequately maintained throughout their operational life, these requirements will be incorporated into the relevant operational documentation.

8.2.5.3.1 Subsea infrastructure decommissioning

To satisfy future decommissioning obligations, all subsea infrastructure has been designed to be feasible to remove. Detailed decommissioning documents, plans and procedures will be produced as detailed within **Figure 8-5**., while prioritising optimal environmental outcomes and the latest technological advancements available at that time.

8.2.5.3.2 Gas export pipeline decommissioning

The Barossa infrastructure has been designed and will be installed and operated so that it is feasible to remove, this includes the GEP. Design features and maintenance plans for the GEP, which allow removal to occur at the end of field life, are detailed in Table 8-4.

Table 8-4: Design features and maintenance plans to enable removal of the gas export pipeline and ancillary infrastructure at decommissioning

Infrastructure	Key elements to facilitate maintenance & removal
Gas Export Pipeline • 26" x 8.265km from KP 23 (NT/Commonwealth boundary) to KP 31.265 (Territorial sea Baseline) •	**Design:** Cathodic protection system provides design life (25yr) protection. **Maintenance**: Risk-based inspection regime to monitor system integrity. **Removal:** Two options considered: reverse S-lay and pipeline cutting and lifting for retrievals
Grout bags	**Design:** Designed to maintain integrity for design life (25 year). **Maintenance**: Risk-based inspection regime to monitor system integrity. **Removal:** Retrieval by ROV and ROV basket.

8.2.6 Emergency preparedness and response

OPGGS(E)R 2023 Requirements
Section 22 Implementation strategy for environment plan
Oil pollution emergency response 22(8) The implementation strategy must contain an oil pollution emergency plan and provide for the updating of the plan. 22(9) The oil pollution emergency plan must include adequate arrangements for responding to and monitoring oil pollution, including the following: • the control measures necessary for timely response to an emergency that results or may result in oil pollution; • the arrangements and capability that will be in place, for the duration of the activity, to ensure timely implementation of the control measures, including arrangements for ongoing maintenance of response capability; • the arrangements and capability that will be in place for monitoring the effectiveness of the control measures and ensuring that the environmental performance standards for the control measures are met; • the arrangements and capability in place for monitoring oil pollution to inform response activities. 22(10) The implementation strategy must provide for monitoring of impacts to the environment from oil pollution and response activities that: • is appropriate to the nature and scale of the risk of environmental impacts for the activity; and • is sufficient to inform any remediation activities. 22(11) The implementation strategy must include information demonstrating that the response arrangements in the oil pollution emergency plan are consistent with the national system for oil pollution preparedness and response. *Testing oil pollution emergency response arrangements* 22(12) The implementation strategy must include arrangements for testing the response arrangements in the oil pollution emergency plan. The testing arrangements must be appropriate to the response arrangements and to the nature and scale of the risk of oil pollution for the activity. 22(13) The testing arrangements must include: • a statement of the objectives of testing; and • a proposed schedule of tests; and • mechanisms to examine the effectiveness of response arrangements against the objectives of testing; and • mechanisms to address any recommendations arising from tests. (14) For the purposes of paragraph (13)(b), the proposed schedule of tests must provide for the following: • testing the response arrangements when they are introduced; • testing the response arrangements when they are significantly amended; • testing the response arrangements not later than 12 months after the most recent test; • if a new location for the activity is added to the environment plan after the response arrangements have been tested, and before the next test is conducted–testing the response arrangements in relation to the new location as soon as practicable after it is added to the plan; • if a facility becomes operational after the response arrangements have been tested and before the next test is scheduled to be conducted–testing the response arrangements in relation to the facility when it becomes operational.

Vessels are required to have and implement incident response plans, such as an emergency response plan and SMPEP or SOPEP. Regular incident response drills and exercises – for example, as defined in an emergency

response plan, SMPEP or SOPEP – are performed to refresh the crew in using equipment and implementing incident response procedures.

Santos will implement the Barossa GEP NT Waters OPEP in the event of a hydrocarbon spill. The Barossa GEP NT Waters OPEP details how Santos will prepare and respond to a spill event and meet the requirements of the OPGGS(E)R 2023.

8.2.6.1 Emergency response overview

The Santos Crisis, Incident and Emergency investigation, defines the requirements for emergency response preparedness for all facilities, including:

- Emergency Response Plans (ERPs) are in place for credible operational risks and scenarios with trained Emergency Response Team (ERT) personnel and equipment / resources in place to execute the plans.
- An Incident Management Plan (IMP) and trained Incident Management Team (IMT) are in place to provide operational support for escalating emergencies.
- A Crisis Management Plan (CMP) and trained CMT are in place to manage incidents or issues with significant, strategic implications for the organisation.
- An annual schedule of exercises is developed and executed to test effectiveness of the plans and to build and maintain response capability.

Emergency management for the Barossa facilities follows a three level response framework as presented in Table 8-5.

An ERP, IMP and CMP are in place which define the requirements for emergency response preparedness. These plans apply for the GEP.

A trained ERT, IMT and CMT are in place to execute these response plans and provide support during emergencies.

Table 8-5: Emergency response levels

Response Level	Description
Level 1 Emergency Response	Incidents that can be controlled by using resources normally available at the facility concerned, without the need to mobilise the IMT or other external assistance. This level would include sending personnel ashore for medical examination of a non-emergency nature. Generally, a Level 1 event is managed by the ERT. A Level 1 event is escalated to Level 2 at any time support is required from a Business Division IMT or external response agencies.
Level 2 Incident Management	Incidents that cannot be controlled by the facilities resources alone and require external support and resources to address the situation. PERTH IMT and/or Santos Support Teams / Oil Spill Response Team will be activated to provide operational and technical resources management and liaise with authorities and mutual aid organisations. Generally, a Level 2 event is managed by the IMT.
Level 3 Crisis Management	Incidents which have a wide-ranging impact on the company's strategic and enterprise interests and/or crisis status, warranting establishment of the Santos CMT. A large scale, sustained response requires the engagement of significant external resources and response vendors. A level 3 event may not have resulted from, or result in, ERT or IMT activation and can be a standalone event. Generally, a Level 3 event is managed by the CMT.

8.2.6.2 Emergency response

The ERP addresses the credible operational emergency risks and scenarios for the GEP. The ERP has been developed in accordance with NOPSEMA's Emergency Planning Guidance Note, and Safe Work Australia's Guidelines for Emergency Plans. The plan includes incident management guides for the identified emergency scenarios, including emergency scenarios with potential significant environmental consequences (such as a potential vessel collision). These guides assist the facility emergency response team by describing the actions to be undertaken during emergency scenarios, including initial response to an incident, and follow on actions.

A trained ERT are the designated FPSO based emergency responders who respond to tactically manage an emergency event / incident. The ERT are directed by the Emergency Commander and coordinated locally by the ERT Leader (On-Scene Commander). The Emergency Commander is supported by the Emergency Command Team who operate at the Emergency Command Centre / CCR. In the event of an emergency the OIM assumes the role of the Emergency Commander and is responsible for the implementation and supervision of procedures in the event of an incident.

The ERT roles and responsibilities are outlined in the ERP. Incumbent and back up personnel are also identified for each ERT role. Facility crewing is commensurate with the ERP / ERT requirements.

8.2.6.3 Incident management

Level 2 incident management is enacted for incidents / emergencies that cannot be controlled by the facilities resources alone and require external support and resources to address the situation (i.e. Level 2 incidents / emergencies). A trained IMT are in place to provide operational support for escalating incidents / emergencies with a focus on:

- Managing / supporting the incident / emergency overall.
- People, environment, assets and recovery.
- Operational continuity and recovery.
- Divisional stakeholder management.

The WANATL IMP establishes Santos' incident management arrangements to:

- Guide the IMT in emergency preparedness, emergency response and operational recovery.
- Support site / facility ERTs during emergencies.
- Undertake incident action planning to manage the consequences of an emergency event.
- Ensure WANATL incident management preparedness.

The IMP interfaces with the ERP and the Barossa GEP NT Waters OPEP.

The IMP also provides incident scenario guides which provide guidance on potential IMT tasks associated with various potential emergency scenarios, including loss of containment, fire/explosion, vessel incidents and severe weather / natural disasters.

The IMT manages the operational consequences and impacts of an emergency event. The IMT are led by the IMT Lead, who provides leadership to:

- Ensure support is provided to the affected site / facility / field operations during actual / potential emergencies.
- Ensure the safety and protection of the company's people, environment, assets and reputation.
- Minimise operation production and business interruption.
- Determine and mitigate the operational risks arising from the emergency.
- Lead operational and business recovery.

The Incident Management Manual incudes duty cards which define each IMT role including their role, responsibility and specific actions to be performed during an incident.

8.2.6.4 Crisis management

The CMP and trained CMT are in place to manage incidents or issues with significant, strategic implications for the organisation. The CMP defines:

- Criteria and procedure for activating the plan (both incident and issue triggers), including CEO consultation.
- Roles and responsibilities of the CMT.
- CMT selection and training requirements.
- Crisis Management Process and the CMT response objectives, actions, processes, and tools.
- Internal and external stakeholder communication plans and protocols.
- Strategies for managing a long term crisis.
- Criteria and procedure for calling an end to the crisis and standing down the CMT.

The CMT is convened for the purpose of managing crisis events (Level 3 emergencies / incidents / events) The CMT is comprised of executive leadership, governed by the Crisis Management Chair (CEO or delegate). The Crisis Management Lead (appointed by the Crisis Management Chair) leads the CMT. The CMT:

- conducts crisis management operations, including assessing the crisis event and setting clear objectives to manage and recover from the crisis;

- directs the enterprise level strategic response; and
- addresses strategic implications and outcomes.

Support Teams support the CMT, when warranted, as business function subject matter experts. The Support Team functions will focus on strategies and actions set by the CMT.

8.2.6.5 IMMR campaign emergency response

Contracted IMMR vessels shall have a vessel specific ERP covering vessel emergencies. This typically includes major emergencies such as vessel collision, loss of vessel stability, etc. The plan shall comply with the relevant regulatory bodies requirements (e.g. AMSA, Flag State and DME).

Bridging documentation shall also be prepared providing campaign-specific guidance, including explaining the emergency response interfaces between Santos and the IMMR vessel contractor, and the process for providing a coordinated response for emergencies at the Barossa facilities.

8.3 Do

The activities under 'Do' describe competency and training processes relevant to implementation of the GEP Coastal Waters OEMP, and specific measures relevant to implementation of the requirements of the environmental plan.

8.3.1 Workforce EP Awareness and Training

OPGGS(E)R 2023 Requirements
Section 22 Implementation strategy for environment plan
Responsibilities of employees and contractors 22(4) The implementation strategy must include measures to ensure that each employee or contractor working on, or in connection with, the activity is aware of the employee's or contractor's responsibilities in relation to the environment plan, including during emergencies or potential emergencies, and has the appropriate competencies and training.

This section describes the mechanisms that will be in place, so each employee and contractor is aware of his or her responsibilities in relation to the GEP Coastal Waters OEMP and has appropriate training and competencies.

8.3.1.1 Workforce EP Awareness

8.3.1.1.1 Inductions

The induction process is in place to ensure that all personnel associated with, working on or visiting the Barossa facilities are provided the necessary awareness, knowledge and competence appropriate for their role, to ensure that personnel are aware of the environmental impacts and risks associated with the facilities and the environmental management requirements arrangements described in this GEP Coastal Waters OEMP.

All new personnel to the Barossa facilities must complete several inductions prior to commencement of work duties, including company, facility and activity specific awareness induction packages (depending on role). The induction will include an OEMP awareness component, which covers environmental management commitments and requirements to be implemented as described in this GEP Coastal Waters OEMP, tailored to the environmental impacts/risks of each activity phase.

The GEP Coastal Waters OEMP awareness training for vessel-based activities includes training for:

- Overview of Santos' Environment, Health and Safety Policy (Appendix A) and the Barossa Management System
- the applicable environment legislative requirements
- environmental values and sensitivities relevant to the Barossa facilities and Operational Areas (such as protected marine areas, sensitive environmental periods)
- maritime underwater cultural heritage and First Nations cultural heritage awareness
- key environmental hazards and control measures as relevant (including but not limited to GHG emissions, atmospheric emissions, waste management, spill prevention, chemical storage, fauna interactions and vessel speeds and interactions with other marine users)
- hazard and incident reporting and notifications
- regulatory compliance reporting (including fauna interactions)

- oil pollution emergency response requirements (such as the Barossa GEP NT Waters OPEP).
- where to locate copies (paper and digital) of the GEP Coastal Waters OEMP and GEP NT Waters OPEP
- records of induction attendance will be maintained.

For key leadership roles associated with the Activity, a focused environmental awareness package will be provided describing key responsibilities under this GEP Coastal Waters OEMP.

8.3.1.1.2 Workforce involvement and communication

Daily operational meetings will include environmental management as a standing agenda item. It is a requirement that supervisors attend daily operational meetings and all personnel attend daily toolbox or pre-shift meetings. Toolbox or pre-shift meetings will be held to plan jobs and discuss work tasks, including environmental risks and their control measures.

Environmental performance will be monitored and reported during the Activity by the Environment Manager, and performance metrics (such as the number of environmental incidents) will be regularly communicated to the workforce via the daily operational meetings. The Operations Governance Forum (Section 8.5.3.1) KPI dashboard (inclusive of environmental performance KPIs) will be shared with the workforce during the Activity where applicable via HSE Information Feedback meetings , with members of the workforce encouraged to contribute opportunities for improvement to be considered/evaluated at monthly Operations Governance Forums (Section 8.3.1.1.2).

Workforce involvement and environmental awareness will also be promoted by reminding offshore personnel about obligations communicated during environmental awareness inductions (Section 8.3.1.1.2) to report marine fauna sightings and marine pollution; for example, oil sheens on water, dropped objects.

8.3.1.1.3 Operations Environmental Management Plan Compliance Registers

The key mechanism for ensuring all personnel involved in the operation of the Barossa facilities across all petroleum activity phases in this Activity are aware of the environmental control measures and performance standards adopted in this GEP Coastal Waters OEMP is via the provision of OEMP compliance registers. Each register is tailored to the requirements of each activity phase. Responsibilities are assigned for each OEMP compliance requirement, consistent with the roles and responsibilities in Section 8.2.2.2, as relevant to each activity phase. The Environment Advisor is responsible for preparing, maintaining and distributing the OEMP Compliance registers. The registers will be updated as required following OEMP revisions.

Santos is responsible for ensuring all personnel are aware of the environmental control measures and performance standards as adopted in the GEP Coastal Waters OEMP. The OEMP assurance compliance register will be incorporated into Santos systems.

For vessel-based activities, the GEP Coastal Waters OEMP compliance register as relevant to vessel based activities will be used by the Vessel Master for ensuring the environmental control measures and performance standards relevant to the activity are implemented.

8.3.1.1.4 Contractor health, safety and environment requirements

The minimum requirements and expectations for HSE management of contractors and subcontractors is described in the HSE Contractor Management Procedure, including a specific contractual HSE exhibit for project specific scopes of work. The HSE exhibit has a detailed environmental requirements section for:

- review of GEP Coastal Waters OEMP requirements applicable to the contract scope
- the contractor to comply with the control measures specific to the contract scope, and identify any new environmental risks and propose additional control measures to reduce the risk to ALARP. The Santos Environment MoC assessment (refer Section 8.5.2) is triggered if there are changes to the Activity and associated environment risk, as assessed in the accepted EP.
- understanding and compliance with applicable environmental legislation
- key activities to support continuous environmental improvement
- chemical selection and approvals
- prohibited materials and chemicals (if/as applicable)
- vessel requirements (if relevant to the scope) to comply with the GEP Coastal Waters OEMP.

8.3.1.2 Workforce Training and Competency

All members of the Barossa facilities workforce will complete relevant training and hold qualifications and certificates for their role. Santos and its contractors are individually responsible for ensuring their personnel are

qualified and trained. The systems, procedures and responsible persons will vary and will be managed through the use of online databases, staff onboarding process, training departments and other means.

Personnel qualification and training records will be sampled before and during an activity. Such checks will be performed during the procurement process, facility acceptance testing, inductions, crew change, and operational inspections and audits. Ongoing checks will be undertaken to check and verify training needs are being identified and training undertaken to maintain a competent workforce.

Table 8-6 describes the standard, procedures and plans that manage the training and competence of personnel at the Barossa facilities to ensure they can effectively and safely perform their work in order to ensure compliance and regulatory obligations are met.

The training may be provided through learning modules, with vendor training programs and accredited training provided by external training providers as required, as well as on the job training / job shadowing and coaching.

The Santos Manager of Training and Competency Assurance (Operations and Maintenance) is responsible for the training and competency of the Santos workforce undertaking IMMR activities associated with the GEP

As per the Santos Competency and Training Technical Standard, records of competency requirements and the employee's assessment in relation to those requirements will be retained in the Learning Management System (LMS) enabling tracking, monitoring and reporting.

Table 8-6: Training Standard, Procedures and Plans

Title	Description
Competency and Training Technical Standard	Ensures appropriate and relevant training is provided to personnel so they are able to effectively perform their work; and compliance and regulatory obligations are met. The Technical Standard requires the assessment of organisational and individual capability via competency frameworks, training needs analysis and training delivery (including frequency of training/ competency checks) through the core curriculum programme or individual / group training.
Competency Framework Procedure	The framework delivers standardised competency-based training and an assessment curriculum that provides fit-for-purpose training and assessment to confirm personnel are competent to perform work against established and pre-defined performance. The process includes competency-based assessment undertaken by assessors with nationally accredited qualification and includes assessment by a combination of: • Attendance at a formal training course. • Observation during work activities. • Questioning (oral, written or online). • Collection of historical evidence.
Competency Assurance Plan	This plan ensures that all contract personnel are trained and assessed as competent to carry out their assigned tasks in line with environmental performance requirements in this OEMP, including the required training and certification standards which apply for core crew on the Barossa facilities, to ensure personnel have the necessary level of competence to conduct the work in the operation, design, maintenance, and emergency response for the Barossa facilities. Training records for all crew are maintained and available to the OIM and key Santos operations personnel onshore. To meet the requirements of Australian legislation / regulations, the Santos Competency Framework Procedure, a matrix has been developed that defines the training and competency requirements considered either mandatory or beneficial for each role. For example roles that are responsible for emissions or discharges critical equipment will identify the required competencies in operating, inspecting, maintaining or using equipment that is critical to achieve environmental performance outcomes and standards as defined in this OEMP. Personnel mobilised on vessels involved vessel based activities will be subject to competency testing criteria, including site-specific competency assessment, verification of certificates and work experience (as required), as per the contractor management and marine assurance processes.
Competency Verification	The process for verifying competence. Competence is assessed by questioning and observation during work activities, collecting historical evidence of competence (including evidence of accredited / recognised prior learning, applicable licences, records of performance, etc), and attendance at formal training courses.

For IMMR campaigns, the training and competency requirements are typically documented in the HSE Management Plan developed for each specific IMMR campaign. All personnel mobilised on an IMMR vessel are subject to competency testing criteria, including site-specific competency assessment, verification of certificates and work experience.

Emergency preparedness and response (including for oil spill response) training requirements are addressed in Section 8.3.1.3.

Members of the workforce that have been allocated roles within the PTW system are required to complete the training module relevant to their role. The PTW system training requirements for the various roles on the Barossa facilities are defined in the training and competency matrix, and includes delivering training on the PTW system structure, permit planning and preparation, permit coordination, authorisation and arrangement, permit execution, revalidation and closing, risk assessments, mechanical (process) isolations.

8.3.1.3 Emergency response training, drills and exercises

All personnel appointed to emergency response roles undergo suitable training and participate in preparedness activities and exercises to enable them to effectively perform their roles. All positions that are required to have specific emergency response training are identified. The minimum training requirements for key roles are presented in Table 8-7.

Other members of the Emergency Management Team shall undertake PMAOMIR322 'Manage Incident Response Information' (or an equivalent training course), with members of the ERT also trained as appropriate for their role.

The Drills and Exercises Procedure, describes the facility emergency response drills and exercises. The drills and exercises are based on the identified emergency scenarios, and include liaison with, and involvement of, external response organisations and other operators where appropriate.

The minimum emergency exercise requirements are:

- Annual IMT exercise with facility participation.
- Annual Level 3 oil spill exercise involving external parties—the Santos facility involved in this exercise is dependent on the worst case scenario defined in the Santos operated facilities OPEPs.

Reviews are conducted after each exercise or activation to identify any opportunities for improvement or sharing of learnings (including good practices).

Additional training and competency requirements for relevant personnel specific to spill response are provided in the Barossa GEP NT Waters OPEP.

- An overview of Santos hydrocarbon spill response training and competency requirements are provided in dashboards for key responder roles. The roles are consistent with Santos' crisis and emergency management incident control structure.
- Santos' Oil Spill Response Advisor(s) are responsible for maintaining hydrocarbon spill preparedness competency. This includes the identification and development of approved competency and non-competency-based courses, identification of relevant personnel required to undertake training, and ensuring training records are maintained. Minimum Santos capabilities will continue to be identified and documented.

Table 8-7: Emergency response training

Role	Minimum training requirements
Emergency Commander (EC)	• PMAWHS511 Manage Emergency Incidents • PMAOMIR322 Manage incident response information • Oil Spill Familiarisation (AMOSC)
IMT Leader	• PMAOMIR418 'Coordinate Incident Response'

8.3.2 Supporting Management Processes and Procedures

This section describes the 'specific measures' of the Barossa Management System that define how the activity will be managed and monitored to ensure that the EPOs and EPSs are met.

8.3.2.1 Risk Management

Santos operates under an overarching Risk Management Policy that applies to this Activity. The company Risk Management, Investigation and Assurance operating standard underpins the Risk Management Policy and is consistent with the requirements of AS/NZS ISO 31000:2018, Risk Management – Guidelines (ISO, 2018). Risk management processes are implemented on an ongoing basis during the Activity to manage risks to personnel, the Barossa facilities and the environment. The key steps to risk management are illustrated in Figure 5-1.

The forum used to undertake environment risk assessment is the environmental hazard workshop, referred to as an ENVID, which is described in Section 4 of Santos' Offshore Division Environmental Hazard Identification and Assessment Guideline, and summarised in Section 5.2.

8.3.2.2 Asset Integrity Management

The Subsea Integrity Management Procedure sets out the requirements for managing the integrity of the Barossa subsea equipment. The procedure requires that Integrity Management Plans are developed which review and verify credible damage and failure mechanisms identified in the design phase and as part of ongoing operational and integrity reviews.

RBI programs are developed to ensure that maintenance of the subsea equipment is appropriately prioritised, ensuring risks are managed proactively. The RBI programs are based on the findings of several workshops held to risk assess the identified threats to the Barossa subsea infrastructure and develop inspection requirements and associated cycles to maintain the integrity of each component.

The Corrosion Monitoring Procedure defines the philosophy, procedure, and reporting requirements for internal corrosion monitoring of pipelines / risers and subsea pressure piping.

The Subsea Inspection Procedure and Underwater Inspection Manual, describe the inspection philosophy, inspection types and reporting requirements for subsea assets, including marine growth and post cyclone surveys, offshore cathodic protection, and includes offshore structures and pipelines.

8.3.2.3 Maintenance Management System

Systems and equipment are maintained to achieve a required level of functionality. A risk-based approach is used to develop the inspection, maintenance and testing requirements. The likelihood of equipment degradation leading to failure is considered when setting up planned maintenance tasks and intervals. Maintenance activities shall be planned, as far as possible with consideration for frequency, criticality, resource optimisation and shutdown alignment. The maintenance program is prepared by systematic analysis of function criticality and application of maintenance strategies and is required to be adaptive to change in criticality or emerging maintenance technologies. The main maintenance strategy is condition based, non-intrusive maintenance which includes watch keeping, vibration analyses, lube oil sampling and other condition-based techniques where potential failure conditions can be monitored.

The gas export pipeline is designed to avoid the requirement for preventative maintenance (i.e. regular maintenance activities necessary to maintain integrity/operability. The subsea equipment condition will be regularly assessed to monitor its condition and detect if corrective maintenance is required.

Inspection findings and any resultant maintenance requirements are manages through the Santos MMS.

8.3.2.3.1 Critical Equipment Maintenance

Each maintainable item is assigned a criticality level in the Santos MMS based on the safety or environmental consequence of failure. Production downtime is also considered in this determination. The criticality then determines the priority that preventative or corrective maintenance work orders are assigned in the scheduling of maintenance work, to achieve desired performance functionality/reliability/availability of systems/equipment.

Equipment that has a function that is necessary to achieve or verify environmental performance standards and that may impact compliance with an environmental performance outcome (refer Section 8.1), are assigned a criticality rating reflective of the importance of the performance of this equipment. Breakdown of systems or equipment with a criticality level of 1 receive the highest priority for corrective maintenance and the frequency of planned maintenance is appropriate to meet the required availability of the equipment. Changes to the maintenance regime for criticality 1 equipment is subject to a risk assessment and approval process. The Santos management requirements of the maintenance system include adherence to specific performance criteria for critical equipment, mandating that planned maintenance does not go overdue without a deferral risk assessment, and that corrective maintenance is completed in the required timeframe.

A deferral process is in place to initiate a risk assessment well before any critical equipment maintenance becomes overdue. In raising deferrals, consideration is given to the likelihood of failure of that element during the deferral period. The deferral risk assessment process shall establish the potential for increased environmental impact or risk, or non-compliance with an associated EPS. In such cases the Santos Environment Manager will be included in the risk assessment process. The deferral for equipment that has a critical function in reducing environmental risks and impacts to ALARP and acceptable levels, or maintaining compliance with the OEMP requires approval from the Santos Production Manager, who is accountable for compliance with all internal and external regulatory requirements, including compliance with the OEMP.

8.3.2.4 Control of Work

The Control of Work process and procedures are for vessel-based activities in along the GEP (IMMR) so that work activities are executed in a safe manner. The Control of Work process and procedures include:

- Stop Work Authority. All personnel have the permission and responsibility to stop a work / task or to decline to perform a task where they believe there is a threat to the health or safety of people or the environment. Individuals calling to stop work should inform their supervisor / person in charge of the work immediately. When a safety concern is raised and work is stopped, the work shall also be reassessed. The Stop Work Authority and the workforce's responsibility to stop unsafe work, forms part of the induction program for all personnel arriving on board and forms part of facility toolbox talks.
- Safety Observation System. A safety observation system is in place to identify, record, report and track safety, environment or integrity hazards observed on the facility. Submitted observations are reviewed by the facility management team. Corrective actions which result from such identified hazards shall be documented, assigned to a person for close-out and tracked. Regular feedback back is provided to facility personnel on close-out of corrective actions. The facility induction covers use of the safety observation system.
- Performing task planning, including for PTW, daily reporting, short, medium, and long term planning, and managing unplanned tasks.
- Task Risk Assessments for hazard identification and risk control for high-risk, complex, and multitask offshore operations and maintenance activities, and special operations. Task Risk Assessments are an integrated part of the PTW process.
- The PTW Procedure describes the management of risks to health and safety arising from the interaction between work activities and process hazards at the Barossa facilities. The PTW Procedure is implemented for work activities carried out by all personnel on the Barossa facilities and whose work activities are under the influence and control of Barossa operations. The procedure documents hazard controls so that work can be carried out in an environment where risks are eliminated or minimised to ALARP. Members of the workforce that have been allocated roles within the PTW system are required to complete the training module relevant to their role (refer to Section 8.3.1.2). Vessels requesting entry to the 500m safety zone are required to complete a pre-entry checklist. A PTW and/or risk assessments may also be required depending on the types of activities a vessel is undertaking within the 500m safety zone. IMMR vessels shall operate under their own PTW system (refer to Section 8.3.2.4).
- Process safety, including override management and inhibit management.
- Defining the requirement for suitable bridging arrangements to be developed between the Barossa Control of Work and contractor control of work procedures and processes.
- Conducting Toolbox Talks to discuss the hazards, risks and associated controls and procedures for work activities.
- Managing hazardous operations, including vessel operations, lifting operations. Management of these hazardous operations is described in Sections 8.3.2.5 and 8.3.2.7.

8.3.2.5 Vessel operations

Santos manages marine vessel operations using a hierarchy of procedures, outlined below. These requirements for vessel acceptance criteria include technical, personnel (e.g. crew competencies) and operational requirements for marine vessels engaged by Santos.

Vessel Type	Vessel Acceptance Criteria
IMMR Vessels	The specific requirements for managing vessels performing Inspection Monitoring Maintenance and Repair (IMMR) or installation support vessels activities in the field are defined in campaign specific interface management plans. Such plans will typically define the vessels planned activities, communications protocols, PTW requirements, roles and responsibilities, interface management procedures and controls, emergency response protocols and incident reporting and notification requirements. A Santos CSR is present on IMMR and installation vessels in the field to provide oversight of the day to day activities on board the vessel.

8.3.2.5.1 Marine operations manual

The Marine Operations Manual describes the standards of marine operations to achieve safe and efficient outcomes. The Marine Operations Manual details:

- standard operating procedures for all vessels under contract with Santos
- compliance requirements for relevant maritime legislation and relevant guidelines, standards and codes

- compliance requirements for international conventions and agreements, including:
  - International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004
  - SOLAS 1974 and its Protocol of 1988
  - International Convention for the Prevention of Pollution from Ships 1973/1978 (MARPOL 73/78)
  - Convention on the International Regulations for Preventing Collisions at Sea 1972 (COLREGS)
  - International Convention on Standards of Training, Certification and Watchkeeping (STCW) for Seafarers, 1978.
- compliance requirements for industry standards as set up by:
  - OCIMF
  - IMCA
  - Guidelines for Offshore Marine Operations
  - Nautical Institute.
- Marine assurance
  - vessel vetting criteria
  - marine personnel competency
- Santos and contractor standards, procedures and best practice management to comply with the control measures and performance standards (as set out in Table 8-2) in this GEP Coastal Waters OEMP as relevant to vessels, including:
  - vessels' safety of navigation
  - vessels using DP systems
  - vessels' bunkering procedures
  - crew competency and training records
  - biosecurity management
  - chemical storage and handling procedures
  - discharge management procedures
  - waste management procedures
  - anchoring procedures
  - vessel and equipment maintenance procedures as per the vessel-specific safety management system.

8.3.2.6 Aviation operations

The Aviation Procedure which sets out the requirements for the safe, effective, and efficient management of all aviation operations and activities.

Operations must meet CASA's regular public transport (RPT) standards and published aircraft performance criteria, and independent evaluations or audits will take place at no less than 12 month intervals.

8.3.2.7 Lifting operations

Lifting operations on an IMMR vessel are managed under the IMMR vessel contractor's procedures. Contracted IMMR vessels are vetted under the Santos Marine Assurance process described in Section 8.4.6.

8.3.2.8 Waste management

Waste management will be undertaken in a manner consistent with Santos' waste management processes, including application of the waste management hierarchy, classification and segregation of waste streams, appropriate storage, transportation requirements, record management (e.g. waste inventories and tracking), use of licenced contractors/facilities and auditing.

Wastes from vessels are sent to shore and are maintained as per vessel class in accordance with relevant Marine Orders. This includes recording waste volumes in a Garbage Record Book.

8.3.2.9 Biosecurity management

8.3.2.9.1 Ballast water management

8.3.2.9.1.1 Summary of requirements

The Australian ballast water management requirements set out the obligations on vessel operators regarding managing ballast water and ballast tank sediment when operating within Australian seas. These requirements include legislative obligations under the Biosecurity Act 2015 (Cth) and the International Convention for the Control and Management of Ships' Ballast Water and Sediments. The requirements provide guidance for vessel operators on best practice policies and apply to all vessels operating internationally and domestically in Australia. All vessels designed to carry ballast water (as applicable to vessel class) are required to carry the following:

- a valid ballast water management plan
- a valid international ballast water management certificate
- a type approval certificate specific to the type of ballast water management system installed (if installed)
- maintenance of a complete and accurate record of all ballast water movements, including those conducted in Australian waters.

Ballast water exchange should be conducted in areas at least 12 Nm from the nearest land and in water at least 50 m deep (having regard to the D-2 standard exemptions in the Australian Ballast Water Management Requirements [DAWE, 2020a]). Volumetric exchange must be at least 95% of the relevant tank.

Records on ballast water exchange must include the start and finish times and geographic coordinates of the operation.

All ballast water management equipment, such as pumps, will be maintained per the vessel's preventive maintenance system and regularly tested to ascertain accurate calculations for ballast water exchange operations.

8.3.2.9.1.2 Australian pre-arrival report

All international vessels (intending to ballast) must submit a pre-arrival report (through the Maritime Arrival Reporting System [MARS]) at least 12 hours prior to arrival. The Ballast Water Report will be assessed by the DAFF through MARS, and a response will be issued through the Biosecurity Status Document. Domestic vessels can request a low-risk exemption through a domestic risk assessment through MARS.

MARS is the online portal used by commercial vessel masters and shipping agents to submit the reports required of all international vessels seeking Australian biosecurity clearance and to request services such as coastal strip, waste removal, ship sanitation certification and crew change.

DAFF will request evidence from vessels with a ballast water management system of:

- a valid ballast water management plan specific to the vessel (consistent with the Ballast Water Management Convention)
- a valid ballast water management certificate, or certificate of compliance, that is approved by a port state administration, or a recognised survey authority (consistent with the Convention)
- ballast water management records clearly demonstrate the ballast water management system has been operated consistently with the ballast water management plan.

A DAFF biosecurity officer may board the vessel to verify the pre-arrival report and personnel proficiency in the operation and maintenance of the ballast water management system.

8.3.2.9.2 Biofouling management

IMS may be present as biofouling on the vessel hull or within piping, sea chests, etc. Biofouling, which may be found on and in a vessel, reflects the vessel's design, construction, maintenance and operations. Each of these aspects introduces particular biofouling vulnerabilities but also offers opportunities to limit the extent and development of biofouling, with commensurate reduction in biosecurity risks.

8.3.2.9.2.1 Summary of requirements

Biofouling management for international vessels will comply the Australian biofouling management requirements (DAFF, 2023), which implements the requirements of the *Biosecurity Act 2015* (Cth) and the IMO 2023 Guidelines for the Control and Management of Ships' biofouling to Minimize the Transfer of Invasive Aquatic Species.

Under the *Biosecurity Regulation 2016* (Cth), all operators of vessels intending to enter Australian territorial waters must provide information relating to biofouling management through the mandatory pre-arrival report 12–96 hours prior to arrival. In addition, the vessel operator must demonstrate proactive management of biofouling by implementing one of the 3 accepted proactive biofouling management options:

- implementation of an effective biofouling management plan and record book
- cleaned all biofouling within 30 days prior to arriving in Australian territory
- implementation of an alternative biofouling management method pre-approved by the department.

Vessels mobilised to the OAs from international or domestic waters must also comply with the National biofouling management guidelines for the petroleum production and exploration industry (Marine Pest Sectoral Committee, 2009).

8.3.2.9.2.2 Vessel risk assessment

This includes:

- completing a biofouling risk assessment
- implementing mitigation measures commensurate with the level of risk.

Figure 8-6 illustrates the biofouling risk assessment process. Factors that will inform risk include:

- timing of marine pest risk assessment relative to the Activity vessel mobilisation to provide sufficient time to implement control measures in cases where management is warranted
- Activity vessel location history since last dry dock and clean to inform whether the Activity vessel may have been exposed to high-risk ports/locations
- level of biofouling and the presence of species of concern (particularly the presence of marine pests) within biofouling communities on the vessels associated with the Activity (often informed by biofouling record books and/or maintenance/cleaning or inspection programs)
- operational profile relevant to biosecurity risk such as operating speed, time alongside a facility and the need for ballast exchanges within the title area
- receiving environment including the presence of shallow-water sensitivities near the Activity and the presence and area of non-biocidal surfaces on facilities that could harbour marine pests
- presence and effectiveness of external and internal marine growth prevention systems including effectiveness and integrity of anti-fouling coatings and functionality of internal treatment systems
- qualifications and competency of those conducting and reviewing the risk assessment and making management decisions.

8.3.2.9.2.3 Vessel risk status

Vessels must achieve a ‘low’ risk status to demonstrate to the government that Santos has taken all reasonable measures to minimise the risk of IMS. The risk assessment categorises the vessel’s risk status as:

- low – low risk of introducing IMS; no additional management measures required
- uncertain – risk of introducing IMS is not apparent; precautionary approach adopted, additional management measures required to achieve low status
- high – high risk of introducing IMS; additional management measures will be required.

8.3.2.9.2.4 Potential management measures to achieve low risk status

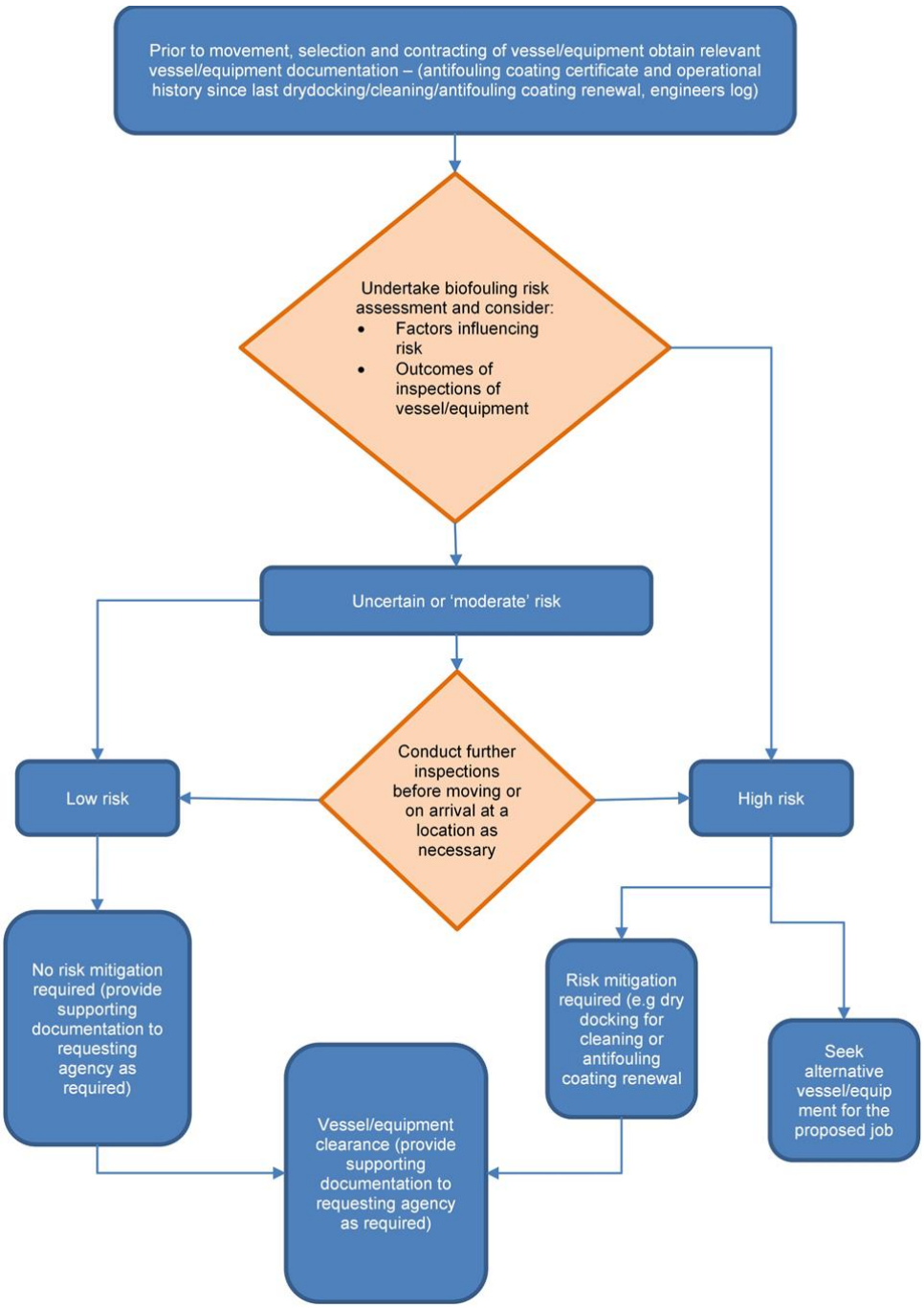
The outcome of the risk assessment will determine the management measures required. If the vessel is deemed as ‘low’ risk status, no other measures are required (providing the vessel does not exceed the 7 day threshold at stationary or slow speed, in waters outside Australia).

For vessels that are assessed as having an ‘uncertain’ or ‘high’ risk, contractors will engage a qualified IMS inspector to conduct inspections and/or provide advice on obtaining ‘low’ status. Table 8-8 lists mitigation measures that can be applied to achieve ‘low’ risk status.

Table 8-8: Biofouling mitigation measures

Mitigation measure	Overview
IMS inspection	Visual inspection of submerged surfaces and niche areas by a qualified biosecurity inspector to better understand the actual biosecurity risk.
In-water cleaning	The appropriateness of in-water cleaning operations must be a decision made closely with an IMS inspector on a case-by-case basis. Many factors will be considered, including:

Mitigation measure	Overview
	• degree and type of biofouling • location of biofouling on the vessel. Before undertaking in-water cleaning within Australia, approval from the relevant state/territory authority must be granted and conditions may be imposed. Application must be made to the administering authority (harbour master, local government or state/territory environmental protection agency) at least 5 working days before the proposed start of work.
Dry docking cleaning	Dry docking and removing/cleaning biofouling will include hull surfaces, niche areas such as sea chests, all retractable equipment such as thrusters, intakes and outlets, anodes and voids.
Temporal or spatial controls	Temporal or spatial controls to limit vessel exposure to sources of risk.
Applying anti fouling coating	Depending on its age, the vessel may require a new anti-fouling coating to be applied by professional operators. The anti-fouling coating type will be based on technical advice. All vessels more than 400 gross tonnage require a valid anti-fouling system certificate.
Treating internal seawater systems	In the absence of a marine growth prevention system, internal seawater systems may need to be cleaned. Cleaning actions may include: • dehydration • heat • physical removal • chemical treatment. Ideally, treating internal seawater systems will be undertaken before the vessel is mobilised to Australia. If chemical treatments are to be undertaken within Australian waters, advice must be sought from the Australian Pesticides and Veterinary Medical Authority (https://apvma.gov.au/) in relation to permit and reporting requirements—it is prohibited to clean internal systems in Australian waters without a permit.



Source: Marine Pest Sectoral Committee (2009)

Figure 8-6: Generic biofouling risk assessment process

8.3.2.10 Chemical management

Chemicals will be selected in accordance with the Santos chemical selection process (refer Section 2.7) and managed in accordance with the contractor management system.

A Safety Data Sheet (SDS) is provided for each for each hazardous substance. The SDS describes its physical and chemical properties, health and physical hazards, safe handling and storage, emergency procedures and disposal considerations.

8.3.2.11 Methane Emissions Management

Santos' approach to methane, as outlined in the 2024 Annual Report, focuses on three key areas:

- **Detect, measure and validate**: Activities that detect and accurately measure methane emissions using a combination of evidence-based theoretical techniques and real-time technologies. The utilisation of various methods and technologies permits validation of results and comparison against reported emissions. Our most material emissions are assessed and prioritised accordingly.

- **Monitor and mitigate**: Asset-led programs that incorporate surveillance of emissions using different techniques and technologies. These programs permit prioritisation of our most material emissions, associated reparation feasibility assessment and value impact to the business.
- **Engagement and leadership**: Interaction with stakeholders across the methane value chain to collaborate on solutions. This includes engagement and collaboration with our peers on approaches for methane measurement and reduction.

Actions implemented under each of these pillars may change year-on-year as our approach evolves, but in 2024 included, at the corporate level:

- Becoming a signatory of the OGCI Aiming for Zero Initiative, committing to 'near zero' methane emissions from operated assets by 2030[48]
- Became a signatory to the World Bank's Zero Routine Flaring Initiative, committing to avoid routine flaring in new oil field developments and end routine flaring at existing oil facilities by 2030, where economically viable.
- Participation in a satellite monitoring campaign to validate knowledge of methane emissions within the areas we operate
- Completed a methane emissions materiality assessment across our operated assets
- Participated in the Australian Energy Producers methane working group and Climate Leaders Coalition methane workstream

Methane emissions from Santos portfolio operations, equated to approximately 10 per cent of total gross operated Scope 1 emissions in 2024. Santos also achieved a methane emissions intensity of 0.16%, which is below the Oil and Gas Climate Initiative's (OGCI) 2025 target of 0.20%.

Whilst methane emissions management is shaped by corporate targets and RBU management objectives, it is operationalised at the asset level taking into consideration factors including NGERs legislative reporting requirements, integrity and safety risk, materiality of emission sources, applicability of methane detection, measurement and reduction technologies and stage of asset-life.

As the operator of the Barossa facilities, Santos will operationalise the three methane emissions reduction pillars to Barossa operations having regard to its joint venture arrangements. Operationalisation of these pillars will be in the form of specific control measures and environmental performance standards (refer to BAO-CM-6.3.12) which aims to ensure that methane, along with other GHG emissions, are reduced to ALARP throughout the life of the Activity.

Methane emissions reduction opportunities are also considered as part of Santos' ongoing decarbonisation opportunity management process as described in Section 8.5.6.

8.3.2.12 Greenhouse Gas Emissions Management Plan

Management of facility Scope 1 GHG emissions over the life of the Barossa Gas Project will be governed under the Operations Greenhouse Gas Emissions Management Plan (GHGEMP) to ensure a coordinated approach across all aspects of GHG emissions management described in the implementation strategy. For the purpose of the Barossa Gas Project, the facilities include the FPSO and the GEP. The purpose of the Operations GHGEMP is to reduce Scope 1 emissions from facility operations to ALARP over the life of the Barossa Gas Project. The Barossa Production Manager will be accountable for the Operations GHGEMP. The GHGEMP will take effect from the commencement of steady-state operations.

The scope of the Operations GHGEMP includes all FPSO and subsea emissions sources (including the GEP – of which this Activity is a component), upstream of the DLNG facility custody transfer point at the DLNG facility beach valve. That is, the scope of the Operations GHGEMP covers emissions from Operations under the Barossa Production Operations EP but also emissions from operation of the GEP in NT waters including this GEP Coastal Waters OEMP (noting that GHG emissions from operation of the GEP will be limited to fugitive emissions from conveyance of gas through the pipeline and vessel emissions from infrequent IMMR vessel activity).

To ensure ongoing GHG emissions management in line with evolving best practice standards, and because the GHGEMP captures activities outside the scope of this GEP Coastal Waters OEMP, the GHGEMP will be a living document within the Barossa Management System (Section 8.2.1.1) and not annexed to this GEP Coastal Waters OEMP.

The following protocols, procedures, systems and measures as detailed further within the implementation strategy at the sections cross-referenced below, will be incorporated in, and form part of, the GHGEMP:

[48] *Page 90 of Santos 2024 Annual Report* https://www.santos.com/wp-content/uploads/2025/02/FINAL-Appendix-4E-and-2024-Annual-Report.pdf

- Emissions Performance Target Setting (Section 8.2.4)
- Critical Equipment Maintenance (Section 8.3.2.3.1)
- Methane Emissions Management (Section 8.3.2.11)
- Decarbonisation Opportunity Management (Section 8.5.6)

Adaptive management, to address areas of uncertainty, is integral to emissions performance target setting (Section 8.2.4), methane emissions management (Section 8.3.2.11) and decarbonisation opportunity management (Section 8.5.6).

Due to its importance as a governing document, the GHGEMP has been adopted as a specific control measure (BAO-CM-6.3.12) with corresponding environmental performance standards (Table 8-2).

In addition to any updates to the GHGEMP triggered as a result of annual performance reviews (Section 8.5.3.2) and the annual emissions performance target setting cycle (Section 8.2.4), the GHGEMP will be reviewed and updated every five years at a minimum.

8.3.3 Other Measures

During the preparation of this Coastal Waters OEMP, including as a result of consultation with Relevant Persons, Santos has identified additional measures which it considers are appropriate to implement. These measures are not control measures, as defined in the OPGGS(E)R, because they are not intended to be used by Santos as a basis for managing environmental impacts and risks. Some measures are not properly characterized as 'control measures' in respect of the Activity because they relate to operations outside of the operational area, which are not regulated under this GEP Coastal Waters OEMP. Notwithstanding this, Santos considers it appropriate to adopt the following measures as part of its implementation strategy:

- To build community confidence and capacity, Santos will offer training to Tiwi Islands Ranger Groups, other Tiwi people nominated by Tiwi Land Council Trustees and Croker Island Ranger Groups for rapid assessment for hydrocarbon spill incidents. Training will be provided subject to the interest, availability and the participation of the Ranger Groups.
- Santos to advise relevant Tiwi clan member if any bones are identified during the term of this GEP Coastal Waters OEMP.

8.4 Check

The ‘Check’ section describes surveillance and assurance activities to check effectiveness of the implementation strategy and associated control measures to achieve environmental performance outcomes (Table 8-1) and performance standards (Table 8-2) in this GEP Coastal Waters OEMP.

OPGGS(E)R 2023 Requirements
Section 22 Implementation strategy for environment plan
Monitoring and reporting 22(5) The implementation strategy must provide for sufficient monitoring, recording, audit, management of non-conformance and review of the titleholder’s environmental performance and the implementation strategy to ensure that the environmental performance outcomes and environmental performance standards in the environment plan are being met.

8.4.1 Assurance framework

Santos Assurance Procedure defines the framework and requirements for the planning and application of assurance activities for Santos Operations.

Level 1 assurance (such as the inspections described in Section 8.4.3) is the day-to-day assessment and management of risk undertaken by frontline leadership (a focus on hazards), which includes:

- Ensuring that controls are in place and operating effectively for the management of risk.
- Monitoring and maintaining compliance with relevant controls.
- Escalating identified material or systemic control failures or weaknesses and ensuring that any ongoing risk exposure is managed in line with the relevant risk management procedure.

Level 2 assurance (such as the audits described in Section 8.4.4) is management oversight through an annual assurance plan, based on key risks and controls (typically as described in relevant approvals such as the OEMP),

and the underpinning systems. Typically, this level of assurance is conducted by management and senior management. Findings of Level 2 assurance activities resulting in necessary control improvement actions to effectively manage risk exposure are recorded, monitored and when completed, closed. Emerging trends and material or systemic control failures or weaknesses identified through these assurance activities must be promptly escalated to the relevant managers and any ongoing risk exposure must be managed in line with the relevant risk management procedure.

Level 3 assurance is independent auditing, undertaken by independent internal or external auditors and is independent of Operations. The integrated assurance plan is governed by the Executive Functional Governance Committee of Santos, with a focus on audit of Technical and Operating Standards and "selection of risk-based audits". Findings from this assurance activity resulting in improvement actions are recorded, monitored and closed out in an approved system within agreed timeframes and the internal audit team notified upon completion. Key findings from these audits are required to be shared with the Santos leadership team.

Inspections and audits are undertaken to confirm compliance with the performance outcomes, controls measures and environment performance standards in the OEMP and confirm that the control measures are effective at reducing the environment impacts and risks. They will also identify potential new or changes to existing environmental impacts and risk, and methods for reducing these to ALARP.

Santos will retain accountability for assurance of all aspects of the Barossa Management System for all stages of the Activity including undertaking assurance activities in a manner consistent with the Barossa Project Environmental Compliance and Assurance Plan (ECAP). The ECAP outlines a process that enables the planning, collection and verification of environmental assurance evidence across the life of the Activity to measure compliance against the EPOs, EPSs, and measurement criteria for this GEP Coastal Waters OEMP. The ECAP is centred around the GEP Coastal Waters OEMP Compliance Register, which is the primary compliance tool that has a touchpoint at all stages of the environmental assurance process and directly shapes environmental assurance requirements, tools, schedules, verification and reporting. The GEP Coastal Waters OEMP Compliance Register identifies all applicable environmental requirements within the OEMP (EPOs, EPSs, measurement criteria, notifications), assigns responsibilities and applies verification controls, timing and tasks to each environmental compliance requirement. It will be first developed following acceptance of this GEP Coastal Waters OEMP and prior to commencement of the activities. It will be reviewed and revalidated following 12 months of steady state operations, and then again follow the 5-year revision of the GEP Coastal Waters OEMP. Planned inspections and audits against the GEP Coastal Waters OEMP Compliance Register are described in Section 8.4.3 and 8.4.4.

8.4.2 Monitoring, recording of emissions and discharges

OPGGS(E)R 2023 Requirements
Section 34 Criteria for acceptance of an environmental plan
For the purposes of section 33, the criteria for acceptance of an environment plan (the ***environment plan acceptance criteria***) for an activity are that the plan: includes an appropriate implementation strategy and monitoring, recording and reporting arrangements.
Section 22 Implementation strategy for environment plan
Monitoring and reporting 22(6) The implementation strategy must provide for sufficient monitoring of, and maintaining a quantitative record of, emissions and discharges (whether occurring during normal operations or otherwise), such that the record can be used to assess whether the environmental performance outcomes and environmental performance standards in the environment plan are being met.

The following sections describe monitoring and recording of emissions and discharges for each stage of the Activity.

The purpose of emissions and discharges monitoring is to assess compliance with the GEP Coastal Waters OEMP requirements and to reduce environmental impacts and risks to ALARP. Monitoring data may also inform identification of improvement opportunities as part of continuous improvement over the life of the Activity.

Monitoring and recording of emissions and discharges for each stage of the Activity, as described in the sections that follow, will also apply to contingency activities depending on which stage of the Activity they occur.

8.4.2.1 Initial Start-up

8.4.2.1.1 Vessel emission and discharge monitoring

Discharges to the marine environment associated with this Activity will be recorded and controlled in accordance with requirements under relevant Marine Orders and MARPOL requirements.

Santos and vessel contractors will maintain records so emissions and discharges can be determined or estimated. Such records will be maintained for a period of five years. Contractors are required to make these records available upon request.

For vessel activities Santos will maintain records of discharges or emissions, to the environment as described in Table 8-9.

Table 8-9: Monitoring of vessel emissions and discharges

Vessel Discharge/emission	Parameter	Quantitative record	Frequency
Atmospheric and GHG emissions	Fuel volume	Calculations based on measured fuel use in accordance with NPI/NGER reporting scheme requirements	Fuel use tracked daily, emissions calculated at end of campaign
Oily water / bilge	Volume and location	Oil Record Book* or equivalent report	As required
Ballast water	Volume and location	Ballast water log**	As required
Treated sewage and greywater	Volume and location	Estimated based on POB and days on location	Once per campaign
Unplanned discharge of: • solid objects • hazardous liquids	Volume	DME recordable or reportable incident reports	As required
Unplanned hydrocarbon release	Volume	DME recordable or reportable incident reports	As required

* Maintained as per vessel class in accordance with relevant regulations

** Maintained as per *Australian Ballast Water Management Requirements 2020*

8.4.2.2 Steady state operations

8.4.2.2.1 Vessel emission and discharge monitoring

Discharges to the marine environment associated with this Activity will be recorded and controlled in accordance with requirements under relevant Marine Orders and MARPOL requirements.

Santos and vessel contractors will maintain records so emissions and discharges can be determined or estimated. Such records will be maintained for a period of five years. Contractors are required to make these records available upon request.

For vessel activities Santos will maintain records of discharges or emissions, to the environment as described in Table 8-10.

Table 8-10: Monitoring of vessel emissions and discharges

Vessel Discharge/emission	Parameter	Quantitative record	Frequency
Atmospheric and GHG emissions	Fuel volume	Calculations based on measured fuel use in accordance with NPI/NGER reporting scheme requirements	Fuel use tracked daily, emissions calculated at end of campaign
Oily water / bilge	Volume and location	Oil Record Book* or equivalent report	As required
Ballast water	Volume and location	Ballast water log**	As required
Treated sewage and greywater	Volume and location	Estimated based on POB and days on location	Once per campaign
Unplanned discharge of: • solid objects • hazardous liquids	Volume	DME recordable or reportable incident reports	As required

Vessel Discharge/emission	Parameter	Quantitative record	Frequency
Unplanned hydrocarbon release	Volume	DME recordable or reportable incident reports	As required
* Maintained as per vessel class in accordance with relevant regulations. ** Maintained as per *Australian Ballast Water Management Requirements 2020*.			

Discharges from vessels are also monitored as per vessel class in accordance with relevant Marine Orders and MARPOL requirements.

8.4.2.2.2 GEP emissions monitoring

Fugitive emissions are not actively metered; they will be estimated annually based on default NGER factors. If a major repair is required as an unplanned activity, then fugitive emissions would be estimated based on default NGER factors based on design parameters of pipeline length. Measurement data used for emissions calculations is recorded and stored in a production historian database.

8.4.3 Inspections

Inspections are the primary tool to check compliance with the relevant commitments (including CMs and EPSs) in the GEP Coastal Waters OEMP. Inspections can be desktop or field based. Inspections will be undertaken throughout all phases of the Activity and will utilise the GEP Coastal Waters OEMP Compliance Register (refer Section 8.4.1) as the basis to inform their scope.

Vessels

An environmental inspection program will be implemented for all vessels carrying out activities under this GEP Coastal Waters OEMP. Inspections are used to assess the vessels' compliance against requirements outlined in this GEP Coastal Waters OEMP, and at the end of all vessel campaigns, records will be collected from the vessel contractor to demonstrate compliance with the GEP Coastal Waters OEMP for performance reporting. Table 8-11 outlines the inspection schedule and scope for vessels. Inspection reports will be distributed for review to Santos relevant personnel (e.g. Operations Superintendent, Santos Company Site representatives), and HSE Department representatives.

Table 8-11: OEMP Inspection Schedule and Scope for Vessels

Activity Phase	Inspection	Frequency	Scope
Pre-mobilisation	Pre-mobilisation inspection	Once prior to entering the Operational Area	Environmental pre-mobilisation inspection will examine the level of mobilisation readiness of the vessel prior to entering the Operational Area, undertaken by a suitably experienced Santos or Contractor HSE Advisor. The inspections include a review of readiness against GEP Coastal Waters OEMP commitments.
Activity	Execution Inspections	Monthly - the first inspection will be undertaken within 2 weeks of entering the field. If Activity duration is <1 month then an inspection will be undertaken during the Activity	General ongoing environment inspections against all GEP Coastal Waters OEMP commitments and as relevant plans/ procedures/ other requirement using a risk based approach.

Any opportunities for improvement that cannot be addressed as part of inspection close out, will be considered as part of annual performance reviews and identification of continuous improvement opportunities (Section 8.5.3).

8.4.4 Audits

Santos maintains Activity audit plans and schedules that are frequently reviewed and updated. Audits will typically include for assessing compliance with relevant GEP Coastal Waters OEMP commitments as well as the supporting management processes and procedures described in the implementation section of the GEP Coastal Waters OEMP. For Contractors the audit will review their processes and procedures that support implementation of and compliance with the commitments in the GEP Coastal Waters OEMP.

Table 8-12 outlines the GEP Coastal Waters OEMP audit schedule. Further information on assurance activities for vessels is described in Section 8.4.6.

Audits will be undertaken in a manner consistent with the Santos' Assurance Procedure and the Barossa Project Environmental Compliance Assurance Plan (ECAP). Santos will retain accountability for assurance of all aspects of the Barossa Management System, for all stages of the Activity.

Table 8-12: OEMP Audit Schedule

Activity Phase	Audit Type	Frequency	Scope
Pre mobilisation inspection	Field Audit of GEP Coastal Waters OEMP	Once (minimum), in conjunction with the pre-mobilisation inspection (refer Table 8-11)	Aspects of the OEMP implementation strategy relevant to the activity phase, with a focus on operational readiness and compliance with the OEMP ahead of entering the Operational Area.
Vessel campaigns (for vessels contracted for >3 mths duration)	Desktop or Field Audit of GEP Coastal Waters OEMP	Once per campaign	Aspects of the OEMP implementation strategy as relevant to the Activity.
All phases	Desktop or Field Audit of GEP Coastal Waters OEMP	As required – in the event that assurance data (inspection reports, monitoring data) is trending toward non-compliance a proactive audit will be undertaken.	Risk specific, with a focus on implementation aspects.

Santos' audit plans and schedules are reviewed and updated at the beginning of each activity phase or calendar year (following commencement of steady state operations) and cover all Santos' facilities and activities.

During steady state operations, selected risk areas/activities are identified to review environmental performance against the EPOs and EPSs and verify that control measures are effective in reducing the environmental risks and impacts of the activity to an ALARP and acceptable level. The audit also includes review of conformance with selected aspects of the GEP Coastal Waters OEMP implementation strategy

Vessel HSE audits by the Santos HSE department are performed in accordance with the applicable requirements of any Environment Plan, Pipeline Management Plan or campaign specific HSE Management Plans. The GEP Coastal Waters OEMP compliance register (refer Section 8.4.1) will capture all OEMP requirements related to marine vessels (EPOs, EPSs, measurement criteria, notifications).

OPEP assurance activities, including testing arrangements and audits, are described in the GEP NT Waters OPEP (Section 5.6 of the OPEP).

Audit findings may include opportunities for improvement and non-conformances. Audit nonconformances are managed as described in Section 8.4.1. Any opportunities for improvement that can't be closed out as part of audit close out, will be considered as part of annual performance reviews and identification of continuous improvement opportunities (Section 8.4.2).

Audit findings and conformance with the Audit Schedule in Table 8-12 will be provided to the Vessel Master at the completion of the audit, with recommendations and actions to be tracked to close out. The audit findings will also be reported in the Annual Performance Report.

8.4.5 Incident Investigations

The Event Reporting & Investigation Technical Standard describes the requirements for reporting and investigating events that can cause harm to people, the environment and/or assets. These requirements ensure:

- Learning from events.
- Preventative and corrective actions are identified.
- Actions are tracked to closure.

The scope of the standard includes hazards, near misses, incidents, occupational injuries and illness, non-conformances and events requiring technical investigations.

Incident investigations will demonstrate consideration of the following:

- the availability and feasibility of adopting new or improved technology that would minimise the risk of incident recurrence
- the incorporation, where relevant, of lessons learned from the incident into the GEP Coastal Waters OEMP, as part of the continuous improvement cycle
- assessment of existing EPOs, EPSs and CMs to determine if they can continue to be achieved

Where changes are required to the GEP Coastal Waters OEMP, based on the outcomes of the above considerations, the Environment Plan MoC process outlined in Section 8.5.2 will be followed.

8.4.6 Marine Assurance

The Marine Assurance Standard requires that all vessels engaged for the Activity are to be vetted and applies to activities described in the GEP Coastal Waters OEMP. The vetting process is based on industry standards and best practices, along with considerations of guidelines and recommendations from recognised industry organisations such as Oil Companies International Marine Forum (OCIMF) and International Maritime Contractors Association (IMCA), and international regulatory agencies like the IMO and vessel classification societies.

The Marine Assurance Standard provides the framework to define the minimum controls, expectations and guidance for the selection and engagement of contractors and their vessels to minimise the risk of harm to people, environment, or assets. This includes requirements relating to:

- contractor assurance;
- vessel assurance and suitability;
- operational capability;
- ongoing vessel assurance; and
- change management.

All contracted vessel operators are audited against their respective Management Systems to ensure they have policies and procedures that define the safe operation of their vessels, verify their compliance with these and their continual improvement process.

Vessels are audited annually by an OCIMF or IMCA accredited inspectors against the respective Offshore Vessel Inspection Database (OVID) report or a Common Marine Inspection Document (CMID). For vessels where the OVID and/or CMID are not valid or available, a Santos approved inspection report is required.

The Marine Assurance Standard includes the following requirements relating to the ongoing assurance of vessels:

- Vessel visits are performed as required by the Santos Marine Superintendent or other Santos representative (or nominated Contractor representatives) throughout the charter period. The purpose of such visits is to ensure Santos' expectations are being upheld, there is compliance and conformity with operational procedures and a safety culture is being fostered.
- Reviews of the vessel Contactor's Management System are performed every three years, or whenever there is considered a requirement, such as following a major incident, repeated incidents, incidents which may impact the vessel State, Class or Flag status or if a vessel operator has been detained by a regulatory authority.
- Reviews of crew experience are undertaken whenever key personnel crew members change.
- Control measures relevant to crewed vessels (such as BAO-CM-6.1.1 and BAO-CM-6.1.2) apply equally to crewed support vessels, noting that the Santos marine assurance process will be tailored to measures specific to USVs to achieve an equivalent level of environmental performance. For example, a 360 degree camera will be required to comply with Part 8 of the compliance with Part 8 of Environment Protection and Biodiversity Conservation Regulations 2000 (BAO-CM-6.1.1) and the Vessel Master (person responsible for remotely operating the USV) will be subject to equivalent vessel crew Australian maritime requirements.

8.4.7 Reporting and Notifications

OPGGS(E)R 2023 Requirements
Section 22 Implementation strategy for environment plan
22(7) The implementation strategy must state when the titleholder will report to NOPSEMA in relation to the titleholder's environmental performance for the activity. The interval between reports must not be more than 12 months. Note: Section 51 requires a titleholder to report on environmental performance at the times or intervals set out in the environment plan.

Where section 22 of the OPGGS(E)R (above) notes reporting requirements to NOPSEMA, Santos will report to DME, as the relevant regulatory authority for administering the OPGGS(E)R in NT Coastal Waters.

Santos will also comply with any reporting requirements as per the conditions of EPBC Act approval EPBC 2022/09372 and EP Act approval EP 2022/022-001.

Regulatory and other notification and compliance reporting requirements are summarised in Table 8-13 and Table 8-14.

Table 8-13: Activity notification and reporting requirements

Initiation	Required Information	Timing	Type	Recipient
Before the Activity				
Australian Hydrographic Office (AHO)	Notification of proposed start and end dates and any other relevant information for the Notice to Mariners to be issued.	No less than four working weeks before operations.	Written	AHO datacentre@hydro.gov.au
Australian Maritime Safety Authority (AMSA)	AMSA's Joint Rescue Coordination Centre (JRCC) requires the: • vessel details (including name, callsign and Maritime Mobile Service Identity) • satellite communications details (including International Maritime Satellite C (INMARSAT-C) and satellite telephone numbers) • area of operation • requested clearance from other vessels • any other information that may contribute to safety at sea • when operations start and end.	At least 48 hours before operations begin.	Written	AMSA's JRCC rccaus@amsa.gov.au
DLI (NT), Regional Harbourmaster	Notification of proposed start and end dates of planned IMMR activities and any other relevant information for the Notice to Mariners to be issued	No less than 4 weeks before vessel operations begin	Written	Regional Harbourmaster
Marine user notifications to Relevant Persons identified in Table 8-14 (as may be updated from time to time).	Prior notification to OA marine users of planned Activity commencement.	At least 48 hours before IMMR activities begin	Written	As indicated in Table 8-14 by email.
DAFF – Biosecurity (international vessels, aircraft and personnel) (refer Section 4)	In accordance with control measure BAO-CM-7.2.1, Santos will: • pursuant to the *Biosecurity Act 2015* and the Biosecurity *(Exposed Conveyances – Exceptions from Biosecurity Control) Determination 2016*, undertake a vessel biosecurity risk and be assessed as 'low' by the Commonwealth Department of Agriculture, Fisheries and Forestry before interacting with domestic vessels and aircraft • undertake pre-arrival approval for the vessels (where applicable) using the Maritime Arrivals Reporting System (MARS) to meet the DAFF biosecurity reporting obligations.	At least one month before Activity begins. Maritime Arrivals Reporting System reporting at least 12 hours before arrival.	Written	DAFF Biosecurity (vessels, aircraft and personnel) https://www.agriculture.gov.au/biosecurity-trade/aircraft-vessels-military/vessels/mars
DAFF (Fisheries)	Prior notification of planned Activity commencement for the purpose of awareness of potential impacts to Commonwealth fishery licence holders.	No less than 4 weeks prior to the start of activities.	Written	DAFF

Initiation	Required Information	Timing	Type	Recipient
Department of Defence (DoD)	Prior notification of planned Activity commencement, for the purposes of: • consideration of Defence activities consideration of restricted airspace.	No less than 5 weeks prior to the start of activities.	Written	DoD
NT Department of Agriculture and Fisheries (DAF)	Prior notification of planned Activity commencement for the purpose of awareness of potential impacts to NT State fishery licence holders.	No less than 4 weeks prior to the start of activities.	Written	NT DAF
Northern Territory Seafood Council (NTSC)	Prior notification of planned Activity commencement for the purpose of awareness of potential impacts to NT State fishery licence holders.	No less than 4 weeks prior to the start of activities.	Written	NTSC
Quarterly updates	The Activity will be included in the Quarterly Update until the Activity has ended. In the event that distribution of this update does not correlate with the Activity schedule, notifications will be provided to identified relevant commercial fishers within the OA before and after the Activity.	Quarterly	Online on Santos' website and automated notifications to registered/ subscribed interested parties	Relevant Persons and any other interested party who has registered or subscribed for quarterly updates.
OPGGS(E)R 54 – Notifications DME– Energy Division must be given written notice that the Activity is to begin	Prior notification of planned Activity commencement.	At least 10 days before the Activity begins.	Written	DME (NT) – Energy Division
During the Activity				
OPGGS(E)R 50 – Recordable Incidents **DME** – Energy Division must be notified of a breach of an EPO or EPS in the GEP Coastal Waters OEMP that applies to the Activity that is not a reportable incident.	The record must include: • a record of all recordable incidents that occurred during the calendar month; and • all material facts and circumstances concerning the recordable incidents that the titleholder knows or is able, by reasonable search or enquiry, to find out; and • any action taken to avoid or mitigate any adverse environmental impacts of the recordable incidents; and • the corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the recordable incident; and the action that has been taken, or is proposed to be taken, to prevent a similar incident occurring in the future.	As soon as practicable after the end of the calendar month, and in any case, not later than 15 days after the end of the calendar month.	Written	DME (NT) – Energy Division

Initiation	Required Information	Timing	Type	Recipient
OPGGS(E)R 24(c), 47 & 48 – Reportable Incident A reportable incident is defined as per Section 8.4. DME must be notified of any reportable incidents. Following an initial oral notification to DME, a written record of the notification must be given to other government agencies in accordance with s 47(3) of the OPGGS(E)R.	The oral notification must contain: • all material facts and circumstances concerning the reportable incident known or that could be found out by reasonable search or enquiry • any action taken to avoid or mitigate any adverse environmental impacts of the reportable incident the corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the reportable incident.	As soon as practicable, and in any case not later than 2 hours after the first occurrence of a reportable incident, or if the incident was not detected at the time of the first occurrence, at the time of becoming aware of the reportable incident.	Oral	DME (NT) – Energy Division
	A written record of the oral notification must be submitted. The written record is not required to include anything that was not included in the oral notification.	As soon as practicable after the oral notification.	Written	DME (NT) – Energy Division (in its capacity as the relevant regulatory authority for administering the OPGGS(E)R in NT Coastal Waters and for administering petroleum titles in NT Coastal Waters). Department of the responsible State or NT Minister (noting this is also DME – Energy Division
	A written report must contain: • all material facts and circumstances concerning the reportable incident known or that could be found out by reasonable search or enquiry • any action taken to avoid or mitigate any adverse environmental impacts of the reportable incident • the corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the reportable incident • the action that has been taken, or is proposed to be taken, to prevent a similar incident occurring in the future	Must be submitted as soon as practicable, and in any case not later than 3 days after the first occurrence of the reportable incident unless DME (NT) – Energy Division specifies otherwise. Same report to be submitted to DME and the Department of the responsible State or NT Minister (noting this is also DME – Energy Division) within 7 days after giving the written report to DME.	Written	NOPSEMA https://securefile.nopsema.gov.au/filedrop/submissions NOPTA reporting@nopta.gov.au DME – Energy Division

Initiation	Required Information	Timing	Type	Recipient
OPGGS(E)R 22(7) & 51 – Environmental Performance DME must be notified of the environmental performance at the intervals provided for in the GEP Coastal Waters OEMP	Report must contain sufficient information to determine whether or not EPO and EPS in the GEP Coastal Waters OEMP have been met. Report will also address progress of Santos' identification and/or implementation of sea country initiatives.	An environmental performance report will be submitted to DME (NT) – Energy Division annually from the date of acceptance of this GEP Coastal Waters OEMP.	Written	DME (NT) – Energy Division
Notifiable incident (incident causing or threatening material or significant	The information must consist of the following: • time, date, nature, duration and location of the incident	A written report as soon as practicable (and in any case within 24 hours) after the person observes or becomes aware of the incident; or if in an emergency:	Oral (if in an emergency)	CEO of DEPWS NT EPA pollution hotline: 1800 064 567

Initiation	Required Information	Timing	Type	Recipient
environmental harm) as per**:** • EP Act (NT) Pt 9, Div 8 • *Environment Protection Regulations 2020* (NT) Pt 10 There is also a requirement to report environmental incidents that cause, or threaten or may threaten to cause pollution resulting in material or significant environmental harm under Part 3 of the *Waste Management and Pollution Control Act 1998 (*NT) (WMPC Act). Notifications under the WMPC Act will be made to the NT EPA.	• the location of the place where the environmental harm is likely to occur • the nature, the estimated quantity or volume and the concentration of any pollution involved • the circumstances in which the incident occurred (including the cause of the incident, if known) • the action taken or proposed to be taken to deal with the incident and any resulting environmental harm, if known	• notifying the CEO orally of the required information; and • giving the CEO a written notice containing the required information within 24 hours after the oral notice is given	Written	CEO of DEPWS environmentalregulation@nt.gov.au
AMSA Reporting	Titleholder agrees to notify AMSA of any marine pollution incident[49].	Notification within two hours of incident.	Verbal	AMSA JRCC
	Harmful Substances Report and Situation Report available online (refer to GEP NT Waters OPEP).	Harmful Substances Report as requested by AMSA after verbal notification.	Written	AMSA JRCC

[49] *For clarity and consistency across Santos' regulatory reporting requirements, Santos will meet the requirement of reporting marine oil pollution by reporting oil spills assessed to have an environmental consequence of Moderate or higher in accordance with Santos' environmental impact and risk assessment process outlined in Section 5.*

Initiation	Required Information	Timing	Type	Recipient
Director of National Parks Reporting Notification of the event of oil pollution within a marine park or where an oil spill response action must be taken within a marine park (requested through consultation)	The DNP should be made aware of oil and gas pollution incidences that occur within a marine park or are likely to impact on a marine park as soon as possible. Notification should be provided to the 24hour Marine Compliance Duty Officer on 0419 293 465. The notification should include: • titleholder details • time and location of the incident, including name of marine park likely to be affected • proposed response arrangements as per the GEP NT Waters OPEP, such as dispersant, containment • confirmation of providing access to relevant monitoring and evaluation reports when available • contact details for the response coordinator. *Note:* the DNP may request daily or weekly Situation Reports, depending on the scale and severity of the pollution incident.	Verbal notification as soon as reasonably practicable.	Verbal	DNP
DCCEEW Reporting Any harm or mortality to EPBC-listed Threatened marine fauna Marine fauna sighting data	Notification of any harm or mortality to an EPBC-listed species of marine fauna, whether attributable to the Activity or not.	Within seven days to EPBC.permits@environment.gov.au.	Written	DCCEEW
	If matters of national environmental significance are considered at risk from a spill or response strategy, or where there is death or injury to a protected species.	Email notification as soon as practicable.	Written	DCCEEW (Director of monitoring and audit section)
	Marine fauna sighting data recorded in the marine fauna sighting database.	As soon as practicable.	Written	DCCEEW
	Underwater cultural heritage details recorded in online database if discovered during Activity.	As soon as practicable; in any case, no later than three months after the end of the Activity.	Written	DCCEEW
	Reports to be provided to DCCEEW outlining findings from IMMR activities conducted in the Oceanic Shoals Marine Park	Following IMMR survey Activity (every 3 years)	Written	DCCEEW
Australian Marine Mammal Centre Reporting Any ship strike incident with cetaceans will also be reported to the National Ship Strike Database	Ship strike report provided to the Australian Marine Mammal Centre: https://data.marinemammals.gov.au/report/shipstrike.	As soon as practicable.	Written	DCCEEW

Initiation	Required Information	Timing	Type	Recipient
NT Department of Environment, Parks and Water Security All actual or impending spills in NT waters	Verbal reporting will consist of transfer of information to conduct a coordinated emergency response. All reporting will be performed by the vessel master as per the vessel specific SOPEP/SMPEP.	As soon as practicable.	Verbal	NT DEPWS. NT EPA (Pollution Response Hotline; Environmental Operations)
	Written reports will contain all material facts and circumstances concerning the reportable incident, actions taken to avoid or mitigate any adverse impacts, and corrective action taken.	Written report as soon as practicable.	Written	NT DEPWS, NT EPA (Pollution Response Hotline; Environmental Operations)
NT Department of Environment, Parks and Water Security (DEPWS) Marine wildlife incident or injury	Notification of occurrences of stranded, sick, injured or entangled marine wildlife	As soon as practicable.	Oral	Marine Wild Watch (1800 453 941)
AFMA	Verbal notification if any spill may affect Commonwealth fisheries within the EMBA.	Verbal notification within eight hours.	Verbal	AFMA
DLPE – Heritage Branch (NT) *Heritage Act 2011* (NT) section 114 reporting	Notification of discovery of place or object known to be an Aboriginal or Macassan archaeological place or object. The report to include: • A description of the place or object • Its location • The person's name and address • If known, the name and address of the owner or occupier of the place where the object is located	As soon as reasonably practicable.	Written	CEO of DLPE – Heritage Branch (NT)
Wickam Point Deed liaison committee First Nations UCH discovery	Notification of discovery of any First Nations UCH.	As soon as reasonably practicable.	Written	Wickham Point Deed liaison committee
AHO, AMSA	Notification of updates to both AHO and AMSA (JRCC) on progress and, importantly, any changes to the intended operations.	As soon as possible.	Written	AMSA's JRCC AHO
Tiwi Resources (Ranger Coordinator),	Notification of all spills heading towards the Tiwi Islands.	Within 8 hours of incident being identified	Oral – by phone call	Tiwi Resources (Ranger Coordinator), Tiwi Land

Initiation	Required Information	Timing	Type	Recipient
Tiwi Land Council and Munupi Clan members.	Follow up email notification outlining details of incident.	After oral notification.	Written	Council and nominated Munupi Clan members (per Table 7-1 from GEP NT Waters OPEP), subject to obtaining relevant email addresses.
Greenhouse gas emissions	Reporting of greenhouse gas emissions, energy production and consumption under the NGER Reporting Scheme.	Annually.	Written	Clean Energy Regulator
Pollutant emissions	National Pollution Inventory reporting is lodged as per the National Pollution Inventory submission requirements.	Annually.	Written	National Pollution Inventory
Tiwi Resources (Ranger Coordinator), Tiwi Land Council and the delegated Clan Trustees	Notification of all spills heading towards the Tiwi Islands.	Within eight hours of incident being identified.	Verbal phone call notification	Tiwi Resources (Ranger Coordinator), Tiwi Land Council and the delegated Clan Trustees
	Follow up with email outlining details of incident.	After oral notification.	Written	Tiwi Resources (Ranger Coordinator), Tiwi Land Council and the delegated Clan Trustees (per the GEP NT Waters OPEP), subject to obtaining relevant email addresses
First Nation Consultative Committees	Notification of all spills heading towards the relevant parties interests	Within eight hours of incident being identified.	Verbal phone call notification	First Nation Consultative Committees via Committee Chairs
	Follow up with email outlining details of incident.	After oral notification.	Written	First Nation Consultative Committees, via Committee Chairs (per the GEP NT Waters OPEP), subject to obtaining relevant email addresses
Other First Nations groups as agreed through the post acceptance consultation implementation process and through the NLC	Notification of all spills heading towards the relevant parties interests.	Within eight hours of incident being identified.	Verbal phone call notification	Other First Nation Groups, as agreed through the post acceptance consultation implementation process and through the NLC.
	Follow up with email outlining details of incident.	After oral notification.	Written	Other First Nation Groups, as agreed through the post acceptance consultation implementation process and through the NLC.

Initiation	Required Information	Timing	Type	Recipient
Vocus	Notification in the event of a spill requiring clean-up activities that may impact its infrastructure	As soon as possible	Written	Vocus
Environmental Approval (EPBC 2022/09372) for Darwin Pipeline Duplication Project **Compliance Records and annual data reporting**	Condition 14 The approval holder must maintain accurate and complete compliance records. Condition 16 The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the Guidelines for biological survey and mapped data, Commonwealth of Australia 2018, or as otherwise specified by the Minister in writing. Condition 17 The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the Guide to providing maps and boundary data for EPBC Act projects, Commonwealth of Australia 2021, or as otherwise specified by the Minister in writing.	Condition 18 The approval holder must submit all monitoring data (including sensitive ecological data), surveys, maps, other spatial and metadata and all species occurrence record data (sightings and evidence of presence) electronically to the department within 20 business days of each anniversary of the date of this approval decision. Condition 15 If the department makes a request in writing, the approval holder must provide electronic copies of compliance records to the department within the timeframe specified in the request.	Written	DCCEW

Initiation	Required Information	Timing	Type	Recipient
Environmental Approval (EPBC 2022/09372) for Darwin Pipeline Duplication Project **Annual Compliance Reporting**	Condition 19 The approval holder must prepare a compliance report for each 12-month period following the date of this approval decision (or as otherwise agreed to in writing by the Minister). Condition 20 Each compliance report must be consistent with the Annual Compliance Report Guidelines, Commonwealth of Australia 2023. Condition 21 Each compliance report must include: Condition 21, b) Accurate and complete details of compliance and any non-compliance with the conditions and the plans, and any incidents. Condition 21, c) One or more shapefile showing all clearing of protected matters, and/or their habitat, undertaken within the 12-month period at the end of which that compliance report is prepared. Condition 21, d) A schedule of all plans in existence in relation to these conditions and accurate and complete details of how each plan is being implemented.	Condition 22 The approval holder must: Condition 22, a) Publish each compliance report on the website within 60 business days following the end of the 12-month period for which that compliance report is required. Condition 22, b) Notify the department electronically, within 5 business days of the date of publication that a compliance report has been published on the website. Condition 22, c) Provide the weblink for the compliance report in the notification to the department. Condition 22, d) Keep all published compliance reports required by these conditions on the website until the expiry date of this approval. Condition 22, e) Exclude or redact sensitive ecological data from compliance reports published on the website or otherwise provided to a member of the public. Condition 22, f) If sensitive ecological data is excluded or redacted from the published version, submit the full compliance report to the department within 5 business days of its publication on the website and notify the department in writing what exclusions and redactions have been made in the version published on the website.	Written	DCCEEW

Initiation	Required Information	Timing	Type	Recipient
Environmental Approval (EPBC 2022/09372) for Darwin Pipeline Duplication Project **Independent Audit**	Condition 27 For each independent audit, the approval holder must: Condition 27, a) Provide the name and qualifications of the nominated independent auditor, the draft audit criteria, and proposed timeframe for submitting the audit report to the department prior to commencing the independent audit. Condition 27, b) Only commence the independent audit once the nominated independent auditor, audit criteria and timeframe for submitting the audit report have been approved in writing by the department. Condition 27, c) Submit the audit report to the department for approval within the timeframe specified and approved in writing by the department. Condition 28 Each audit report must report for the period preceding that audit report. Condition 29 Each audit report must be completed to the satisfaction of the Minister and be consistent with the 'Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines, Commonwealth of Australia 2019'.	Condition 26 The approval holder must ensure that an independent audit of compliance with the conditions is conducted at three (3) years after the commencement of the Action, and at any time upon the direction of the Minister. Condition 27 For each independent audit, the approval holder must: Condition 27, d) Publish the audit report on the website within 15 business days of the date of the department's approval of the audit report. Condition 27, e) Keep the audit report published on the website until this approval expires.	Written	DCCEEW

Initiation	Required Information	Timing	Type	Recipient
Environmental Approval (EPBC 2022/09372) for Darwin Pipeline Duplication Project **Reporting Non-Compliance**	Condition 24 The approval holder must specify in the notification: Condition 24, a) Any condition or commitment made in a plan which has been or may have been breached. Condition 24, b) A short description of the incident and/or potential non-compliance and/or actual non-compliance. Condition 24, c) The location (including co-ordinates), date and time of the incident and/or potential non-compliance and/or actual non-compliance. Condition 25 The approval holder must provide to the department in writing, within 12 business days of becoming aware of any incident and/or potential non-compliance and/or actual non-compliance, the details of that incident and/or potential non-compliance and/or actual non-compliance with the conditions or commitments made in a plan. The approval holder must specify: Condition 25, d) Any corrective action or investigation which the approval holder has already taken. Condition 25, e) The potential impacts of the incident and/or non-compliance. Condition 25, f) The method and timing of any corrective action that will be undertaken by the approval holder.	Condition 23 The approval holder must notify the department electronically, within 2 business days of becoming aware of any incident and/or potential non-compliance and/or actual non-compliance with the conditions or commitments made in a plan. Condition 25 The approval holder must provide to the department in writing, within 12 business days of becoming aware of any incident and/or potential non-compliance and/or actual non-compliance, the details of that incident and/or potential non-compliance and/or actual non-compliance with the conditions or commitments made in a plan.	Written	DCCEEW
End of the Activity				
OPGGS(E)R Section 54 – Notifications DME must be notified that the activity has ended	Complete NOPSEMA's Section 54 Start or End of Activity Notification Form.	Within ten days after the Activity ends.	Written	NOPSEMA https://securefile.nopsema.gov.au/filedrop/submissions

Initiation	Required Information	Timing	Type	Recipient
OPGGS(E)R Section 46 OEMP ends when titleholder notifies completion and the regulator accepts the notification DME must be notified that the activity has ended and all OEMP obligations have been completed	Complete NOPSEMA's Section 46 – End of Operation of Environment Plan form[50]	At the completion of the Activity and all EP obligations.	Written	NOPSEMA https://securefile.nopsema.gov.au/filedrop/submissions
AMSA (JRCC) Consultation	Notification that the IMMR activity has completed.	Within ten days of completion.	Written	JRCC
AHO	Notification that the IMMR activity has completed.	Within ten days of completion.	Written	AHO
DAFF	Notification that the IMMR activity has completed.	Within 10 days of completion.	Written	DAFF
DoD	Notification that the IMMR activity has completed.	Within 10 days of completion.	Written	DoD
NT DAF	Notification that the IMMR activity has completed.	Within 10 days of completion.	Written	NT DAF
NTSC	Notification that the IMMR activity has completed.	Within 10 days of completion.	Written	NTSC
Other Marine Users identified in Table 8-14 (as may be updated from time to time).	Notification that IMMR activities have been completed.	Within ten days of completion.	Written	Other Marine Users active in the Operational Area.
Environmental Approval (EPBC 2022/09372) for Darwin Pipeline Duplication Project **Completion of the Action**	Condition 30 The approval holder must notify the department electronically 60 business days prior to the expiry date of this approval, that the approval is due to expire.	60 business days prior to the expiry date of this approval	Written	DCCEEW

[50] *https://www.nopsema.gov.au/sites/default/files/documents/Regulation%2046%20-%20End%20of%20Operation%20of%20Environment%20Plan%20%28A346625%29%20form.docx*

Initiation	Required Information	Timing	Type	Recipient
Environmental Approval (EPBC 2022/09372) for Darwin Pipeline Duplication Project **Completion of the action**	Condition 31 Within 20 business days after the completion of the Action, and, in any event, before this approval expires, the approval holder must notify the department electronically of the date of completion of the Action and provide completion data. The approval holder must submit any spatial data that comprises completion data as a shapefile.	Within 20 business days after the completion of the Action	Written	DCCEEW

Other Marine Users Communications plan will be implemented by the end of the first quarter of each year, for engagement prior to and during the Activity that may impact marine users, to raise awareness of the activity. The plan will:

- Identify key Barossa activities that may impact other marine users.
- Leverage the regional engagement model and the database of relevant authorities' person and organisations (refer section 8.4.9), to identify other marine users whose activities may be impacted.
- Set out the method/s and frequency/timing of communications (inclusive of activity notifications contained in Table 8-13).
- Communicate the location, timing, and nature of the identified Barossa activities
- Set out person/s accountability to undertake the communications activities set out in the plan.
- Contain mechanism for stakeholders to contact Santos with any queries or complaints.
- Require that records of engagement and complaints be maintained.
- Where practical communications will occur at least two weeks before the activities take place

Table 8-14: Marine user notification recipients

Person to be issued marine user notifications	Notification recipient
Aquarium Fishery licence-holders (NT)	NTSC and NT DAF
Australian Border Force (ABF)	ABF
Australian Fisheries Management Authority (AFMA)	AFMA
Australian Institute of Marine Science (AIMS)	AIMS
Australian Southern Bluefin Tuna Industry Association (ASBTIA)	ASBTIA
Demersal Fishery licence-holders (NT)	NTSC and NT DAF
Department of Defense – Navy (DoD – Navy)	DoD – Navy
Eni Australia Ltd	Eni Australia Ltd
INPEX Ichthys Pty Ltd	INPEX Ichthys Pty Ltd
Northern Prawn Fishery commercial licence-holders	NPFI
Northern Prawn Fishing Industry Pty Ltd (NPFI)	NPFI
NT Department Mining and Energy	NT DME
NT Department of Agriculture and Fisheries	NT DAF
NT Guided Fishing Industry Association	NT Guided Fishing Industry Association
Northern Territory Seafood Council (NTSC)	NTSC
Offshore Net and Line Fishery licence-holders	NTSC and NT DAF

Person to be issued marine user notifications	Notification recipient
Pearl Oyster Fishery licence-holders	NTSC and NT DAF
Small Pelagic (Development) Fishery licence-holders	NTSC and NT DAF
Southern Bluefin Tuna Fishery licence-holders	ASBTIA and AFMA
Spanish Mackerel Fishery licence-holders	NTSC and NT DAF
Timor Reef Fishery commercial licence holders	NTSC and NT DAF
Top End Tourism	Top End Tourism
Tourism NT	Tourism NT
Vocus	Vocus
Western Skipjack Tuna Fishery licence-holders	ASBTIA and AFMA
Western Tuna and Billfish Fishery licence-holders	ASBTIA and AFMA
Woodside Energy Ltd	Woodside Energy Ltd

8.4.7.1 Incident reporting

OPGGS(E)R 2023 Requirements
Section 24 Other information in the environment plan
24(c) details of all reportable incidents in relation to the proposed activity.
Section 47 Notifying reportable incidents
47(1) A titleholder commits an offence of strict liability if: a. the titleholder undertakes an activity under the title; and b. there is a reportable incident for the activity; and c. the titleholder does not notify NOPSEMA of the reportable incident in accordance with subsection (2). Penalty: 40 penalty units. 47(2) For the purposes of paragraph (1)(c), the notification: d. must be given as soon as practicable, and in any case not later than 2 hours, after: 1. the first occurrence of the reportable incident; or 2. if the reportable incident was not detected by the titleholder at the time of the first occurrence—the time the titleholder becomes aware of the reportable incident; and e. must be oral; and f. must include: 3. all material facts and circumstances concerning the reportable incident that the titleholder knows or is able, by reasonable search or enquiry, to find out; and 4. any action taken to avoid or mitigate any adverse environmental impacts of the reportable incident; and 5. the corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the reportable incident. 47(3) As soon as practicable after the titleholder notifies a reportable incident, the titleholder must give a written record of the notification to: g. NOPSEMA; and h. the Titles Administrator; and i. if the incident occurred in the offshore area of a State—the Department of the responsible State Minister; and j. if the incident occurred in the Principal Northern Territory offshore area—the Department of the responsible Northern Territory Minister. 47(4) The titleholder is not required to include in the record anything that was not included in the notification.

Where section 47 of the OPGGS(E)R (above) notes reporting requirements to NOPSEMA, Santos will report to DME, as the relevant regulatory authority for administering the OPGGS(E)R in NT Coastal Waters.

Santos will also comply with any reporting requirements as per the conditions of EPBC Act approval EPBC 2022/09372 and EP Act approval EP 2022/022-001.

The requirements for reporting, investigating, and learning from unplanned or uncontrolled events that have or could have resulted in harm to people, the environment or company assets are defined in the Incident Reporting, Procedure.

All personnel will be informed, through inductions and daily operational meetings, of their duty to report HSE incidents and hazards. Reported HSE incidents and hazards will be shared during daily operational meetings and will be documented in Santos' incident management system. HSE incidents will be investigated using root cause analysis.

Environmental recordable and reportable incidents will be reported to DME as required, in accordance with Table 8-13. The incident reporting requirements will be provided to all crew on board the facilities and vessels, with special attention to the reporting timeframes to provide for accurate and timely reporting.

For the purposes of this Activity, in accordance with Section 5 of the OPGGS(E)R:

- A recordable incident for an activity means a breach of an EPO or EPS, in the GEP Coastal Waters OEMP that applies to the Activity, that is not a reportable incident.
- A reportable incident for an activity means an incident relating to the Activity that has caused, or has the potential to cause, moderate to significant environmental damage.

For the purposes of this GEP Coastal Waters OEMP, a reportable incident is one that is assessed to have an environmental consequence of moderate or higher in accordance with the Santos environmental impact and risk assessment process outlined in Section 5. Of the planned and unplanned events assessed within this Coastal Waters OEMP, the items identified to have a potential consequence level of moderate or higher if the event were to occur and would therefore be a reportable incident were:

- introduction of invasive marine species (IV – Major in OA)
- surface release of marine diesel oil from a vessel (III – Moderate)
- subsea release of gaseous hydrocarbons (III – Moderate)

8.4.8 Document Management

OPGGS(E)R 2023 Requirements
Section 52 Storage of records
Environment plan 52(1) A titleholder must store an environment plan for an activity under the title, in a way that makes retrieval of the environment plan reasonably practicable, during the following periods: • when the environment plan is in force for the activity; • for 5 years beginning on the day that the environment plan ceases to be in force for the activity. 52(2) A titleholder commits an offence of strict liability if the titleholder does not comply with subsection (1). Penalty: 30 penalty units. *Records and reports required under provisions of this instrument* 52(3) A titleholder must store the following documents, in a way that makes retrieval of the document reasonably practicable, for a period of 5 years beginning on the day the document is given or submitted to NOPSEMA: (a) a written record of a notification by the titleholder under section 47; (b) a written report given or submitted by the titleholder under section 48, 49, 50 or 51. 52(4) A titleholder commits an offence of strict liability if the titleholder does not comply with subsection (3). Penalty: 30 penalty units. *Other records and reports* 52(5) A titleholder commits an offence of strict liability if the titleholder: (a) creates a record or report mentioned in subsection (7); and (b) either: (i) does not store the record or report; or (ii) stores the record or report in a way that does not make retrieval of the record or report reasonably practicable. Penalty: 30 penalty units. 52(6) Subsection (5) does not apply if the failure to store the record or report, or failure to store it in a way that makes retrieval reasonably practicable, occurs more than 5 years after the day that the record or report was created. Note: A defendant bears an evidential burden in relation to the matter in subsection (6) (see subsection 13.3(3) of the Criminal Code). 52(7) For the purposes of paragraph (5)(a), the records and reports are the following: (a) records relating to environmental performance, or the implementation strategy, under the environment plan in force for an activity under the title; (b) records of emissions and discharges into the environment made in accordance with the environment plan in force for an activity under the title; (c) records of calibration and maintenance of monitoring devices used in accordance with the environment plan in force for an activity under the title; (d) written reports (including monitoring, audit and review reports) about environmental performance, or about the implementation strategy, under the environment plan in force for an activity under the title.

This GEP Coastal Waters OEMP and GEP NT Waters OPEP, as well as approved MoC documents, are controlled documents; current versions will be available on Santos' intranet. Santos' contractors are also required to maintain current versions of these documents.

Environmental performance outcomes and standards will be measured based on the measurement criteria listed in Table 8-2. Such records will be maintained for a period of five years. Contractors are required to make these records available upon request.

8.4.8.1 Information management and document control

The Barossa Information Management System is comprised of a suite of applications, configured to support operations and accessible by relevant Santos personnel. Key aspects of relevance to the GEP Coastal Waters OEMP include:

- Engineering Information Management Systems (EIMS)
- Operating manuals and procedures, Operating Procedure Guides and Work Instructions (standards, processes,
- Process surveillance and analysis.
- Santos IRR for operational risk assessment of the subsea infrastructure.
- MoC management systems.
- Incident reporting systems (including HSSE and technical).
- Productions and emissions reporting.

A library of controlled documents specific to the Barossa facility operations, including this GEP Coastal Waters OEMP and the GEP NT Waters OPEP, is accessible by personnel on the FPSO via a dedicated homepage. Each document has an 'Approver' and an 'Owner' who are responsible for the effectiveness of the requirements in that document. All documents will be updated as necessary in response to:

- Requirements for revision in accordance with the relevant Regulations.
- Changes in legislation, standards and/or codes.
- Findings / lessons learned from hazards reported and incident investigations.
- Audit actions.
- Changes to plant, equipment, and operating parameters.
- Changes in operating practices.
- Significant increase in the level of risk associated with a work activity or operation.
- Introduction of new technology, materials, or services.

The current approved version of controlled documents can always be readily located and accessed by the workforce through the information management system. Santos' contractors are also required to maintain current versions of these documents.

8.4.8.2 Operations Environmental Management Plan Review

Outside of any GEP Coastal Waters OEMP reviews and revisions triggered by the Environment Plan MoC process (Section 8.5.2), the GEP Coastal Waters OEMP will be reviewed as part of the 5-year major revision and resubmission in line with Regulation 41.

8.4.9 Post acceptance consultation implementation strategy

OPGGS(E)R 2023 Requirements
Section 22 Implementation strategy for environment plan
Consultation and compliance 22(15) The implementation strategy must provide for appropriate consultation with: a) relevant authorities of the Commonwealth, a State or a Territory; and b) other relevant interested persons or organisations.

Post-acceptance consultation activities for this GEP Costal Waters OEMP will be principally supported by Santos' existing relationships with those relevant interested persons and organisations whose functions, interests and activities may be affected by the Activity.

Santos recognises and respects the preference of relevant government authorities and other relevant interested persons and organisations to determine the frequency and method of updates, in addition to the written quarterly updates outlined in this strategy below.

8.4.9.1 First Nations people and groups

Santos will undertake post acceptance consultation over the life of the Activity with First Nations representative organisations.

Santos will provide quarterly written Activity updates via land councils and Aboriginal Corporations, specifically to:

- GDA
- KLC
- LDC
- LNAC
- NLC
- TLC
- Wickham Point Deed liaison committee
- Quarterly written Activity updates will also be provided to:
    - Tiwi Clan Trustees for each Clan via TLC
    - First Nations Consultative Committees via Committee Chairs.

Having regard to Santos' experience consulting with First Nations groups, and feedback from First Nations relevant persons, Santos considers that consultation through representative bodies provides an appropriate mechanism for ongoing consultation with First Nations relevant interested persons.

Representative bodies provide for regular, culturally appropriate engagement, including processes for dissemination of information to First Nations Elders, cultural leaders and communities in a manner that is readily accessible and culturally appropriate.

8.4.9.2 Local governments, communities and industry

As part of Santos' community engagement efforts, Santos will provide quarterly written Activity updates to regional local government and associated communities.

Santos will also provide quarterly written Activity updates to the commercial fishing industry, which is the industry most likely to be affected by proposed offshore activities. Santos will provide quarterly written Activity updates to those representative organisations whose membership are most likely to be affected, specifically to NPFI and NTSC.

8.4.9.3 Post-acceptance consultation implementation strategy – approach

Santos will provide to those organisations identified above quarterly written Activity updates. The updates will also be posted on Santos' website, with notifications to registered/subscribed interested parties.

Activity notifications and reports will be made in accordance with Table 8-13 and Table 8-14. The notifications and reports are based on legislative requirements, standing arrangements with particular Relevant Persons, Relevant Persons' requests for notification made during Section 25 of the OPGGS(E)R 2023 consultation or as otherwise deemed appropriate by Santos.

Santos will apply the regional engagement model to consider the preferences of relevant government authorities and other relevant interested persons and organisations when determining the frequency and method of additional updates.

A community lead for each region (e.g. NT Community Affairs Manager) oversees the development and implementation of engagement related plans, such as community investment plan and provision of information updates on Santos' activities. A core aim is to build long term relationships with key local stakeholders through regular engagement.

The regional engagement model is bespoke for each area so it can incorporate the preferences of local stakeholders and updated from time to time to reflect those preferences. For example, the NT model currently

includes the use of a Darwin shopfront which is open to the public and a NT based First Nations Engagement Adviser. These plans also consider the community commitments (e.g. post GEP Coastal Waters OEMP engagement) for each region. For example, the NT model currently includes quarterly meetings with Larrakia people through the Wickham Point Deed liaison committee.

Santos will continue to accept, assess and respond to post acceptance consultation feedback during the life of the Activity under this GEP Coastal Waters OEMP. Records of any post acceptance consultation will be maintained in an appropriate Santos consultation database.

During the GEP Coastal Waters OEMP validity period, Santos will also:

- Review information sources that may give rise to additional or new relevant interested persons or organisations, as part of planned consultation activities to support future approvals.
- Request recipients of Santos' Quarterly Update to advise Santos of other organisations who may be relevant interested persons or organisations or who may be relevant Commonwealth, State or Territory authorities with respect to particular regional activities. The Quarterly Update is sent to a diverse range of organisations and provides information about Santos' proposed, existing and completed activities.

Additional new potentially relevant interested persons or organisations will be engaged and provided information about the accepted activity, as well as information about the post-acceptance consultation process and opportunities to provide input or receive activity updates.

Additional new relevant interested persons or organisations will also be added to the distribution list for its Quarterly Update, unless they request that they not be added.

If, during the course of post acceptance consultation, Santos receives information demonstrating a new or increased environmental impact or risk that is not provided for in this GEP Coastal Waters OEMP, as in force at the time, Santos will apply its MoC process outlined in Section 8.5.2.

Santos will maintain a database of relevant authorities, and other relevant interested persons and organisations for the Activity under this GEP Coastal Waters OEMP. This includes updating its database in light of post acceptance consultation, including identification of new relevant interested persons or organisations.

8.5 Act

Within 'Act' are described the processes for ongoing environmental impacts and risks to ensure they remain at ALARP and acceptable levels for the life of the Activity.

8.5.1 Non-conformance Management

OEMP non-conformances will be addressed and resolved by a systematic corrective action process, as outlined in Santos' Assurance Operating Standard and the Assurance Procedure. Non-conformances arising from audits and inspections will be entered into Santos' incident and action tracking management system (as in, HSE Toolbox). Once entered, corrective actions, timeframes and responsible persons (including action owners and event validators) will be assigned. Corrective action 'close out' will be monitored using a management escalation process. Any non-conformances that trigger recordable or reportable incident reporting to DME will be managed per Section 8.4.5.

8.5.2 Environment Plan Management of Change

The Environment Plan (EP) MoC process is applicable to the GEP Coastal Waters OEMP. It provides a systematic approach to initiate, assess, approve, implement and close out actions associated with a change in the Activity. Implementation of the EP MoC process is designed so that all activities undertaken by Santos is in full compliance with regulatory approvals and conditions and that changes have been properly considered, risk assessed, approved and communicated to all appropriate stakeholders accompanied by a detailed record of the change in Activity.

For any change with identified environmental impacts or risks, an impact / risk assessment will be undertaken to ensure that impacts and risks from the change can be managed to meet relevant EPOs, and be ALARP and acceptable. For a change to proceed, the associated environmental impacts and risks must be demonstrated to be acceptable and ALARP.

The MoC process considers sections 18, 19, 38 and 39 of the OPGGS(E)R 2023 and determines if:

- in respect of existing activities for the purposes of ss 18, 19 and 39, a proposed change can proceed and the manner in which it can proceed; and
- whether a proposed change or activity constitutes a 'new activity' for the purposes of s 38.

The MoC process applies to:

- new activities, assets, equipment, processes or procedures proposed to be undertaken or implemented that have the potential to impact on the environment and have not been assessed or authorised previously
- changes arising from any aspect of the approved activity including proposed changes to activities, assets, equipment, processes or procedures that have the potential to impact on the environment
- changes to the existing environment as relevant to the Activity
- changes to performance standards
- receipt of information form stakeholders about the impacts or risks of the Activity
- new information that becomes available after the GEP Coastal Waters OEMP acceptance
- changes, updates or environmental performance improvements identified from incident investigations, emergency response activities or annual audits
- an assurance check for a specific activity (e.g. annual audits)
- for GHG emissions, changes or updates following changes to Santos' corporate targets and policies regarding scope 3 equivalent emissions, or following the collection of data from suppliers, the DLNG onshore processing facility and customer and evaluation of opportunities to collaborate on emissions reductions initiatives (see BAO-CM-6.3.21 and 6.3.22,)

The MoC procedure also allows for the assessment of information that may become available after acceptance of the GEP Coastal Waters OEMP.

Some of the above circumstances where the MoC process applies are expanded on below as follows:

- When further feedback is received from external stakeholders after OEMP acceptance, consideration will be given as to whether it includes information concerning the environmental impacts or risks of Santos' activities, and if so, whether these impacts or risks are provided for in the relevant approval documentation (e.g. in this GEP Coastal Waters OEMP).
- Santos will also have regard to the guidance in *Munkara* that a 'new' significant environmental impact or risk means objective facts and circumstances arising after the approval of the OEMP.[51] If the impact or risk is not provided for in the OEMP and is new, the MoC process will be initiated in a timely manner in order for the significance of the new information, and any new or increased impacts or risks to be assessed.

The MoC procedure also includes an assurance check process.

- Where there is an identified change from the accepted OEMP content, a check is done to test the 'significance' of the change, to determine whether it can be accommodated which may then result in an MoC as described above.

Once the MoC process is complete:

- Accepted changes become part of the in-force GEP Coastal Waters OEMP or the GEP NT Waters OPEP, are tracked on a register and are made available on Santos' intranet. Where appropriate, the OEMP compliance register will be updated so that CM or EPS changes are communicated to the workforce and implemented. Any MoC will be distributed to the relevant roles identified in Table 8-3, and the most relevant management position is responsible for communication and implementation of the MoC. This may include crew meetings, briefings or communications as appropriate for the change.
- The MoC procedure will determine whether a revision of the OEMP is required and whether that revision must be submitted to DME and assessed by NOPSEMA. Additional consultation with Relevant Persons may be appropriate in order to complete the MoC process, depending on the nature and scale of the change.
- If re-submission of the OEMP to the Regulator is triggered as a result of the MoC assessment, standard practice of document revision will apply. If re-submission of the OEMP to the Regulator is not triggered, but an update to the latest version of the OEMP is required to reflect the changes from the MoC assessment, then this type of revision is called a "minor" revision.

[51] *Munkara* at [232].

8.5.3 Performance Review and Continuous improvement

Review of environmental performance and the implementation strategy will occur at regular intervals over the life of the Activity as part of existing business processes, or stand-alone reviews specific to the GEP Coastal Waters OEMP. These processes are described below for steady state operations.

8.5.3.1 Monthly Operations Governance Forums

Santos Operations Governance requires that the governance process:

- Assess and evaluate adequacy of existing performance indicators and supplement with new performance indicators (as required).
- Track and monitor health of performance indicators against targets.
- Identify gaps and focus areas for improvement, with performance below threshold requiring a plan to improve, endorsed by Leaders in the Business Unit and Function.
- Report and communicate performance in governance forums to facilitate and enable discussion for improvement initiatives.

Operations Governance Forums are held monthly to review operations and maintenance performance and KPIs, and will include KPIs relevant to evaluating the effectiveness of this GEP Coastal Waters OEMP implementation strategy.

8.5.3.2 Annual Environmental Performance Reviews

Review of environmental performance with Operations leadership against the requirements of the GEP Coastal Waters OEMP will occur annually in the lead up to the preparation of the annual performance report. The review will be informed primarily by the results of OEMP monitoring and assurance activities, including inspections and audits. These are described in Section 8.4. The purpose of the annual performance review is to review effectiveness of the implementation strategy, test the adequacy of resources to implement the requirements of the OEMP, assess effectiveness of the Environment Management System (EMS) (Section 8.2.1) and to assess if there are any necessary changes to the management of environmental impacts and risks for the activity.

8.5.3.3 Continuous Improvement

The scope of the annual performance review process is to also identify opportunities to improve environmental performance over the life of the Activity. Inputs to improvement opportunity identification will include the following:

- improvements identified from quarterly review of HSE key performance indicators (leading and lagging), where KPIs are relevant to management of Activity impacts and risks in this OEMP.
- opportunities for improvement identified from OEMP assurance processes including emissions/discharges monitoring, audits, inspections, environmental incident investigations and after action reviews
- opportunities for improvement identified during Environment Plan MoC reviews (Section 8.5.2)
- emergence of new knowledge or technologies relevant to management of environmental impacts and risks of the Activity
- any changes to Commonwealth or Northern Territory legislation, regulation or policy of relevance to management of impacts and risks from the Activity.
- issues raised during the ongoing consultation process (Section 8.4.9).

To ensure Santos maintains up-to-date knowledge of external sources of information that may be relevant to identification of continuous improvement opportunities, the following is undertaken:

1. maintain membership of Australian Energy Producers (formerly Australian Petroleum Production and Exploration Association), which provides a mechanism for communicating potential changes in legislation, industry practice and other issues that may affect OEMP implementation;
2. undertake annual spill response exercises, involving relevant external response organisations, to check spill response arrangements and capability are adequate;
3. subscribe to various regulator updates; and
4. have regular liaison meetings with regulators.

8.5.4 Environmental Impact/Risk Review

A review of environmental impacts and risks via an ENVID workshop will be conducted 12 months after commencement of steady state operations, and then once every five years to inform the 5-yearly revision of the GEP Coastal Waters OEMP in line with Regulation 41.

8.5.5 Engineering Change Management

Engineering change management processes will be used to scope and guide engineering and operations changes and determine reviews required to appropriately manage risks. Change management is critical to ensure all changes, no matter how minor or small, are effectively captured, assessed, approved, and managed with due rigour by competent people to ensure that any change will not compromise integrity, safe operations, the safety of personnel or protection of the environment. The change management process applies to all technical substitutions, modifications, additions, or deletions of plant or equipment; systems and procedures; critical positions or personnel.

Each change has an owner responsible for managing the change through its lifecycle, from inception through to ultimate close-out. Change requests evaluations shall include operations and technical disciplines as appropriate to the requested change. Appropriate communication and consultation with the parties affected by the change will also be conducted. Close-out will confirm that any lessons learned from implementation are captured and communicated appropriately.

There will be two complementary change management of processes in place:

- Santos Engineering Change Management Process
    - Utilised for STO change impacting field wide operations (including regulatory etc)
    - Covers multiple scopes (Subsea, GEP etc), ensuring integration with FPSO operations where required to maintain field-wide integrity and regulatory compliance
    - References supporting BWO process where required
- BWO Engineering Change Management Process
    - The BWO Engineering Change Management Process applies to FPSO-specific modifications. Where an FPSO change has potential implications for the GEP pipeline or subsea infrastructure, integration with the Santos Engineering Change Management Process will be required
    - Focused on FPSO-specific modifications, with Santos oversight where broader field-wide impacts exist.
    - Links to the Santos engineering change management process when FPSO-initiated changes impact the GEP, subsea infrastructure, or other field-wide assets

Any change that spans both the FPSO and subsea (including GEP), or that is relevant to requirements of the GEP Coastal Waters OEMP, will be governed under the Santos engineering change management process ensuring regulatory compliance and alignment with field-wide integrity management.

Both change management processes include an HSE review at initiation, which will determine whether potential changes impact achievement or verification of environmental performance standards or compliance with an environmental performance outcome. Any change that results in an outcome that may affect management of impacts and risks of the Activity will trigger the Environment Plan MoC process (Section 8.5.2).

Each change has an owner responsible for managing the change through its lifecycle, from inception through to ultimate close-out. Change requests evaluations shall include operations and technical disciplines as appropriate to the requested change. Appropriate communication and consultation with the parties affected by the change will also be conducted.

8.5.6 Decarbonisation Opportunity Management

Each Santos Regional Business Unit (RBU) is required to submit a decarbonisation plan for each regional asset as part of the annual corporate Long Term Planning Process. These plans contain an articulation of asset specific carbon emissions forecasts, material carbon sources and decarbonisation strategy; and outline opportunities to meet regulatory requirements and corporate targets. The plans outline identified projects to achieve regulatory compliance, such as Australia's Safeguard Mechanism, and Santos' path to net-zero Scope 1 and 2 emissions (avoid & reduce emissions). Any remaining gap to net-zero Scope 1 and 2 emissions is evaluated for offset solutions.

Each RBU's decarbonisation opportunities will vary depending upon their business. RBUs will first look to avoid emissions and then to reduce by implementing energy efficiency and lower emission technologies such as CCS (carbon capture and storage). Operating efficiency projects can include reducing fuel, flare and vent (out of scope of this OEMP), electrification (out of scope of this OEMP), improving fuel efficiency and other projects which

improve energy efficiency in operations. Opportunities are added to an asset-specific decarbonisation plan (given that this section of the GEP is part of the Barossa facilities), where they are evaluated and prioritised within the constraints of technical feasibility, cost, resource availability and other factors. Asset managers are responsible for identifying asset specific decarbonisation opportunities for all assets, including Barossa, for inclusion in RBU decarbonisation plans. RBU long-term plans, including the decarbonisation opportunities, are consolidated by the Corporate planning group and then reviewed and discussed with executive leadership to determine the best way to achieve required and targeted emissions reductions.

Based upon this discussion, guidance is provided to the RBUs on projects to include in their budget noting that only sanctioned major projects are considered committed (sanctioned major projects have progressed through the corporate project development process and have an approved final investment decision). The corporate group also considers new technology and other initiatives that may be outside the business unit remit to decarbonise. Sanctioned projects must meet minimum investment criteria set by the corporation based upon several metrics including net present value, internal rate of return, pay back, capital efficiency and marginal abatement cost (for decarbonisation projects). The marginal abatement cost is used to create a cost curve comparing the relative costs of individual projects to understand cost-effectiveness of options.

Projects that do not meet the capital threshold can be approved through the regional business unit's annual budget.

Project opportunity lists are maintained by each RBU and a compilation of current/ongoing opportunities are included in the annual decarbonisation plan. Following delivery, opportunities are validated prior to closeout.

As an individual asset, Barossa will form part of the RBU decarbonisation plan. For Barossa, opportunities identified during the Design/Execute phases, which remain applicable during the Operations phase, will be captured in the applicable RBU decarbonisation plan. Additionally, and as a new facility, a post-start-up workshop will be held within the first 18 months of Barossa steady-state operations for opportunity identification, once the facility is well understood and areas for long-term emissions intensity improvement become evident.

During steady-state operations, opportunities will be added to a formal tracking register where they are evaluated and prioritised, having regard to technical feasibility, cost, resource availability and other factors such as synergistic benefits e.g. opportunities that provide a GHG emissions and atmospheric emissions benefit. Improvement opportunities identified from the performance target setting process (Section 8.2.4) will assist with identification of decarbonisation opportunities over the life of the Activity.

Santos reviews and revises its internal planning processes and incorporates changes in requirements and timing as needed to meet changing environmental and internal requirements and to continuously improve internal processes. RBUs are accountable for their asset decarbonisation plans and corporate teams are accountable for validation of these plans and estimated emission reductions. These processes are subject to external audit.

Santos reports annually on its Climate initiatives. The most recent Santos Climate Report can be found on page 68 of the 2024 Annual report: https://www.santos.com/wp-content/uploads/2025/02/FINAL-Appendix-4E-and-2024-Annual-Report.pdf.

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Appendix A Santos Environment, Health and Safety policy

Environment, Health & Safety

SMS Santos

Policy

Our Commitment

Santos is committed to being the safest gas company wherever we have a presence and preventing harm to people and the environment

Our Actions

We will:

1. Integrate environment, health and safety management requirements into the way we work
2. Comply with all relevant environmental, health and safety laws and continuously improve our management systems
3. Include environmental, health and safety considerations in business planning, decision making and asset management processes
4. Identify, control and monitor risks that have the potential for harm to people and the environment, so far as is reasonably practicable
5. Report, investigate and learn from our incidents
6. Consult and communicate with, and promote the participation of all workers to maintain a strong environment, health and safety culture
7. Empower our people, regardless of position, to "Stop the Job" when they feel it necessary to prevent harm to themselves, others or the environment
8. Work proactively and collaboratively with our stakeholders and the communities in which we operate
9. Set, measure, review and monitor objectives and targets to demonstrate proactive processes are in place to reduce the risk of harm to people and the environment
10. Report publicly on our environmental, health and safety performance

Governance

The Environment Health Safety and Sustainability Committee is responsible for reviewing the effectiveness of this policy.

This policy will be reviewed at appropriate intervals and revised when necessary to keep it current.

Kevin Gallagher

Managing Director & CEO

Status: APPROVED

Document Owner:	David Banks, Chief Operating Officer		
Approved by:	The Board	Version:	3

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Appendix B Requirements applicable to the Activity

Table B-1: Summary of Relevant Commonwealth Legislation

Requirement for Environmental Management	Administering Authority	Summary of requirement and how it will be met	OEMP section
Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth) (ATSIHP Act)	Commonwealth – Attorney-General's Department DCCEEW	The ATSHIP Act provides for the preservation and protection from injury or desecration areas and objects in Australia and Australian waters that are of significance to Aboriginal people in accordance with Aboriginal tradition. The Minister for the Environment and Water may make a declaration to protect such areas and objects. The Act also requires the discovery of Aboriginal remains to be reported to the Minister. The ATSIHP Act is not directly relevant to the Activity as there are no areas or objects within the OA or the EMBA the subject of a 'significant Aboriginal areas' or a 'significant Aboriginal object' declaration under the ATSIHP Act. Further, there are no requirements arising under the ATSIHP Act that apply to the environmental management of the Activity. However, in the event that such areas or objects are declared in the future, this Act could potentially become relevant to the activities. Accordingly, this Act has been identified for completeness. Santos notes that on 23 October 2023 it was informed by the DCCEEW that applications had been received under the ATSIHP Act in relation to certain areas of the sea. Santos understands that these areas are at least 31.5 km from the OA but overlap a small portion of the outer limits of the EMBA. Santos understands that no decisions have been made by the Minister in relation to the applications at the time of writing.	There are no requirements arising under the ATSIHP Act that apply to the environmental management of the Activity. Refer to Section 3.2.14.7 and Section 3.2.15 – in relation to relevant heritage values and cultural features more broadly.
Aboriginal Land Rights (Northern Territory) Act 1976 (Cth) (ALR Act)	Commonwealth – Attorney-General's Department Department of the Prime Minister and Cabinet	The main purpose of this Act is to provide for the granting of traditional Aboriginal land in fee simple to be held by Aboriginal Land Trusts for the benefit of Aboriginal people entitled by Aboriginal tradition to the use or occupy the land. The ALR Act is not directly relevant to the environmental management of the Activity. There is no Aboriginal land either claimed or granted under the ALR Act, or sea closures put into effect in accordance with that Act, that overlap with the OA. There are no predicted impacts to land or nearshore locations (including the Tiwi Islands) declared under the ALR Act associated with the Activity. However, the EMBA for the Activity, associated with an unplanned MDO spill, does overlap with Aboriginal land declared under the ALR Act. As such, this Act has been included to give context to Santos' consultation with relevant Land Councils established under the Act.	Section 3.2.15 – Cultural features Section 4– Consultation
Australian Maritime Safety Authority Act 1990 (Cth) (AMSA Act)	AMSA	This Act establishes the Australian Maritime Safety Authority which manages the National Plan for Maritime Environmental Emergencies in coordination with industry. AMSA is also responsible for administering Marine Orders in Commonwealth waters. The Act aims to promote maritime safety, protect the marine environment from pollution and environmental damage from ships, provide for a national search and rescue service and promote the efficient provision of service by AMSA. AMSA is the lead agency for responding to oil spills in the marine environment and is responsible for the Australian National Plan for Maritime Environmental Emergencies. While the Act does not contain any explicit requirements relevant to the Activity, it establishes and sets out the functions of AMSA, which relate to environmental management including in respect of response to spill events and	Table 4-9 – Summary of Relevant Persons Table 4-11 – Consultation Summary Table – Commonwealth Government Agency or Authority Sections 7.4 to 7.5 – Hydrocarbon spills

Requirement for Environmental Management	Administering Authority	Summary of requirement and how it will be met	OEMP section
		administration of Marine Orders. The Act applies to the use of any vessel associated with operations and is relevant to the activity in respect of any unplanned pollution from ships. AMSA has also been consulted as a Relevant Person and will be notified throughout activities in accordance with Table 8-13. AMSA's relevant functions are described in Table 4-9.	Section 7.7 – Contingency spill response operations Table 8-13 – Activity notification and reporting requirements
Biosecurity Act 2015 (Cth) *Biosecurity Regulations* 2016 (Cth) *Biosecurity Amendment (Biofouling Management) Regulations* 2021 (Cth) Australian Ballast Water Management Requirements, Version 8 Australian Biofouling Management Requirements (DAWE 2022)	Commonwealth – Department of Agriculture, Fisheries and Forestry	This Act and its supporting regulations are the primary legislative means for managing diseases and pests that may cause harm to human, animal or plant health, or the environment. This Act includes provisions for ballast water management plans and certificates, record keeping obligations and powers to ensure compliance. This Act includes mandatory controls on the use of seawater as ballast in ships and the declaration of sea vessels voyaging out of and into Commonwealth waters. The Regulations stipulate that all information regarding the voyage of the vessel and the ballast water is declared correctly to the quarantine officers. The Australian Ballast Water Management Requirements outline the mandatory ballast water management requirements to reduce the risk of introducing harmful aquatic organisms into Australia's marine environment through ballast water from international vessels. These requirements are enforceable under the *Biosecurity Act 2015* (Cth) and include obligations under the International Convention for the Control and Management of Ships' Ballast Water and Sediments. This Act and Regulations apply to all foreign vessels operating in Australian waters and these vessels are required to comply with the requirements of this Act, the Regulations, the Australian Ballast Water Management Requirements, and the Australian Biofouling Management Requirements.	Section 7.2 – Introduction of invasive marine species Section 8.3.2.9 – Biosecurity management
Climate Change Act 2022 (Cth) (Climate Act)	Commonwealth – Climate Change Authority	The Climate Act commenced in September 2022. The Climate Act sets out Australia's net-zero commitments and codifies Australia's net 2030 and 2050 GHG emissions reductions targets under the Paris Agreement. While the oil and gas sector is not subject to direct obligations under this Acts, it legislates Australia's emissions net zero targets by 2050. The Santos Climate Change Policy and target to become a net-zero scope 1 and 2 GHG emissions by 2040 are aligned with these Acts. The activities covered under this GEP Coastal Waters OEMP are consistent with the principles of ESD and ALARP to mitigate GHG emissions.	Section 6.3 – Atmospheric and greenhouse gas emissions
Environment Protection and Biodiversity Conservation Act	Commonwealth – DCCEEW NOPSEMA	While the OPGGS (E) Regulations under the OPGGS Act (see below) regulate day to day petroleum activities and apply to any activity that may have an impact on the environment, the EPBC Act regulates the assessment and approval of proposed actions that are likely to have a significant impact on a matter of National Environmental Significance (MNES). Actions that are	Section 3 – Description of the environment

Requirement for Environmental Management	Administering Authority	Summary of requirement and how it will be met	OEMP section
1999 (Cth) (EPBC Act) *Environment Protection and Biodiversity Conservation Regulations* 2000 (Cth) (EPBC Regulations)	DNP	likely to have a significant impact on a MNES typically require referral under the EPBC Act, and the assessment process is administered by the DCCEEW. To protect, maintain and enhance recovery of certain threatened species and ecological communities listed under the EPBC Act, DCCEEW may prepare conservation management plans in the form of conservation advice or recovery plans. Australian Marine Parks (AMP) are established under the EPBC Act, and each AMP zone is based on the principles of the Australian International Union for Conservation of Nature (IUCN). Each of the AMPs have a management plan to give effect to management principles and objectives. Schedule 8 of the EPBC Regulations outlines the IUCN Reserve Management Principles. In addition, the EPBC Regulations provide for the protection and conservation of cetaceans, and create various offences for actions that may endanger them. This Act is relevant to the environmental management of the Activity and applies to all aspects of the Activity that have the potential to impact MNES. The DPD Project, inclusive of the NT Coastal Waters OA, was referred under the EPBC Act (EPBC 2022/09372) and assessed as a controlled action. This approval constitutes the Commonwealth Government's primary approval for the DPD Project and authorises the installation, pre-commissioning, operation and decommissioning of part of the Barossa GEP addressed in this GEP Coastal Waters OEMP. The DPD Project was deemed a 'controlled action' on 6 December 2022 and following assessment, was approved on 15 March 2024. Relevant conditions of EPBC approval 2022/0937 are included in Table B-4. Santos will comply with the requirements of Environmental Approval (EPBC 2022/09372) to the extent applicable in NT Coastal Waters (refer to Table B-4).	Section 6 – Planned activities impact assessment Section 7 – Unplanned events risk assessment
Fisheries Management Act 1991 (Cth) (FM Act)	Commonwealth - Department of Agriculture, Fisheries and Forestry Commonwealth – Australian Fisheries Management Authority	Management plans for fisheries are established under the FM Act, and the FM Act also sets out the legislative basis for Statutory Fishing Rights (SFRs), licences and permits. The Act defines the Australian Fishing Zone (AFZ) and provides for the majority of Commonwealth fisheries offences. The Act also establishes the functions of the Australian Fisheries Management Authority (AMFA), including in relation to the pursuit of ecologically sustainable development. The FM Act is not directly relevant to the environmental management of the Activity. However, in the event of a spill, the Act provides the regulatory framework for any necessary fisheries management decisions in Commonwealth waters. Further, the AFMA is responsible for managing Commonwealth fisheries and is a relevant agency where the Activity has the potential to impact on fisheries resources in AFMA managed fisheries. The OA and EMBA overlap four Commonwealth commercial fisheries managed by the AFMA. Accordingly, this Act has been identified for completeness (and to provide context for the consultation undertaken by Santos with the AFMA in the course of preparing this environment plan).	Section 3.2.14.1 – Commercial Fisheries Section 4.8 – Santos' consultation methodology Table 4-11– Consultation Summary Table – Commonwealth Government Agency or Authority Section 6 - Planned activities impact assessment Section 7 - Unplanned events risk assessment

Requirement for Environmental Management	Administering Authority	Summary of requirement and how it will be met	OEMP section
Hazardous Waste (Regulation of Exports and Imports) Act 1989 (Cth)	Commonwealth – DCCEEW	This Act regulates the import, export and transport of hazardous waste. The Act aims to ensure that exported, imported or transited waste is managed in an environmentally sound manner so that human beings and the environment, both within and outside Australia, are protected from the harmful effects of the waste. The Act gives effect to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1972 (commonly referred to as the Basel Convention). This Act applies to the import, export and transport of hazardous wastes required for the Activity, which will comply with the requirements of the Act.	Section 6.4 – Operational discharges Section 8.4.2 – Monitoring and recording emissions and discharges
Marine Orders	Commonwealth - AMSA	Marine Orders are subordinate rules made pursuant to the *Navigation Act 2012* (Cth), the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth), *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006* (Cth) and the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012* (Cth) affecting the maritime industry. They are a means of implementing Australia's international maritime obligations by giving effect to international conventions in Australian law. There are two series of marine orders, being those made to give effect to international obligations and standards and apply to regulated Australian vessels, foreign vessels and some domestic commercial vessels (Marine Orders 1-98). In addition, Marine Orders 500-507 are made under the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012* (Cth). Various Marine Orders apply to the Activity, including in relation to discharges and emissions. The Marine Orders relevant to this GEP Coastal Waters OEMP include: • Marine Order 21: Safety and emergency arrangements • Marine Order 27: Safety of navigation and radio equipment • Marine Order 30: Prevention of collisions • Marine Order 41: Carriage of dangerous goods • Marine Order 58: Safe management of vessels • Marine Order 70: Seafarer certification. • Marine Order 71: Masters and deck officers • Marine Order 91: Marine pollution prevention – oil. • Marine Order 93: Marine pollution prevention – noxious liquid substances • Marine Order 94: Marine pollution prevention – packaged harmful substances • Marine Order 95: Marine pollution prevention – garbage • Marine Order 96: Marine pollution prevention – sewage • Marine Order 97: Marine pollution prevention – air pollution • Marine Order 98: Marine Pollution - anti-fouling systems	Section 2.5 – Vessel and helicopter operations Section 6 – Planned activities impact assessment Section 7 – Unplanned events risk assessment Section 8.4.2 – Monitoring and recording emissions and discharges

Requirement for Environmental Management	Administering Authority	Summary of requirement and how it will be met	OEMP section
		Discharges to the marine environment caused by the Activity will be recorded and controlled in accordance with relevant Marine Orders. Santos has also implemented control measures directed to ensuring compliance with Marine Orders.	
Marine Safety (Domestic Commercial Vessel) National Law Act 2012 (Cth) *Marine Safety (Domestic Commercial Vessel) National Law Regulation 2013* (Cth)	Commonwealth – AMSA	This Act is a single regulatory framework for the certification, construction, equipment, design and operation of domestic commercial vessels inside Australia's exclusive economic zone. The Act names AMSA as the National Marine Safety Regulator and confers functions on AMSA in relation to marine safety, including that AMSA may make and maintain Marine Orders. The Regulations under the Act set out the definition of a vessel and details and requirements of the accredited marine surveyor scheme. The Act also sets requirements in relation to the survey of marine vessels which any Australian Activity vessels must comply with. All vessel movements associated with the Activity will be governed by AMSA marine safety regulations provided for under this Act, in addition to NT requirements, to the extent relevant. This Act also imposes duties on owners, masters and crew of domestic commercial vessels in relation to the safety of the vessel, relevant to owners, masters and crew of any Australian Activity vessels under this GEP Coastal Waters OEMP. Santos, when engaging vessel contractors, shall assure the vessel contractors compliance with applicable maritime law and regulations.	Section 6.5 – Interaction with other marine users Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
National Biofouling Management Guidance for the Petroleum Production and Exploration Industry 2009	Commonwealth – Department of Agriculture, Fisheries and Forestry	The guidance document provides recommendations for the management of biofouling hazards by the petroleum industry. The recommendations and biofouling controls set out within this document will be applied to the Activity in order to reduce the risk of the introduction of an IMS.	Section 7.2 – Introduction of invasive marine species
National Environmental Protection Council Act 1994 (Cth)	Commonwealth - DCCEEW	This Act establishes the National Environmental Protection Council (NEPC) that sets National Environmental Protection Measures (NEPMs). NEPMs are a set of national objectives designed to assist in protecting or managing particular aspects of the environment, to ensure that Australians have equivalent protection from air, water, soil and noise pollution. This Act is mirrored in all States and Territories. The Activity will be undertaken in line with the principles of ecologically sustainable development, and impacts and risks resulting from these activities relevant to National Environment Protection Measures national objectives will be demonstrated to be ALARP and acceptable.	Section 6.3 – Atmospheric and greenhouse gas emissions Section 8.4.2– Monitoring and recording emissions and discharges
National Greenhouse and Energy Reporting Act 2007 (Cth) (NGER Act)	Commonwealth – DCCEEW Clean Energy Regulator	The NGER Act provides for a single national reporting framework for the reporting and dissemination of information about greenhouse gas emissions, greenhouse gas projects and energy use and production of corporations. The NGER Act applies to the atmospheric emissions generated by fugitive emissions from pipeline transmission of dry gas (scope 1 emissions).	Section 6.3 – Atmospheric and greenhouse gas emissions

Requirement for Environmental Management	Administering Authority	Summary of requirement and how it will be met	OEMP section
National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 (Cth)	Climate Change Authority	The Safeguard Mechanism is also administered under the NGER Act. The Safeguard Mechanism applies to the Barossa Gas Project gas production activities, specifically, the Barossa Gas Project gas field will be a designated large facility under the NGER Act, and, as such will be subject to the Safeguard Mechanism. This means that Santos, among other things, will have an obligation to ensure that the net covered emissions of GHGs from the production of gas at the Barossa gas field do not exceed the applicable baseline.	
Native Title Act 1993 (Cth) (Native Title Act)	Commonwealth – Attorney-General's Department Commonwealth – Department of the Prime Minister and Cabinet National Native Title Tribunal Federal Court of Australia	The NT Act recognises the rights and interests of Aboriginal and Torres Strait Islander people in land and waters according to their traditional laws and customs, and creates processes through which native title can be recognised and protected. Under s 280(2) of the OPGGS Act, petroleum activities must be carried out in a manner that does not interfere with the enjoyment of native title rights and interests under the NT Act to a greater extent than necessary. In addition, under s 124 of the PSL Act, activities carried out under a pipeline licence must be carried out in a manner that does not interfere with registered native title rights and interests Act to a greater extent than necessary. The NT Act is not directly relevant to environmental management of the Activity. There are no native title claims or determinations within the OA or EMBA. However, the NLC is a Representative Aboriginal/Torres Strait Islander Body under the NT Act for parts of the OA and EMBA. Accordingly, this Act has been identified for completeness (and to provide context for the consultation undertaken by Santos with the NLC in the course of preparing this GEP Coastal Waters OEMP).	Section 3.2.15 – Cultural features Section 4.8 Consultation Summary Table – First Nations People and Groups (NLC)
Navigation Act 2012 (Cth)	AMSA (operational) Commonwealth - Department of Infrastructure, Transport, Regional Development, Communication and the Arts	This Act aims to promote the International Convention for the Safety of Life at Sea 1974 (SOLAS) and safe navigation, prevent pollution of the marine environment and ensure that AMSA has the power to carry out inspections of vessels, and enforce national and international standards. Specifically, this Act empowers AMSA to make Marine Orders, which are legislative instruments, with respect to any matter for which provision must or may be made by the Regulations. AMSA has the authority and responsibility for the operational activities under the Act, including vessel certification, seafarers qualifications, marine pollution prevention, monitoring and enforcement activities. All vessel movements associated with the Activity will comply with the Act and Marine Orders made under the Act, as well as NT requirements (see *Marine Act 1981* (NT)). See Marine Orders, above.	Section 2.5 – Vessel and helicopter operations Section 6.5 – Interactions with other marine users Section 6.2 – Light emissions Section 6.3 – Atmospheric and greenhouse gas emissions Section 6.6.3 – Environmental performance outcomes and control measures Section 7.1 – Release of solid objects Section 7.2– Introduction of invasive marine species

Requirement for Environmental Management	Administering Authority	Summary of requirement and how it will be met	OEMP section
			Section 7.3 – Marine fauna interaction Section 7.4 – Minor Release of hydrocarbons and chemicals Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth) (OPGGS Act) *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth) (OPGGS(E) Regulations)	Commonwealth – NOPSEMA Commonwealth – Department of Industry, Science and Resources Department of Mining and Energy	Petroleum exploration and development activities in Australia's offshore areas are subject to the environmental requirements specified in the OPGGS Act and associated Regulations. The OPGGS Act contains a broad requirement for titleholders to operate in accordance with 'good oil-field practice'. Specific environmental provisions relating to work practices essentially require operators to control and prevent the escape of wastes and petroleum. The Act also requires that activities are performed in a manner that does not unduly interfere with other rights or interests, including the conservation of the resources of the sea and sea-bed, such as fishing or shipping. In some cases, where there are environmental sensitivities or multiple use issues, it may be necessary to apply special conditions to an exploration permit area. The holder of a petroleum title must maintain adequate insurance against expenses or liabilities arising from activities in the title, including expenses relating to clean-up or other remedying of the effects of the escape of petroleum. The OPGGS(E) Regulations provide an objective-based regime for managing environmental performance for Australian offshore petroleum exploration and production activities in areas of Commonwealth jurisdiction. The OPGGS(E) Regulations are applied to petroleum operations within NT Coastal Waters by the PSL Act and the *NT Petroleum (Submerged Lands) (Application of Commonwealth Laws) Regulations 2004* (NT). Key objectives of the OPGGS(E) Regulations include to ensure that a petroleum activity carried out in an offshore area is: • carried out in a way that is consistent with the principles of ecologically sustainable development as set out in section 3A of the EPBC Act; and • carried out in a manner by which the environmental impacts and risks of the activity will be reduced to ALARP and be of an acceptable level. This Coastal Waters OEMP demonstrates that the Activity will be undertaken in line with the principles of ecologically sustainable development, and that the environmental impacts and risks resulting from these activities are reduced to ALARP and are acceptable.	Requirements under the OPGGS Act and associated Regulations are addressed throughout this GEP Coastal Waters OEMP.

Requirement for Environmental Management	Administering Authority	Summary of requirement and how it will be met	OEMP section
Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 (Cth) (and associated Regulations)	Commonwealth – DCCEEW	This Act regulates the manufacture, importation and use of ozone depleting substances (ODSs) (typically used in fire-fighting equipment and refrigerants) and synthetic greenhouse gases, and is applicable to the handling of any ODS. The Act provides a licensing system for the import, export and manufacture of ODSs and equipment containing ODSs, while the Regulations control the end-use of ODSs, which are licenced by DCCEEW. While the Activity does not include import, export or manufacture activities of ODS, this Act applies where ODS is found on Activity vessel refrigeration systems (which is a rare occurrence). The Activity vessels may use ODSs which would be regulated under this Act. Santos, when engaging vessel contractors, shall assure the vessel contractors compliance with applicable maritime law and regulations. Relevant Activity vessels will follow ODS handling procedures.	Section 6.3 – Atmospheric and greenhouse gas emissions
Protection of the Sea (Powers of Intervention) Act 1981 *Protection of the Sea (Powers of Intervention) Regulations 1983* (Cth)	AMSA Commonwealth – Department of Infrastructure, Transport, Regional Development, Communication and the Arts	The Act authorises the Commonwealth (through AMSA) to take measures for the purpose of protecting the sea from pollution by oil and other noxious substances discharged from ships and provides legal immunity for persons acting under an AMSA direction, including measures provided for under both of the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties and the Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil, 1973. The Regulations set out requirements to notify AMSA in respect of changes in the ownership or master of a vessel. This Act applies to vessel discharges and movements associated with the Activity, and Santos is required to comply with the Act in the event of a spill of oil or noxious subjects from a ship. Further, the Act confers powers on AMSA to take action in the event of a spill of oil or noxious subjects from a ship, which functions are relevant in the event of an MDO spill arising from activities under this GEP Coastal Waters OEMP.	Section 6.5 – Interaction with other marine users Section 6.4 – Operational discharges Section 7.4 – Minor release of hydrocarbons and chemicals Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth) *Protection of the Sea (Prevention of Pollution from Ships) (Orders) Regulations 1994* (Cth)	AMSA Commonwealth – Department of Infrastructure, Transport, Regional Development, Communication and the Arts	This Act relates to the protection of the sea from pollution by oil and other harmful substances discharged from ships and implements into domestic law Australia's obligations under the MARPOL convention, which sets out the legislative obligations relating to the prevention of accidental and operational marine environment pollution from shipping. This Act disallows any harmful discharge of sewage, oil and noxious substances into the sea and sets the requirements for a shipboard waste management plan. This Act also provides for the making of marine orders relating to marine pollution prevention, which give effect to relevant regulations of Annexes I, II, III, IV, V and VI of MARPOL 73/78. This Act applies to vessel discharges and movements associated with the Activity. Santos and its contractors must comply with relevant requirements under this Act and Regulations in respect of Activity vessels, including requirements to have a shipboard oil pollution emergency plan and a marine pollution emergency plan. Santos notes that the requirement to maintain a ship energy	Section 6.3 – Atmospheric and greenhouse gas emissions Section 6.4 – Operational discharges Section 7.4 – Minor release of hydrocarbons and chemicals Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations

Requirement for Environmental Management	Administering Authority	Summary of requirement and how it will be met	OEMP section
		efficiency management plan is not applicable to Activity vessels as the vessels will not be engaged on an overseas voyage when undertaking activities under this GEP Coastal Waters OEMP.	
Protection of the Sea (Civil Liability of Bunker Oil Pollution Damage) Act 2008	AMSA	This Act implements the requirements for the International Convention on Civil Liability for Bunker Oil Pollution Damage imposing insurance certification requirements in respect of regulated Australian vessels carrying more than 2,000 tonnes of oil in bulk as cargo. Activities under this GEP Coastal Waters OEMP do not involve the use of any vessels carrying over 2,000 tonnes of oil, as regulated under the Act.	Section 7.6 – Surface release of MDO from a vessel
Protection of the Sea (Harmful Antifouling Systems) Act 2006	Commonwealth, Department of Infrastructure, Transport, Regional Development, Communications and the Arts AMSA	This Act relates to protecting the sea from the effects of harmful anti-fouling systems. It prohibits the use of harmful organotins in anti-fouling paints used on ships. This is also implemented through Marine Order 98 (Marine pollution – anti-fouling systems). This Act applies to vessel movements in Australian waters associated with the Activity, which are required to have biofouling systems in place to prevent introduction of IMS and harmful impacts on Australian biodiversity.	Section 7.2 – Introduction of invasive marine species
Underwater Cultural Heritage Act 2018 (Cth) (UCH Act) *Underwater Cultural Heritage (Consequential and Transitional Provisions) Act 2018* (Cth)	Commonwealth – DCEEW The NT Heritage Branch has jurisdiction over Commonwealth waters North of the NT	The UCH Act replaces the *Historic Shipwrecks Act 1976* (Cth) and extends protection to other wrecks such as submerged aircrafts, human remains and other types of underwater cultural heritage including Aboriginal and Torres Strait Islander Underwater Cultural Heritage. Under the UCH Act, heritage that has been in Commonwealth / Australian waters for at least 75 years is automatically protected, while other heritage can be declared to be protected by the Minister. It is an offence to interfere with heritage covered by this Act. Key obligations imposed under the UCH Act include: • not disturbing protected underwater heritage during the course of a proposed action without a permit; • observing the requirements of protected zones and obtaining a permit to enter one if required; and • providing notification in respect of the discovery of any suspected underwater heritage identified during the course of proposed action within 21 days of discovery. There is one UCH site within the OA protected under the UCH Act, the wreck of Japanese submarine 1-124 with an 800m radial exclusion zone (refer Section 3.2.14.7. In addition, several known historic shipwrecks occur within the EMBA. Some unlocated wrecks could fall within the boundaries of the OA or EMBA. Despite this, there is no predicted impact to cultural heritage values in relation to these shipwrecks resulting from activities under the GEP Coastal Waters OEMP, including from unplanned risks. Although there are no presently predicted impacts, the UCH Act imposes obligations in the event of an article of heritage being discovered, which includes in NT	Section 3.2.14.7 – Underwater cultural heritage Section 3.2.15 – Cultural features Section 6.4 – Seabed and benthic habitat disturbance.

Requirement for Environmental Management	Administering Authority	Summary of requirement and how it will be met	OEMP section
		waters and the OA. The UCH Act requires that that anyone who finds an article of underwater cultural heritage which appears to be of an archaeological character needs to notify the relevant authorities, via online form.	

Table B-2: Summary of Relevant Northern Territory Legislation

State Legislation	Administering Authority	Summary of relevant requirement and how it will be met	EP Section
Aboriginal Land Act 1978 (NT)	Department of the Chief Minister and Cabinet (DCMC)	This Act provides for the access to Aboriginal land, certain roads bordered by Aboriginal land and the seas adjacent to Aboriginal land. While there are no planned activities associated with this GEP Coastal Waters OEMP that require access to Aboriginal land under the Act, there may be contingency spill response activities undertaken, in response to an unplanned spill event, that require access to Aboriginal land and adjacent seas, under the direction of the relevant Control Agency.	Section 7 – Unplanned events risk assessment
Dangerous Goods Act 1998 (NT) and *Dangerous Goods Regulations 1985* (NT)	NT - Department of the Attorney-General and Justice	This Act relates to the handling of certain dangerous goods within the NT. The Regulations provide requirements for the safe handling, storage and transportation of dangerous goods, including the provision of adequate training for personnel, suitable labelling, storage facilities and on-site emergency response capability. This Act applies in relation to the handling of dangerous goods in NT waters.	Section 6.4 – Operational Discharges
Environmental Offences and Penalties Act 1996 (NT)	Department of Environment Parks and Water Security (DEPWS)	This Act, defines levels and penalties for environmental offences under various Acts, including the NT EP Act, *Waste Management and Pollution Control Act 1998* and the *Water Act 1992*. Santos will ensure the activity complies with the requirements of these Acts. The Act is not directly relevant to the environmental management of the activity. However, the Act may also apply to the extent that a credible spill scenario or other discharge may result in impact to NT waters.	Section 6 – Planned activities impact assessment Section 7 – Unplanned events risk assessment

State Legislation	Administering Authority	Summary of relevant requirement and how it will be met	EP Section
Environment Protection Act 2019 (NT)	NT - Department of Environment, Parks and Water Security NT EPA	This Act is the principle environment legislation in the NT. The Act establishes the NT EPA whose key objectives are to promote ecologically sustainable development, protect the environment, and promote key effective waste management and minimisation strategies. The Act also provides for environmental impact assessment and approval for specific actions that may have a significant impact on the environment or that meet a referral trigger. In December 2023, the DPD Project (in NT waters) was approved (EP2022/022-001) under the Act following assessment by the NT EPA, subject to certain conditions and associated management plans relating to environmental management for activities in NT jurisdiction, including the Activity in the OA (refer to Table B-5). The Act may also apply to the extent that a credible spill scenario may result in impact to NT waters. Santos will comply with requirements of Environmental Approval (EP2022/022-001) applicable to the Activity in NT Coastal Waters.	Section 7.4 – Minor release of hydrocarbons and chemicals Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
Environment Protection (National Pollutant Inventory) Objective 2004 (NT)	NT EPA	The National Pollutant Inventory (NPI) provides information on the types and amounts of certain substances being emitted to the air, land and water or transported in waste. This is an objective under the *Waste Management and Pollution Control Act* that provides for compulsory reporting of air emissions by certain facilities, in accordance with the Commonwealth National Environment Protection (National Pollutant Inventory) Measure. Reporting for GHG emissions associated with the Activity will comply with these requirements.	Section 6.3 – Atmospheric emissions
Fisheries Act 1988 (NT) *Fisheries Regulations 1992* (NT)	NT - Department of Industry, Tourism and Trade – Fisheries Division	The *Fisheries Act 1988* (NT) provides for the regulation, conservation and management of fisheries and fishery resources so as to maintain their sustainable utilisation, to regulate the sale and processing of fish and aquatic life, and for related purposes. There are no requirements directly relevant to the environmental management of the Activity. However, in the event of an emergency, the Act provides the regulatory framework for the Joint Authority Fishery (such as the Timor Reef Fishery) to make any necessary fisheries management decisions. The OA overlaps six NT managed fisheries, and the EMBA overlaps 12 NT managed fisheries regulated under this Act. Accordingly, this Act has been identified for completeness (and to provide context for the consultation undertaken by Santos with the NT Department of Industry, Tourism and Trade in the course of preparing this GEP Coastal Waters OEMP).	Section 3.2.14.1 – Commercial fisheries Table 4-12 – Consultation Summary Table – NT Government Agency or Authority Section 7 – Unplanned events risk assessment

State Legislation	Administering Authority	Summary of relevant requirement and how it will be met	EP Section
Heritage Act 2011 (NT)	NT - Department of Territory Families, Housing and Communities	This Act establishes the NT Heritage Council and governs protection of both natural and cultural heritage places within the NT jurisdiction by establishing heritage offences and regulating activities that may impact heritage places and objects, including through a process for obtaining works approvals. While the Activity is not likely to impact natural and cultural heritage places or objects in the NT, the Act is relevant in the event that unplanned events may impact natural and cultural places, or objects in the NT, constituting an offence under the Act. Santos has conducted a maritime archaeological heritage assessment of the DPD Project, inclusive of the pipeline route within the GEP Coastal Waters OEMP OA, as per an Archaeological Scope of Work provided by the Heritage Branch of the DTFHC (refer Section 3.2.14.7). The EPOs, Control Measures, EPSs, supporting management processes/procedures and reporting requirements within this GEP Coastal Waters OEMP have been developed to ensure that underwater cultural heritage is protected during the Activity and requirements of the *Heritage Act 2011* (NT) are met.	Section 3.2.14.7 – Underwater cultural heritage Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
Marine Pollution Act 1999 (NT) *Marine Pollution Regulations 2003* (NT)	NT – Department of Environment, Parks and Water Security	This Act protects the NT marine and coastal environment from ship-sourced pollution, including litter and rubbish, hydrocarbons and substances that may be hazardous to the marine environment (including substances that may be in ballast and grey water). This Act also gives effect to the following annexes of MARPOL in NT waters: • Annex I (which deals with pollution by oil) • Annex II (which deals with pollution by noxious liquid substances in bulk) • Annex III (which deals with pollution by harmful substances in packaged form) • Annex V (which deals with pollution by garbage). This Act is applicable to the extent that unplanned events may impact NT waters and regulates ship-sourced pollution in NT waters, inclusive of the OA, prohibiting certain discharges in line with MARPOL (annexures I, II, III and V).	Section 6.4 – Operational discharges Section 7.1 – Release of solid objects Section 7.4 – Minor release of hydrocarbons and chemicals Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations

State Legislation	Administering Authority	Summary of relevant requirement and how it will be met	EP Section
Northern Territory Aboriginal Sacred Sites Act 1989 (NT) *Northern Territory Aboriginal Sacred Sites Regulations 2004* (NT)	NT – Aboriginal Areas Protection Authority (AAPA)	This Act establishes procedures for the protection and registration of sacred sites and the avoidance of sacred sites in the development and use of land. The Act also provides for entry onto sacred sites and specifies the conditions that apply to such entry, and establishes the Aboriginal Areas Protection Authority, who is responsible for, among other things, the enforcement of the Act. The AAPA has issued Authority Certificates (C2022-098 which covers potential seabed disturbance along the pipeline route in NT waters and a nominal ~1,000m buffer each side of the pipeline route, including the DPD pipeline route in the OA. Based on AAPA's research findings, there were no registered or recorded sacred sites, protected under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT) (NTASS Act), identified within or adjacent to the area represented by a 1,000m buffer each side of the pipeline route within the OA, nor any specific certificate conditions related to activities within the buffer area. In addition, there are many NT coastal sites along the mainland and island coastlines and potentially the surrounding waters that overlap the EMBA that are protected under the Act (whether registered, recorded, or not). There are no registered sacred sites in the OA. As a result, no credible impacts to known sites are expected from planned activities. However, the Act will be applicable in the unlikely event that an unplanned event may impact sacred sites protected under this Act, constituting an offence.	Section 3.2.15 – Cultural features Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
NT Petroleum (Submerged Lands) (Application of Commonwealth Laws) Regulations 2004	NT DME	Associated regulations of the PSL Act. These regulations apply certain Commonwealth laws to the submerged lands in the NT. The Activity falls under the jurisdiction of the PSL Act and the associated *NT Petroleum (Submerged Lands) (Application of Commonwealth Laws) Regulations 2004*. Planned and unplanned events may impact on coastal waters.	Requirements under the NT Petroleum (Submerged Lands) (Application of Commonwealth Laws) Regulations 2004 are addressed throughout this GEP Coastal Waters OEMP.
Petroleum (Submerged Lands) Act 1981 (PSL Act)	NT DME	The PSL Act allows for the creation of provisions with respect to the exploration for and the exploitation of the petroleum resources, and certain other resources, of certain submerged lands adjacent to the coasts of the NT and for other purposes. The PSL Act applies to NT Coastal Waters, that is, waters between the NT/Commonwealth waters boundary and the Territorial Sea Baseline. The Activity falls under the jurisdiction of the PSL Act. Planned and unplanned events may impact on coastal waters.	Requirements under the PSL Act and associated Regulations are addressed throughout this GEP Coastal Waters OEMP.

State Legislation	Administering Authority	Summary of relevant requirement and how it will be met	EP Section
Validation (Native Title) Act 1994 (NT)	Department of the Attorney-General	This Act, administered by the Department of the Attorney-General, validates certain acts attributable to the Territory, to make provision for the effect of certain acts attributable to the Territory on native title and for related purposes. There are no planned activities associated with this GEP Coastal Waters OEMP that will affect determined areas under this Act. The EMBA associated with a worst-case spill event does not intersect the Larrakia Native Title determination. Refer to entry for the *Native Title Act 1993* (Cth) (NT Act).	Section 3.2.15.3
Waste Management and Pollution Control Act 1998 (NT) (WMPC Act)	NT EPA NT – Department of Environment, Parks and Water Security	This Act provides for the protection of the NT environment though encouraging effective waste management and pollution prevention and control practices. Under the WMPC Act, environmental protection approvals and licences are required to authorise specific activities and operations. Santos intends to conduct the Activity consistent with the general environmental duty (Section 12 of the Act), whereby a person must not carry out any activity that results in pollution that causes or is likely to cause environmental harm, unless measures to prevent or minimise the harm have been taken, and a duty to notify the administering authority where an incident has caused or threatens to cause serious or material environmental harm. This Act is applicable to the extent that an unplanned event may impact NT lands and waters, in which case, spill response operations will be undertaken in accordance with plans produced under this Act (e.g., the NT Oil Spill Contingency Plan), in consultation with relevant NT response agencies	Section 6.4 – Operational discharges

Table B-3: Summary of Relevant International Agreements and Conventions

International agreements and conventions	Summary of relevant requirement and how it will be met	EP section
1997 Treaty between Australia and Indonesia establishing the EEZ Boundary and Certain Seabed Boundaries (Perth Treaty)	This treaty has been signed but not yet ratified. When ratified, the treaty will finalise the EEZ boundary between Australia and Indonesia. Under the Perth Treaty, there are areas of overlapping jurisdiction where Australia exercises seabed jurisdiction including exploration for petroleum, and Indonesia exercises water column jurisdiction including fishing rights. There is no overlap with the EMBA of the GEP Coastal Waters OEMP.	Section 3.2.14.1 – Commercial fisheries

International agreements and conventions	Summary of relevant requirement and how it will be met	EP section
Agreement Between the Government of Australia and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and Their Environment 1974 (commonly referred to as the Japan Australia Migratory Bird Agreement [JAMBA])	This agreement recognises the special international concern for protecting Migratory birds and birds in danger of extinction that migrate between Australia and Japan. The agreement is implemented in the EPBC Act. Birds listed on the annex to this agreement must be placed on the migratory species list under the EPBC Act. Only relevant insofar that a credible spill scenario may result in impacts to migratory seabirds foraging in the OA or EMBA.	Section 3.2.13 – Threatened and migratory fauna Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
Agreement Between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and Their Environment 1986 (commonly referred to as the China Australia Migratory Bird Agreement [CAMBA])	This agreement recognises the special international concern for protecting Migratory birds and birds in danger of extinction that migrate between Australia and China. The agreement is implemented in the EPBC Act. Birds listed on the annex to this agreement must be placed on the migratory species list under the EPBC Act. Only relevant insofar that a credible spill scenario may result in impacts to migratory seabirds foraging in the OA or EMBA.	Section 3.2.13 – Threatened and migratory fauna Section 7.6 – Surface release of MDO from a vessel Section 7.7 - Contingency spill response operations
Agreement Between the Government of Australia and the Government of the Republic of Korea for the Protection of Migratory Birds and Their Environment 1986 (commonly referred to as the Republic of Korea Australia Migratory Bird Agreement [ROKAMBA])	This agreement recognises the special international concern for the protection of migratory birds and birds in danger of extinction that migrate between Australia and Korea. The agreement is implemented in the EPBC Act. Birds listed on the annex to this agreement must be placed on the migratory species list under the EPBC Act. Only relevant insofar that a credible spill scenario may result in impacts to migratory seabirds foraging in the OA or EMBA.	Section 3.2.13 – Threatened and migratory fauna Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations

International agreements and conventions	Summary of relevant requirement and how it will be met	EP section
Convention for the Control of Transboundary Movements of Hazardous Wastes and Their Disposal 1989 (Basel Convention)	This convention deals with the transboundary movement of hazardous wastes, particularly by sea. The *Hazardous Waste (Regulation of Exports and Imports) Act 1989* (Cth) gives effect to the Basel Convention in Australian law. The overarching objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. While the Activity does not involve transboundary movement of hazardous wastes, Santos has considered the requirements of the Basel Convention in respect of any import, export and transport of hazardous waste for the Activity).	Section 8.4.2 – Monitoring and recording emissions and discharges
Convention on Wetlands of International Importance (Ramsar Convention)	The Ramsar Convention provides a framework for the conservation and wise use of wetlands and their resources. The EPBC Act gives effect to the Ramsar Convention by providing specific protection for wetlands recognised by the Ramsar Convention under Parts 2, 3 and 4 of the EPBC Act. The EMBA intersects with one Ramsar wetland – Cobourg Peninsula While no impacts are expected to this Ramsar wetland, this convention is applicable insofar as the credible spill scenario may result in impacts to Ramsar wetlands.	Section 3.2.12.2 – Wetlands of National and international importance
Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS)	The COLREGS are a set of rules that apply to prevent the collision of vessels at sea and apply to vessels navigating waters outside of the COLREGS demarcation lines. The COLREGS rules, include, among other things, requirements to travel at safe ~~speeds and keep watch keepers on deck of vessels, to reduce the likelihood of~~ collisions. Activity vessels will comply with the COLREGS, including in particular, through the use of appropriate lights and shapes to reflect the nature of operations. The convention is also given effect in Australia through the *Navigation Act 2012* (Cth) and Marine Orders (see above).	Section 6.5 – Interactions with other marine users Section 6.2 – Light emissions Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 90)	This convention comprises national arrangements for responding to oil pollution incidents from ships, offshore oil facilities, sea ports and oil handling. The convention recognises that in the event of a pollution incident, prompt and effective action is essential. Parts of this convention are implemented by the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth). The convention is applicable to the Activity in the event of a worst-case credible spill scenario, which may enact a national arrangement for response. Refer to the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth).	Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations Section 7.5 – Subsea release of dry natural gas
Convention on the Conservation of Migratory Species of Wild Animals 1979 (Bonn Convention)	The Bonn Convention aims to improve the status of all threatened migratory species through national action and international agreements between range states of particular groups of species. This convention is only relevant insofar as a credible spill scenario may result in impact to MNES protected migratory species.	Section 3 – Description of the environment Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations Section 7.5 – Subsea release of dry natural gas

International agreements and conventions	Summary of relevant requirement and how it will be met	EP section
The Paris Agreement on Climate Change 2015	The Paris Agreement aims to tackle climate change and its negative impacts. It sets the long term goal of substantially reducing global GHG emissions to limit global temperature rise this century to well below 2°C above preindustrial levels while pursuing efforts to limit the temperature increase even further to 1.5°C to prevent dangerous human-induced interference with the climate system. Under the Paris Agreement, Australia must submit emissions reduction commitments known as nationally determined contributions. While this Agreement is not directly relevant to the environmental management of the Activity, it provides the international framework and context around Australia's nationally determined contributions and greenhouse gas emissions, which are reflected in domestic law in the Climate Change Act (see above). This helps establish the defined acceptable level of Barossa Gas Project GHG emissions. See also the *Climate Change Act 2022* (Cth) and the Safeguard Mechanism above.	Section 6.3 – Atmospheric emissions
International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (Ballast Water Convention)	The Ballast Water Convention was adopted by the IMO and entered into force globally in 2017. It aims to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for managing and controlling ships' ballast water and sediments. Thus, ballast water management systems must be approved in accordance with this convention. From 8 September 2017, all vessels that use ballast water are required to meet the Regulation D-2 discharge standard of this Convention at their next renewal survey. In Australia, Implementation of the convention is also provided for under the *Navigation Act 2012* (Cth) and the *Biosecurity Act 2015* (Cth). This convention applies to all foreign vessels operating in Australian waters that have the potential to introduce IMS and/or utilise or conduct ballast water exchange. Refer to Australian Ballast Water Management Requirements.	Section 7.2 – Introduction of invasive marine species Section 8.3.2.9 – Biosecurity management
International Convention on Civil Liability for Bunker Oil Pollution Damage 1969	This convention provides a mechanism for ensuring the payment of compensation for oil pollution damage. In Australia, the convention is enacted under the *Protection of the Sea (Civil Liability of Bunker Oil Pollution Damage) Act 2008* (Cth). This convention applies in the event of a large-scale spill scenario associated with the Activity. Refer to *Protection of the Sea (Civil Liability of Bunker Oil Pollution Damage) Act 2008* (Cth).	Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
International Convention on the Control of Harmful Anti-fouling Systems on Ships	This convention prohibits the use of harmful organotin compounds in anti-fouling paints used on ships and establishes a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems. Santos will ensure that the vessels utilised for the Activity maintain anti-fouling systems in accordance with the convention. In addition, Santos will ensure it obtains an approved International Anti-Fouling Systems Certificate. See also *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006* (Cth).	Section 8.1 Control measures and environmental performance standards

International agreements and conventions	Summary of relevant requirement and how it will be met	EP section
International Convention for the Prevention of Pollution from Ships 1973/1978 (MARPOL 73/78)	This convention and protocol (together known as MARPOL 73/78) build on earlier conventions in the same area. MARPOL is concerned with operational discharges of pollutants from ships. It contains six Annexes, dealing respectively with oil, noxious liquid substances, harmful packaged substances, sewage, garbage and air pollution. Detailed rules are laid out as to the extent to which (if at all) such substances can be released in different sea areas. The legislation giving effect to MARPOL in Australia is the *Marine Pollution Act 1999* (NT), *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth), the *Navigation Act 2012* (Cth) and several Parts of Marine Orders made under this legislation. This convention applies to vessel discharges and movements associated with the Activity. Santos will ensure that all required audits and inspections of relevant contracted vessels assess compliance with the laws of the international shipping industry, including MARPOL. Refer also to the *Marine Pollution Act 1999* (NT), the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth), *Navigation Act 2012* (Cth) and Marine Orders.	Section 2.5 – Vessel and helicopter operations Section 6 – Planned activities impact assessment Section 7 – Unplanned events risk and impact assessment
International Convention for the Safety of Life at Sea 1974 (SOLAS) and its Protocol of 1988	This convention is generally regarded as the most important of all international treaties concerning the safety of merchant ships. In Australia, the convention is implemented by the *Navigation Act 2012* (Cth) and Marine Orders under that Act. The convention has been considered in relation to certain safety aspects of the Activity (such as in relation to the management of impacts associated with light emissions). Refer to the *Navigation Act 2012* (Cth) and Marine Orders.	Section 6 – Planned activities impact assessment Section 8.3.2 – Supporting management processes and procedures
International Convention on Standards of Training, Certification and Watchkeeping (STCW) for Seafarers 1978	This convention prescribes internationally agreed minimum standards relating to training, certification and watchkeeping for seafarers. This convention is given effect in Australia by Marine Order 71 (Masters and Deck Officers). Santos has implemented control measures directed to ensuring compliance with this Convention and with Marine Orders.	Section 8.1.1 – Environmental performance outcomes Section 8.4.6– Marine Assurance
International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties 1969	Under this convention a coastal state may take action to prevent, mitigate or eliminate danger to its coastline or related interests from pollution by oil or the threat thereof, following upon a maritime casualty. In Australia, this convention is enacted under the *Protection of the Sea (Powers of Intervention) Act 1981* (Cth) This convention is relevant in the unlikely event of a large-scale spill scenario associated with the Activity where that spill is likely to affect the shoreline of a coastal state. Refer to *Protection of the Sea (Powers of Intervention) Act 1981* (Cth).	Section 6.4 – Operational Discharges Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
International Maritime Dangerous Goods (IMDG) Code 1994	The IMDG Code was developed as a uniform international code for the transport of dangerous goods by sea covering such matters as packing, marking, labelling and stowage of dangerous goods. Dangerous marine goods that are shipped for the Activity will be stored, handled and transported in line with this code to reduce the risk of an environmental incident and Santos has implemented control measures directed to ensuring compliance with this Code.	Section 7.1 – Release of solid objects

International agreements and conventions	Summary of relevant requirement and how it will be met	EP section
United Nations Convention on Biological Diversity 1992	This convention is the international legal instrument for the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The overall objectives of the convention are to encourage actions leading to a sustainable future. Australia ratified this convention in June 1993 and the convention came into force in December 1993.Implementation of the measures provided for in the convention is achieved under the EPBC Act (in addition to other plans, policies and programmes at the Commonwealth, State, Territory and Local Government level). The convention is relevant only insofar as the Activity may interact with MNES (threatened and migratory species) that are protected under the EPBC Act.	Section 3.2 – Existing environment Section 6 – Planned activities impact assessment Section 7 – Unplanned event risk assessment.
United Nations Convention on the Law of the Sea (UNCLOS) 1982	Part XII of the convention sets up a general legal framework for protecting the marine environment. The convention imposes obligations on State Parties to prevent, reduce and control marine pollution from the various major sources, including pollution from land, from the atmosphere, from vessels and from dumping (Articles 207 to 212). Subsequent articles provide a regime for enforcing national marine pollution laws in the many different situations that can arise. UNCLOS also defines maritime zones, including the territorial sea, contiguous zone, exclusive economic zone and the continental shelf. Australia signed the agreement relating to the implementation of Part XI of the Convention in 1982, and UNCLOS in 1994. The convention is relevant to the extent that Santos will comply with MARPOL through the following relevant Marine Orders relating to marine pollution prevention that have been put in place to give effect to relevant regulations provided in Annexes I, II, III, IV, V and VI of MARPOL 73/78: • Marine Order 91: Marine pollution prevention – oil • Marine Order 93: Marine pollution prevention – noxious liquid substances • Marine Order 94: Marine pollution prevention – packaged harmful substances • Marine Order 95: Marine pollution prevention – garbage • Marine Order 96: Marine pollution prevention – sewage • Marine Order 97: Marine pollution prevention – air pollution.	Section 6.5 – Interaction with other marine users Section 6.4 – Operational discharges Section 7.6 – Surface release of MDO from a vessel Section 7.7 – Contingency spill response operations
United Nations Educational, Scientific and Cultural Organization Convention on the Protection of Underwater Cultural Heritage 2001	This Convention provides a framework preservation and protection of underwater cultural heritage. This includes traces of human existence of cultural, historical, or archaeological nature that have been submerged for at least 100 years. This Convention is aligned with the sustainable development objectives of the United Nations Agenda 2030. This convention provides the framework to protect and reduce the impact of Barossa production operations on underwater cultural heritage.	Section 3.2.14.7 – Underwater cultural heritage

International agreements and conventions	Summary of relevant requirement and how it will be met	EP section
United Nations Framework Convention on Climate Change 1992	The objective of the convention is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system. Australia ratified the convention in December 1992 and it came into force on 21 March 1994. The Paris Agreement was agreed under the convention. The convention is relevant to the extent that to reduce impact of GHG emissions associated with the Activity, Santos will comply with MARPOL (Marine Order 97: Marine pollution prevention – air pollution) and will require the use of low sulphur fuel.	Section 6.3 – Atmospheric emissions.

Table B-4: EPBC Act Approval (EPBC 2022/09372) conditions applicable to the Activity

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
Part A – Avoidance, mitigation and compensation conditions		
1	To avoid and mitigate harm to protected matters, the approval holder must not undertake the Action outside the project area.	Authorised activities under this GEP Coastal Waters OEMP are limited to the OA defined in Section 2.2. The OA is within the approved Project Area described in EPBC 2022/09372 thereby limiting activities under this GEP Coastal Waters OEMP to the EPBC approved project area.
2	To avoid and mitigate impacts on the environment of Commonwealth marine areas and avoid and mitigate harm to protected matters within the project area, the approval holder must:	Refer to Conditions 2a to 2f below.
2, a)	Ensure that no significant impact to protected matters occurs from potentially harmful substances released into the marine environment during any pre-construction and/or construction activities.	Not applicable to the Activity. DPD pre-construction and construction activities are covered by other Environment Plans, and are outside the scope of the activities authorised under this GEP Coastal Waters OEMP.
2, b)	Ensures that a Marine Fauna Observer is present at all times during daylight hours during pre-construction and construction operations and continuously monitors and records marine fauna present in the observation zone[52] and is adequately equipped to do so.	Not applicable to the Activity. DPD pre-construction and construction activities are covered by other Environment Plans/ Environmental Management Plans, and are outside the scope of the activities authorised under this GEP Coastal Waters OEMP.
2, c)	Cease any hydraulic hammering, or use of an Xcentric Ripper tool, or operation of trenching equipment at the direction of the Marine Fauna Observer if marine fauna are sighted within the exclusion zone.	This is not applicable to the Activity. This Environment Plan does not address any hydraulic hammering, or use of an Xcentric Ripper tool, or operation of trenching equipment, as these activities are not undertaken as part of the Activity covered by this GEP Coastal Waters OEMP.
2, d)	Ensure that, if operations have ceased in accordance with condition 2.c), that use of an Xcentric Ripper tool and/or operation of trenching equipment does not recommence until marine fauna have moved away from the	Not applicable to the Activity. Use of an Xcentric Ripper tool and/or operation of trenching equipment as these activities are not undertaken as part of the Activity covered by this GEP Coastal WatersOEMP.

[52] *The observation zone defined in the Conditions is in relation to the Marine Megafauna Noise Management Plan which is 150 m. However, this OEMP refers to Part 8 of the EPBC Regulations 2000 which requires cautionary zones of 150 m for dolphins and 300 m for whales and therefore in meeting the Part 8 of the EPBC Regulations 2000 the Conditions will also be met.*

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
	exclusion zone and have not been observed for a minimum of 10 minutes.	
2, e)	Ensure that, if operations have ceased in accordance with condition 2.c), that hydraulic hammering does not recommence until marine fauna have moved away from the exclusion zone and have not been observed for a minimum of 30 minutes.	Not applicable to the Activity. Hydraulic hammering is not undertaken as part of the Activity covered by this GEP Coastal Waters OEMP.
2, f)	"Initiate a soft start procedure during any initial or subsequent startup activities involving hydraulic hammering, and/or use of an Xcentric Ripper tool, and/or operation of trenching equipment	Not applicable to the Activity. Hydraulic hammering, and/or use of an Xcentric Ripper tool, and/or operation of trenching equipment activities are not undertaken as part of the Activity covered by this GEP Coastal Waters OEMP.
Action Management Plans		
3	To avoid and mitigate impacts on any underwater cultural heritage in the environment of Commonwealth marine areas, the approval holder must:	Refer to Conditions 3a to 3c.
3, a)	Submit a Protocol for Protecting Underwater Cultural Heritage (PPUCH) within the Commonwealth marine area to the department for the Minister's approval which must include:	This condition was met by submitting the PPUCH in May 2024, this protocol was approved by the Minister in writing on 14 June 2024. Additionally, the PPUCH is not relevant to the activities the subject of this GEP Coastal Waters OEMP, given it relates to the management of UCH in the Commonwealth Marine Area.
3, a), i)	Details of how any underwater cultural heritage present within the Commonwealth marine area will be avoided.	This condition is met by details described in Section 2 of the PPUCH. Additionally, the PPUCH is not relevant to the activities the subject of this GEP Coastal Waters OEMP, given it relates to the management of UCH in the Commonwealth Marine Area.
3, a), ii)	Detailed impact control and management measures (if required) to ensure no harm to any underwater cultural heritage present within the Commonwealth marine area.	This condition is met by details in Section 3 of the PPUCH. Additionally, the PPUCH is not relevant to the activities the subject of this GEP Coastal Waters OEMP, given it relates to the management of UCH in the Commonwealth Marine Area.
3, a), iii)	A commitment to engage a suitably qualified underwater archaeologist to advise on any items of potential underwater cultural heritage identified during construction and any related activities impacting the sea floor (if required).	This condition is met by commitments made in Section 4 of the PPUCH. Additionally, the PPUCH is not relevant to the activities the subject of this GEP Coastal Waters OEMP, given it relates to the management of UCH in the Commonwealth Marine Area
3, a), iv)	Detailed procedures and reporting to be implemented if underwater cultural heritage is	This condition is met by details in Section 5 of the PPUCH. Additionally, the PPUCH is not relevant to the activities the subject of this GEP Coastal Waters OEMP, given it relates to the management of UCH in the Commonwealth Marine Area.

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
	discovered, including a commitment to notify the department within 21 calendar days of identifying any underwater cultural heritage of clear archaeological character identified by a suitably qualified underwater archaeologist.	
3, a), v)	Details of the process to be followed where any variations are required to be made to the PPUCH, including a requirement for any revised PPUCH to be submitted to the department for the Minister's approval, unless taking the action in accordance with the revised PPUCH would not be likely to have a new or increased impact.	This condition is met by details in Section 6 of the PPUCH. Additionally, the PPUCH is not relevant to the activities the subject of this GEP Coastal Waters OEMP, given it relates to the management of UCH in the Commonwealth Marine Area.
3, b)	Not commence the action unless the Minister has approved the PPUCH in writing.	The Minister approved the PPUCH in writing on 14 June 2024. Additionally, the PPUCH is not relevant to the activities the subject of this OEMP, given it relates to the management of UCH in the Commonwealth Marine Area.
3, c)	Implement the PPUCH prior to the commencement of any activities involving impact to the sea floor.	Not applicable. The PPUCH is not relevant to the activities the subject of this GEP Coastal Waters OEMP, given it relates to the management of UCH in the Commonwealth Marine Area.
4	The approval holder must implement the following Action Management Plans to avoid and mitigate harm as a result of the Action on protected matters. The approval holder must commence implementing each management plan from the commencement of the Action and continue to implement them at least until the completion of the Action.	Refer to Conditions 4a to 4e.
4, a)	Acid Sulfate Soils and Dewatering Management Plan	This condition is not applicable. The Acid Sulfate Soils and Dewatering Management Plan is required for onshore construction activities, which are not undertaken as part of the Activity covered by this GEP Coastal Waters OEMP.
4, b)	Marine Megafauna Noise Management Plan	Not applicable. The Marine Megafauna Noise Management Plan is not applicable to the Activity it is required for noise generated by construction activities within the portion of the EPBC approved Project Area (per EPBC 2022/09372) within the OA, which are not undertaken as part of the Activity covered by this GEP Coastal Waters OEMP.
4, c)	Trenching and Spoil Disposal Management and Monitoring Plan	Not applicable. The Trenching and Spoil Disposal Management and Monitoring Plan is required for Trenching and Spoil Disposal activities, which are not undertaken as part of the Activity covered by this GEP Coastal Waters OEMP.
4, d)	Onshore Construction Environmental Management Plan	Not applicable. The Onshore Construction Environmental Management Plan is required for onshore construction activities, which are not undertaken as part of the Activity covered by this GEP Coastal Waters OEMP.

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
4, e)	Offshore Construction Environmental Management Plan	Not applicable. The Offshore Construction Environmental Management Plan is required for offshore construction activities, which are not undertaken as part of the Activity covered by this GEP Coastal Waters OEMP.
5	The approval holder must achieve the following environmental outcomes in implementing the plans required under condition 4):	Refer to Conditions 5a to 5e.
5, a)	No significant impact to protected matters from intertidal or onshore earthworks relating to the Acid Sulfate Soils and Dewatering Management Plan.	This condition is not applicable. The Acid Sulfate Soils and Dewatering Management Plan is required for onshore construction activities, which are not undertaken as part of the Activity covered by this GEP Coastal Waters OEMP.
5, b)	The environmental performance objective of no significant impacts to protected marine fauna from noise generated during the DPD construction activities, and performance criteria detailed in table 8-2 of the Marine Megafauna Noise Management Plan.	This is not applicable to the Activity. This Environment Plan does not address pre-construction or construction activities, as these activities are not undertaken as part of the Activity covered by this GEP Coastal Waters OEMP.
5, c)	All environmental performance objectives and performance criteria detailed in table 8-2; 8-9; 8-13; 8-16; 8-19; 8-21; 8-23; 8-26 ;8-29 ;8-31; and 8-34 of the Trenching and Spoil Disposal Management and Monitoring Plan.	Not applicable. The Trenching and Spoil Disposal Management and Monitoring Plan is not applicable to the Activity covered by this GEP Coastal Waters OEMP.
5, d)	All environmental performance objectives and performance criteria detailed in table 7-2 to table 7-18 inclusive, of the Onshore Construction Environmental Management Plan.	Not applicable. The Onshore Construction Environmental Management Plan is not applicable to the Activity covered by this GEP Coastal Waters OEMP.
5, e)	All environmental performance objectives and performance criteria detailed in table 7-5 to table 7-41 inclusive, of the Offshore Construction Environmental Management Plan.	Not applicable. The Offshore Construction Environmental Management Plan is not applicable to the Activity covered by this GEP Coastal Waters OEMP.
Part B – Administrative Conditions		
Revision of Action Management Plans		
6	The approval holder may, at any time, apply to the Minister for a variation to an action management plan approved by the Minister, by submitting an application in accordance with the requirements of section 143A of the EPBC Act. If the Minister approves a revised action	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
	management plan (RAMP) then, from the date specified, the approval holder must implement the RAMP in place of the previous action management plan.	
7	The approval holder may choose to revise an action management plan approved by the Minister under conditions 4 and 5, or as subsequently revised in accordance with these conditions, without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the RAMP would not be likely to have a new or increased impact.	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
8	If the approval holder makes the choice under condition 7 to revise an action management plan (RAMP) without submitting it for approval, the approval holder must:	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
8, a)	Notify the department electronically that the approved action management plan has been revised and provide the department with:	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
8, a), i)	An electronic copy of the RAMP.	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
8, a), ii)	An electronic copy of the RAMP marked up with track changes to show the differences between the approved action management plan and the RAMP.	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
8, a), iii)	An explanation of the differences between the approved action management plan and the RAMP.	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
8, a), iv)	The reasons the approval holder considers that taking the Action in accordance with the RAMP would not be likely to have a new or increased impact.	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
8, a), v)	Written notice of the date on which the approval holder will implement the RAMP (RAMP implementation date), being at least 20 business days after the date of providing notice	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
	of the revision of the action management plan, or a date agreed to in writing with the department.	
8, b)	Subject to condition 10, implement the RAMP from the RAMP implementation date.	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
9	The approval holder may revoke its choice to implement a RAMP under condition 7 at any time by giving written notice to the department. If the approval holder revokes the choice under condition 7, the approval holder must implement the action management plan in force immediately prior to the revision undertaken under condition 7.	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
10	If the Minister notifies the approval holder that the Minister is satisfied that the taking of the Action in accordance with the RAMP would be likely to have a new or increased impact, then:	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
10, a)	Condition 7 does not apply, or ceases to apply, in relation to the RAMP.	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
10, b)	The approval holder must implement the action management plan specified by the Minister in the notice.	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
11	At the time of giving the notice under condition 10, the Minister may also notify that for a specified period of time, condition 7 does not apply for one or more specified action management plans.	Not applicable because the Action management plans do not apply to the Activity covered by this GEP Coastal Waters OEMP.
Notification of Date of Commencement of the Action		
12	The approval holder must notify the department electronically of the date of commencement of the Action, within 5 business days following commencement of the Action.	Santos notified the department via email within 5 business days following commencement of the Action.
13	The approval holder must not commence the Action later than five (5) years after the date of this approval decision.	As the Action was commenced in 2024 (i.e. within 5 years of the date of the approval decision), this condition has been satisfied.

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
Compliance Records		
14	The approval holder must maintain accurate and complete compliance records.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
15	If the department makes a request in writing, the approval holder must provide electronic copies of compliance records to the department within the timeframe specified in the request.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
16	The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the Guidelines for biological survey and mapped data, Commonwealth of Australia 2018, or as otherwise specified by the Minister in writing.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
17	The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the Guide to providing maps and boundary data for EPBC Act projects, Commonwealth of Australia 2021, or as otherwise specified by the Minister in writing.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
18	The approval holder must submit all monitoring data (including sensitive ecological data), surveys, maps, other spatial and metadata and all species occurrence record data (sightings and evidence of presence) electronically to the department within 20 business days of each anniversary of the date of this approval decision.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
Annual Compliance Reporting		
19	The approval holder must prepare a compliance report for each 12-month period following the	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
	date of this approval decision (or as otherwise agreed to in writing by the Minister).	
20	Each compliance report must be consistent with the Annual Compliance Report Guidelines, Commonwealth of Australia 2023.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
21	Each compliance report must include:	Refer to Conditions 21b to d.
21, b[53])	Accurate and complete details of compliance and any non-compliance with the conditions and the plans, and any incidents.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
21, c)	One or more shapefile showing all clearing of protected matters, and/or their habitat, undertaken within the 12-month period at the end of which that compliance report is prepared.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirementsTable 8-13: Activity notification and reporting requirements
21, d)	A schedule of all plans in existence in relation to these conditions and accurate and complete details of how each plan is being implemented.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
22	The approval holder must:	Refer to Conditions 22a to 22f.
22, a)	Publish each compliance report on the website within 60 business days following the end of the 12-month period for which that compliance report is required.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
22, b)	Notify the department electronically, within 5 business days of the date of publication that a compliance report has been published on the website.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
22, c)	Provide the weblink for the compliance report in the notification to the department.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
22, d)	Keep all published compliance reports required by these conditions on the website until the expiry date of this approval.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements

[53] *Note: The numbering convention follows the original sequence as provided in EPBC 2022/09372.*

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
22, e)	Exclude or redact sensitive ecological data from compliance reports published on the website or otherwise provided to a member of the public.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
22, f)	If sensitive ecological data is excluded or redacted from the published version, submit the full compliance report to the department within 5 business days of its publication on the website and notify the department in writing what exclusions and redactions have been made in the version published on the website.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
Reporting Non-Compliance		
23	The approval holder must notify the department electronically, within 2 business days of becoming aware of any incident and/or potential non-compliance and/or actual non-compliance with the conditions or commitments made in a plan.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
24	The approval holder must specify in the notification:	Refer to Conditions 24a to 24c.
24, a)	Any condition or commitment made in a plan which has been or may have been breached.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
24, b)	A short description of the incident and/or potential non-compliance and/or actual non-compliance.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
24, c)	The location (including co-ordinates), date and time of the incident and/or potential non-compliance and/or actual non-compliance.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
25	The approval holder must provide to the department in writing, within 12 business days of becoming aware of any incident and/or potential non-compliance and/or actual non-compliance, the details of that incident and/or potential non-compliance and/or actual non-compliance with the conditions or commitments made in a plan. The approval holder must specify:	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements Refer to Conditions 25d to 24f.

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
25, d[54])	Any corrective action or investigation which the approval holder has already taken.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
25, e)	The potential impacts of the incident and/or non-compliance.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
25, f)	The method and timing of any corrective action that will be undertaken by the approval holder.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
Independent Audit		
26	The approval holder must ensure that an independent audit of compliance with the conditions is conducted at three (3) years after the commencement of the Action, and at any time upon the direction of the Minister.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
27	For each independent audit, the approval holder must:	Refer to Conditions 27a to 27e.
27, a)	Provide the name and qualifications of the nominated independent auditor, the draft audit criteria, and proposed timeframe for submitting the audit report to the department prior to commencing the independent audit.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
27, b)	Only commence the independent audit once the nominated independent auditor, audit criteria and timeframe for submitting the audit report have been approved in writing by the department.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
27, c)	Submit the audit report to the department for approval within the timeframe specified and approved in writing by the department.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
27, d)	Publish the audit report on the website within 15 business days of the date of the department's approval of the audit report.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements

[54] *Note: The numbering convention follows the original sequence as provided in EPBC 2022/09372.*

ID	EPBC 2022/09372 Conditions	Conditions applicable to the Activity
27, e)	Keep the audit report published on the website until this approval expires.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
28	Each audit report must report for the period preceding that audit report.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
29	Each audit report must be completed to the satisfaction of the Minister and be consistent with the 'Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines, Commonwealth of Australia 2019'.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
Completion of the Action		
30	The approval holder must notify the department electronically 60 business days prior to the expiry date of this approval, that the approval is due to expire.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements
31	Within 20 business days after the completion of the Action, and, in any event, before this approval expires, the approval holder must notify the department electronically of the date of completion of the Action and provide completion data. The approval holder must submit any spatial data that comprises completion data as a shapefile.	This condition is demonstrated in: Table 8-13: Activity notification and reporting requirements

Table B-5: EP Act Approval (EP 2022/022-001) conditions applicable to the Activity

ID	EP 2022/022-001 Conditions	Conditions applicable to the Activity
1 Limitations and extent of action		
1.1	All activities must be carried out in the approved extent.	Authorised activities under this GEP Coastal Waters OEMP are limited to the OA defined in Section 2.2. The OA is within the approved Project Area described in EP 2022/022-001 thereby limiting activities under this GEP Coastal Waters OEMP to the approved extent.
1.2	Activities must not exceed the limitations in Table 1. Table 1 Limitations Dredging: No more than 500,000 m^3 of material to be dredged for subsea pipeline trenches in the approved extent. Spoil disposal: Spoil disposal may only occur within the 625 ha spoil area in the approved extent.	Not applicable to the Activity. DPD pre-construction and construction activities are covered by other Management Plans and are outside the scope of the activities to be undertaken under this GEP Coastal Waters OEMP.
2 Management Plans		
2.1	The approval holder must implement and comply with the following plans: (1) Onshore construction environment management plan Document number BAS-210 0025) (2) Offshore construction environment management plan Document number BAS-210 0024) (3) Marine megafauna noise management plan Document number BAS-210 0045 (4) Cultural heritage management plan (CHMP), as required by condition 4; and (5) Trenching management plan (TMP), updated as required by condition 6.	The only management plan applicable to the Activity covered by this GEP Coastal Waters OEMP is the Cultural heritage management plan (CHMP). A Cultural Heritage Management Plan (CHMP) (BAS-210 0208) has been developed and is being implemented. The other specified management plans are not applicable because they all relate to construction activities and do not apply to the Activity covered by this GEP Coastal Waters OEMP.
Culture and heritage		
3 Environmental outcomes		

ID	EP 2022/022-001 Conditions	Conditions applicable to the Activity
3.1	The approval holder must ensure the action achieves the following environmental outcomes: (1) protect Aboriginal cultural values; and (2) protect maritime heritage, including shipwrecks.	Specific EPOs for both Planned and Unplanned events are presented in Section 6 and Section 7 respectively. These outcomes will be achieved by implementing the identified control measures to the defined EPSs, and in doing so, will result in compliance with this condition.
4 Cultural heritage management plan		
4.1	To support achieving the environmental outcomes required by condition 3-1 a CHMP must be prepared by a suitably qualified and experienced person.	A Cultural Heritage Management Plan (CHMP) (BAS-210 0208) has been developed by a suitably qualified and experienced person on behalf of Santos to protect First Nations and maritime cultural heritage.
4.2	The CHMP must be prepared in consultation with the Northern and Tiwi Land Councils.	The CHMP was developed in consultation with the Northern and Tiwi Land Councils.
4.3	The CHMP must be submitted to the Minister at least 10 days prior to commencement of trenching activity.	Not applicable to the Activity. The use of/or operation of trenching equipment activities is not being undertaking as part of the Activity covered by this GEP Coastal Waters OEMP. The CHMP was submitted to the NT Minister for Environment, Climate Change and Water Security as required.
4.4	The CHMP must include measures to provide for: (1) cultural heritage induction procedures for site personnel; (2) an internal heritage clearance process prior to trenching and pipe laying activities; (3) further archaeological survey and assessment if warranted by alignment changes; (4) procedures for anchoring and the establishment of anchor exclusion zones; (5) procedures to mitigate risks to unexpected maritime heritage objects, including a stop work protocol, developed in consultation with, and to the satisfaction of, the Heritage Branch of DTFHC; (6) measures for ongoing consultation and engagement on cultural heritage values with stakeholders; (7) the requirement to update the CHMP if stakeholder engagement identifies additional information about cultural heritage values that warrants additional measures to be implemented to achieve the environmental outcomes required by condition 3-1; and (8) detail of how compliance would be monitored and reported and how the outcomes of investigative and/or adaptive management actions would be notified to the relevant government authorities.	The CHMP (BAS-210 0208) has been submitted to NT EP and published on their website. The CHMP includes the measures required under this condition. Available at: https://environment.nt.gov.au/environment/environmental-assessment-and-approvals/environmental-approvals/darwin-pipeline-duplication
Marine environmental quality, Marine ecosystem		

ID	EP 2022/022-001 Conditions	Conditions applicable to the Activity
5	**Environmental outcomes**	
5.1	5-1 The approval holder must ensure the action achieves the following environmental outcomes: (1) no material environmental harm to the environmental values of water, or declared beneficial uses of Darwin Harbour beyond the zone of influence; (2) no material environmental harm to benthic habitats and communities beyond the zone of impact; and (3) risks of physical injury, mortality, behavioural changes and health impacts on marine megafauna are minimised	Specific EPOs for both Planned and Unplanned events are presented in Section 6 and Section 7 respectively. These outcomes will be achieved by implementing the identified control measures to the defined EPSs, and in doing so, will result in compliance with this condition.
6	**Trenching management**	

ID	EP 2022/022-001 Conditions	Conditions applicable to the Activity
6.1	To support achieving the environmental outcomes required by conditions 5-1(1) and 5-1(2) the TMP must be updated, and submitted to the Minister at least 10 days prior to commencement of trenching activity.	Not applicable to the Activity. The use of/or operation of trenching equipment activities is not being undertaking as part of the Activity covered by this GEP Coastal Waters OEMP.
6.2	To support achieving the environmental outcomes required by conditions 3-1(1) and 3-1(2), the TMP must be updated to reflect any additional management measures related to trenching that arise as a result of the stakeholder engagement under condition 4-4(7).	Not applicable to the Activity. The use of/or operation of trenching equipment activities is not being undertaking as part of the Activity covered by this GEP Coastal Waters OEMP.
6.3	6-3 The TMP must include: (1) a detailed monitoring program that includes: (a) parameters to be monitored to detect impacts of trenching activity and spoil disposal, including turbidity (NTU); (b) location, method and frequency of monitoring, including establishing baseline values of water quality; (c) quantitative trigger values to indicate when management actions are required; (d) monitoring and management actions to be implemented if trigger values are exceeded; (e) reporting action to be undertaken in the event that trigger values are exceeded.	Not applicable to the Activity. The use of/or operation of trenching equipment activities is not being undertaking as part of the Activity covered by this GEP Coastal Waters OEMP.
6.4	A written review and endorsement from an independent qualified person, stating that the TMP appropriately identifies and appropriately mitigates any environmental risk and complies with the conditions of the approval, must be provided to the Minister with the TMP.	Not applicable to the Activity. The use of/or operation of trenching equipment activities is not being undertaking as part of the Activity covered by this GEP Coastal Waters OEMP.
7 Hydrotest fluid		
7.1	The approval holder must ensure that there is no planned discharge of hydrotest fluid within NT waters.	Not applicable to the Activity. Hydrotesting is not part of the planned Activity covered by this GEP Coastal Waters OEMP.
7.2	The approval holder must ensure that any contingency discharge of hydrotest fluid is undertaken in a manner and at a rate such that marine water quality, within a 40 m radius of the discharge location, returns to ambient levels within 12 hours of cessation of discharge.	Hydrotesting is not part of the planned Activity covered by this GEP Coastal Waters OEMP. A contingency discharge of hydrotest water is presented in Section 7.5 as a result of an unplanned rupture of the pipeline. Santos will comply with Condition 7-2.
8 Maintenance and decommissioning		

ID	EP 2022/022-001 Conditions	Conditions applicable to the Activity
8.1	Any part of the pipeline or associated infrastructure that will not, or will no longer, be required for use must be decommissioned by the approval holder as soon as practicable.	Section 8.2.5outlines the Santos decommissioning strategy for compliance with this condition.
8.2	The pipeline and associated infrastructure that is not in operation must be maintained in a condition appropriate for use or decommissioning.	Section 2.6 outlines Inspection, Maintenance, Monitoring and Repair activities during the life of the pipeline and Section 8.2.5outlines the Santos decommissioning strategy for compliance with this condition.
8.3	The approval holder must ensure that decommissioning of the pipeline and associated infrastructure achieves the environmental outcomes identified in condition 5-1.	Not applicable to the Activity. Decommissioning is not part of the planned Activity covered by this GEP Coastal Waters OEMP. Section 8.2.5outlines the Santos decommissioning strategy.
General conditions		
9 Revision of plans		
9.1	The approval holder may review and revise any management plan required by Condition 2 and must provide the following to the Minister within 10 business days prior to any amendment(s) being implemented; (1) the revised plan(s) (2) a tabulated summary of the amendment(s) with document references; (3) reasons for the amendment(s); (4) an assessment of environmental risks and potential impacts associated with the amendment(s); and (5) if the TMP is updated, a written review and endorsement from an independent qualified person that the TMP addresses conditions 3-1 and 5.	Section 8.5.2 Document management outlines the process that will be followed in the event a management plan must be revised. This condition will be complied with as required for the Activity covered by this GEP Coastal Waters OEMP. Condition 9.1 (5) is not applicable to the activity as the use of/or operation of trenching equipment activities is not being undertaking as part of the Activity covered by this GEP Coastal Waters OEMP, so a TMP is not required.
9.2	The approval holder must implement the action to comply with the latest revision of management plans required by condition 2.	This condition will be complied with as required for the Activity covered by this GEP Coastal Waters OEMP.
10 Commencement of action		

ID	EP 2022/022-001 Conditions	Conditions applicable to the Activity
10.1	This approval expires five years after the date on which it is granted, unless trenching activity has commenced on or before that date.	Not applicable as the trenching activity referred to in this condition commenced before that date.
10.2	The approval holder must provide notification in writing to the Minister, at least 5 business days prior to the commencement of trenching activity.	Not applicable to the activity as the use of/or operation of trenching equipment activities is not being undertaking as part of the Activity covered by this GEP Coastal Waters OEMP. Notification of the commencement of trenching was given to the Minister as required.
11 Change of contact details		
11.1	The approval holder must notify the Minister in writing of any change of its name, physical address or postal address for the serving of notices or other correspondence within 10 business days of such change.	This condition will be complied with as required for the Activity covered by this GEP Coastal Waters OEMP.
12 Environmental performance reporting		

ID	EP 2022/022-001 Conditions	Conditions applicable to the Activity
12.1	The approval holder must: (1) within six months of the completion of commissioning carried out under this approval, obtain from an independent qualified person, a report on the environmental performance of the action and compliance with the conditions of this environmental approval; and (2) submit the report to the Minister within 30 days of its completion.	Not applicable to the activity as commissioning is not being undertaking as part of the Activity covered by this GEP Coastal Waters OEMP.
12.2	The report required by condition 12-1(1) must: (1) provide all monitoring data and reportable incidents required by the conditions of this approval; (2) provide an analysis and interpretation of monitoring data to demonstrate whether compliance with the requirements of conditions has been achieved; (3) include an assessment of the effectiveness of monitoring, management and contingency measures implemented to comply with the requirements of condition 5-1(1) and 5-1(2); (4) include a comparison of the predicted impacts of the action, including trenching activity and spoil disposal, and the actual impacts of the action as verified by environmental monitoring data compared with baseline survey data; (5) be endorsed by the approval holder or a person delegated to sign on the approval holder's behalf; (6) include a statement as to whether the approval holder has complied with the conditions of this approval; and (7) identify all non-compliances and describe corrective and preventative actions taken.	Not applicable to the activity as commissioning is not being undertaking as part of the Activity covered by this GEP Coastal Waters OEMP.
13 Provision of environmental data		
13.1	All environmental monitoring data required to be collected or obtained under this environmental approval must be retained by the approval holder for a period of not less than 10 years commencing from the date that the data is collected or obtained.	This condition will be complied with as required for the Activity covered by this GEP Coastal Waters OEMP.
13.2	The approval holder must, as and when directed by the Minister, provide any environmental data (including sampling design, sampling methodologies, empirical data and derived information products such as maps) relevant to the assessment of the action and implementation of this environmental approval, to the Minister in the form and manner and at the intervals specified in the direction.	This condition will be complied with as required for the Activity covered by this GEP Coastal Waters OEMP.

Appendix C EPBC Act Protected Matters Searches

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 19-Mar-2025

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	69
Listed Migratory Species:	75

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	118
Whales and Other Cetaceans:	15
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	3
Habitat Critical to the Survival of Marine Turtles:	3

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	36
Key Ecological Features (Marine):	1
Biologically Important Areas:	6
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)	[Resource Information]
Ramsar Site Name	Proximity
Cobourg peninsula	Within Ramsar site

Commonwealth Marine Area	[Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name
Commonwealth Marine Areas (EPBC Act)

Listed Threatened Species	[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Arenaria interpres		
Ruddy Turnstone [872]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
[Calidris tenuirostris](#) Great Knot [862]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
[Charadrius mongolus](#) Lesser Sand Plover, Mongolian Plover [879]	Endangered	Foraging, feeding or related behaviour known to occur within area
[Chloebia gouldiae listed as Erythrura gouldiae](#) Gouldian Finch [90091]	Endangered	Species or species habitat likely to occur within area
[Epthianura crocea tunneyi](#) Alligator Rivers Yellow Chat, Yellow Chat (Alligator Rivers) [67089]	Endangered	Species or species habitat may occur within area
[Erythrotriorchis radiatus](#) Red Goshawk [942]	Endangered	Species or species habitat known to occur within area
[Falco hypoleucos](#) Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
[Geophaps smithii smithii](#) Partridge Pigeon (eastern) [64441]	Vulnerable	Species or species habitat known to occur within area
[Limnodromus semipalmatus](#) Asian Dowitcher [843]	Vulnerable	Species or species habitat likely to occur within area
[Limosa lapponica baueri](#) Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat known to occur within area
[Limosa limosa](#) Black-tailed Godwit [845]	Endangered	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Melanodryas cucullata melvillensis Tiwi Islands Hooded Robin, Hooded Robin (Tiwi Islands) [67092]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat may occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Sternula albifrons Little Tern [82849]	Vulnerable	Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tyto novaehollandiae kimberli Masked Owl (northern) [26048]	Vulnerable	Species or species habitat known to occur within area
Tyto novaehollandiae melvillensis Tiwi Masked Owl, Tiwi Islands Masked Owl [26049]	Endangered	Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
FROG		
Uperoleia daviesae Howard River Toadlet, Davies's Toadlet [85375]	Vulnerable	Species or species habitat known to occur within area
MAMMAL		

Scientific Name	Threatened Category	Presence Text
Antechinus bellus Fawn Antechinus [344]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Conilurus penicillatus Brush-tailed Rabbit-rat, Brush-tailed Tree-rat, Pakooma [132]	Vulnerable	Species or species habitat known to occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Mesembriomys gouldii gouldii Black-footed Tree-rat (Kimberley and mainland Northern Territory), Djintamoonga, Manbul [87618]	Endangered	Species or species habitat likely to occur within area
Mesembriomys gouldii melvillensis Black-footed Tree-rat (Melville Island) [87619]	Vulnerable	Species or species habitat known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat known to occur within area
Petrogale concinna canescens Nabarlek (Top End) [87606]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Phascogale pirata		
Northern Brush-tailed Phascogale [82954]	Vulnerable	Species or species habitat likely to occur within area
Saccolaimus saccolaimus nudicluniatus		
Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
Sminthopsis butleri		
Butler's Dunnart [302]	Vulnerable	Species or species habitat known to occur within area
Sousa sahulensis		
Australian Humpback Dolphin [87942]	Vulnerable	Breeding known to occur within area
Trichosurus vulpecula arnhemensis		
Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat known to occur within area
Xeromys myoides		
Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat likely to occur within area
PLANT		
Burmannia championii listed as Burmannia sp. Bathurst Island (R.Fensham 1021)		
[93461]	Endangered (listed as Burmannia sp. Bathurst Island	Species or species habitat likely to occur within area
Elaeocarpus miegei		
[65147]	Endangered	Species or species habitat may occur within area
Hoya australis subsp. oramicola		
a vine [55436]	Vulnerable	Species or species habitat known to occur within area
Stylidium ensatum		
a triggerplant [86366]	Endangered	Species or species habitat known to occur within area
Tarennoidea wallichii		
[65173]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Typhonium jonesii a herb [62412]	Endangered	Species or species habitat likely to occur within area
Typhonium mirabile a herb [79227]	Endangered	Species or species habitat likely to occur within area
Xylopia monosperma a shrub [82030]	Endangered	Species or species habitat likely to occur within area
REPTILE		
Acanthophis hawkei Plains Death Adder [83821]	Vulnerable	Species or species habitat likely to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Tiliqua scincoides intermedia Northern Blue-tongued Skink [89838]	Critically Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Varanus mertensi		
Mertens' Water Monitor, Mertens's Water Monitor [1568]	Endangered	Species or species habitat known to occur within area
Varanus mitchelli		
Mitchell's Water Monitor [1569]	Critically Endangered	Species or species habitat likely to occur within area
SHARK		
Carcharodon carcharias		
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Glyphis garricki		
Northern River Shark, New Guinea River Shark [82454]	Endangered	Breeding known to occur within area
Glyphis glyphis		
Speartooth Shark [82453]	Critically Endangered	Species or species habitat known to occur within area
Pristis clavata		
Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sphyrna lewini		
Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		

Scientific Name	Threatened Category	Presence Text
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Sternula albifrons Little Tern [82849]	Vulnerable	Breeding known to occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat known to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding known to occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Sousa sahulensis as Sousa chinensis		
Australian Humpback Dolphin [87942]	Vulnerable	Breeding known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations)		
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Cecropis daurica		
Red-rumped Swallow [80610]		Species or species habitat may occur within area
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area
Hirundo rustica		
Barn Swallow [662]		Species or species habitat likely to occur within area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Acrocephalus orientalis		
Oriental Reed-Warbler [59570]		Species or species habitat may occur within area
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres		
Ruddy Turnstone [872]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris alba Sanderling [875]		Foraging, feeding or related behaviour known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis Red-necked Stint [860]		Foraging, feeding or related behaviour known to occur within area
Calidris subminuta Long-toed Stint [861]		Foraging, feeding or related behaviour known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Charadrius dubius Little Ringed Plover [896]		Foraging, feeding or related behaviour known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Foraging, feeding or related behaviour known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour known to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
Glareola maldivarum Oriental Pratincole [840]		Foraging, feeding or related behaviour known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Foraging, feeding or related behaviour known to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Foraging, feeding or related behaviour known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Numenius phaeopus Whimbrel [849]		Foraging, feeding or related behaviour known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Foraging, feeding or related behaviour known to occur within area
Tringa glareola Wood Sandpiper [829]		Foraging, feeding or related behaviour known to occur within area
Tringa incana Wandering Tattler [831]		Foraging, feeding or related behaviour known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Foraging, feeding or related behaviour known to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State
Defence	
Defence - QUAIL ISLAND BOMBING RANGE [70003]	NT
Unknown	
Commonwealth Land - [70995]	NT

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text
Bird		
Acrocephalus orientalis Oriental Reed-Warbler [59570]		Species or species habitat may occur within area overfly marine area
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Calidris alba Sanderling [875]		Foraging, feeding or related behaviour known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Calidris ruficollis Red-necked Stint [860]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Calidris subminuta Long-toed Stint [861]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Calidris tenuirostris Great Knot [862]	Vulnerable	Foraging, feeding or related behaviour known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Cecropis daurica as Hirundo daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Charadrius dubius Little Ringed Plover [896]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Foraging, feeding or related behaviour known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area overfly marine area
Glareola maldivarum Oriental Pratincole [840]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Hirundo rustica Barn Swallow [662]		Species or species habitat likely to occur within area overfly marine area
Limicola falcinellus Broad-billed Sandpiper [842]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat likely to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Foraging, feeding or related behaviour known to occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Numenius phaeopus Whimbrel [849]		Foraging, feeding or related behaviour known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Pluvialis fulva Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Foraging, feeding or related behaviour known to occur within area overfly marine area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area
Sternula albifrons as Sterna albifrons Little Tern [82849]	Vulnerable	Breeding known to occur within area
Stiltia isabella Australian Pratincole [818]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Foraging, feeding or related behaviour known to occur within area
Tringa glareola Wood Sandpiper [829]		Foraging, feeding or related behaviour known to occur within area overfly marine area
Tringa incana as Heteroscelus incanus Wandering Tattler [831]		Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Foraging, feeding or related behaviour known to occur within area overfly marine area
[Xenus cinereus](#) Terek Sandpiper [59300]	Vulnerable	Foraging, feeding or related behaviour known to occur within area overfly marine area
Fish		
[Bhanotia fasciolata](#) Corrugated Pipefish, Barbed Pipefish [66188]		Species or species habitat may occur within area
[Campichthys tricarinatus](#) Three-keel Pipefish [66192]		Species or species habitat may occur within area
[Choeroichthys brachysoma](#) Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
[Choeroichthys suillus](#) Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
[Corythoichthys amplexus](#) Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
[Corythoichthys flavofasciatus](#) Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
[Corythoichthys haematopterus](#) Reef-top Pipefish [66201]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area
Corythoichthys schultzi Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area
Hippichthys parvicarinatus Short-keel Pipefish, Short-keeled Pipefish [66230]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
[Solegnathus lettiensis](#) Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
[Solenostomus cyanopterus](#) Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
[Syngnathoides biaculeatus](#) Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
[Trachyrhamphus bicoarctatus](#) Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
[Trachyrhamphus longirostris](#) Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
[Dugong dugon](#) Dugong [28]		Species or species habitat known to occur within area
Reptile		
[Aipysurus duboisii](#) Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
[Aipysurus laevis](#) Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
[Aipysurus mosaicus as Aipysurus eydouxii](#) Mosaic Sea Snake [87261]		Species or species habitat may occur within area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Hydrelaps darwiniensis Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
Hydrophis atriceps Black-headed Sea Snake, Banded Sea Snake [1101]		Species or species habitat may occur within area
Hydrophis coggeri Cogger's Sea Snake, Black-headed Sea Snake [25925]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis hardwickii as Lapemis hardwickii Spine-bellied Sea Snake [93516]		Species or species habitat may occur within area
Hydrophis inornatus Plain Sea Snake [1107]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis pacificus Pacific Sea Snake, Large-headed Sea Snake [1112]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Hydrophis zweifeli as Enhydrina schistosa Australian Beaked Sea Snake [93514]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Breeding known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Parahydrophis mertoni Arafura Smooth Sea Snake, Northern Mangrove Sea Snake [1090]		Species or species habitat may occur within area

Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahulensis Australian Humpback Dolphin [87942]	Vulnerable	Breeding known to occur within area

Current Scientific Name	Status	Type of Presence
Stenella attenuata		
Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus		
Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations)		
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str.		
Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Australian Marine Parks	[Resource Information]
Park Name	Zone & IUCN Categories
Oceanic Shoals	Habitat Protection Zone (IUCN IV)
Joseph Bonaparte Gulf	Special Purpose Zone (IUCN VI)
Oceanic Shoals	Special Purpose Zone (Trawl) (IUCN VI)

Habitat Critical to the Survival of Marine Turtles		[Resource Information]
Scientific Name	Behaviour	Presence
All year (Jun - Aug)		
Natator depressus		
Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
Dermochelys coriacea		
Leatherback Turtle [1768]	Nesting	Known to occur
May - Jul		
Lepidochelys olivacea		
Olive Ridley Turtle [1767]	Nesting	Known to occur

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State
Djukbinj	National Park	NT
Garig Gunak Barlu	National Park	NT
Garig Gunak Barlu	Marine Park	NT

Nationally Important Wetlands [Resource Information]

Wetland Name	State
Cobourg Peninsula System	NT

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status
Clarence Strait Offshore Tidal Energy Project	2008/4660		Assessment
Darwin Pipeline Duplication (DPD) Project	2022/09372		Post-Approval
Darwin Pipeline Duplication DPD Project	2022/9166		Completed
Marine Route Survey for Subsea Fibre Optic Data Cable System - Australia West	2024/09826		Completed
Controlled action			
Bonaparte Liquified Natural Gas Project	2011/6141	Controlled Action	Post-Approval
Glyde Point Industrial Estate	2001/336	Controlled Action	Completed
Glyde Point Industrial Estate and Associated Infrastructure	2004/1506	Controlled Action	Completed
Hardwood Plantation	2001/229	Controlled Action	Post-Approval
Ichthys Gas Field, Offshore and onshore processing facilities and subsea pipeline	2008/4208	Controlled Action	Post-Approval
Kilimiraka Mineral Sands and Associated Infrastructure (Bathurst Island), NT	2012/6587	Controlled Action	Assessment Approach
Shipping Channel Enhancement	2010/5431	Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Tropical Tidal Testing Centre, Clarence Strait, 50km NE Darwin	2014/7299	Controlled Action	Guidelines Issued
Not controlled action			
2D Seismic Survey in Permit Areas WA-318-P & WA-319-P, near Cape Londonderry	2004/1687	Not Controlled Action	Completed
Construction and operation of Radar Infrastructure	2004/1406	Not Controlled Action	Completed
Marine Survey for the Australia-ASEAN Power Link AAPL	2020/8714	Not Controlled Action	Completed
Nexus Drilling Program NT-P66	2007/3745	Not Controlled Action	Completed
Project Sea Dragon Stage 1 Hatchery - Gunn Point, NT	2017/8092	Not Controlled Action	Completed
Not controlled action (particular manner)			
2D and 3D Seismic Survey	2011/6197	Not Controlled Action (Particular Manner)	Post-Approval
2D Marine Seismic Survey	2009/4728	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey of Braveheart,Kurrajong,Sunshine and Crocodile	2006/2917	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic survey	2009/5076	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey	2009/4681	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte 2D & 3D marine seismic survey	2011/5962	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Basin Seabed Mapping Survey	2009/4951	Not Controlled Action (Particular Manner)	Post-Approval
Bonaparte Seismic and Bathymetric Survey	2012/6295	Not Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		(Particular Manner)	
Joseph Bonaparte Gulf Seabed mapping survey	2010/5517	Not Controlled Action (Particular Manner)	Post-Approval
Kingtree & Ironstone-1 Exploration Wells	2011/5935	Not Controlled Action (Particular Manner)	Post-Approval
Marine Environmental Survey 2012	2012/6310	Not Controlled Action (Particular Manner)	Post-Approval
NT/P77 3D Marine Seismic Survey	2009/4683	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Fibre Optic Cable Network Construction & Operation, Port Hedland WA to Darwin NT	2014/7223	Not Controlled Action (Particular Manner)	Post-Approval
Petrel MC2D Marine Seismic Survey	2010/5368	Not Controlled Action (Particular Manner)	Post-Approval
Removal of Potential Unexploded Ordnance within NAXA	2012/6503	Not Controlled Action (Particular Manner)	Post-Approval
Santos Petrel-7 Offshore Appraisal Drilling Programme (Bonaparte Basin)	2011/5934	Not Controlled Action (Particular Manner)	Post-Approval
Sonar and Acoustic Trials	2001/345	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
2D Marine Seismic Survey	2008/4623	Referral Decision	Completed

Key Ecological Features [Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Carbonate bank and terrace system of the Van Diemen Rise	North

Biologically Important Areas [Resource Information]

Scientific Name	Behaviour	Presence
Dolphins		
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding	Known to occur
Marine Turtles		
Chelonia mydas Green Turtle [1765]	Foraging	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting	Likely to occur
Lepidochelys olivacea Olive Ridley Turtle [1767]	Foraging	Known to occur
Lepidochelys olivacea Olive Ridley Turtle [1767]	Internesting	Likely to occur
Natator depressus Flatback Turtle [59257]	Internesting	Likely to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Appendix D Relevant Persons Consultation and Advertising Materials

Appendix D: Relevant Persons Consultation Material

Preliminary consultation email

From: Consultation, Santos
Sent: Friday, February 9, 2024 1:51 PM
Subject: Santos Barossa Productions Operations - - Environment Plan and Environmental Management Plan - Preliminary Consultation

Consultation on Barossa Production Operations Activity covered by:

- **the Barossa Production Operations Environment Plan (Commonwealth waters)**
- **the Barossa Operations Environmental Management Plan (Northern Territory waters)**

Overview

The Santos-operated Barossa Gas Project is an offshore gas and condensate project with the purpose of providing a new source of gas for the existing Darwin liquified natural gas (DLNG) facility at Wickham Point in the Northern Territory (NT).
Santos is contacting you as we are proposing to undertake Barossa Production Operations Activity in Commonwealth waters and NT waters. As part of obtaining authorisation for this activity, Santos is undertaking consultation for the following regulatory approvals:

- The Production Operations Environment Plan (EP) relating to the arrival and operations of the FPSO, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285 km section of the GEP located in Commonwealth waters where offshore petroleum activities are regulated under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGS Act).
- The Operations Environmental Management Plan (OEMP) which includes the:
    - 8.26 km section of the GEP in NT coastal waters covered by the *Petroleum (Submerged Lands Act) 1981* (NT) (PSL Act); and
    - ~92 km section of the GEP inshore of NT waters covered by the *Energy Pipelines Act 1981* (NT) (Energy Pipelines Act).

Under section 25 of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations* (Cth) 2023 (OPGGS Environment Regulations), in preparing the Environment Plan for Barossa Production Operations activities in Commonwealth waters, Santos is required to consult with relevant persons, which includes:

- Commonwealth Departments or agencies to which our proposed activities may be relevant;
- State/Territory Departments or agencies to which our proposed activities may be relevant;
- the Department of the responsible Northern Territory Minister; and
- persons or organisations whose functions, interests and activities may be affected by our proposed activities.

In preparing an OEMP for activities in Northern Territory coastal waters under the Northern Territory PSL Act and applied Commonwealth environmental regulations, Santos is required to consult with relevant persons.

You or your department, agency or organisation may be a relevant person for the purposes of the Barossa Production Operations EP or OEMP.

https://www.santos.com/wp-content/uploads/2024/02/Production-Operations-Information-Booklet.pdfA booklet containing information about these activities in Commonwealth and NT waters can be found online at Barossa Production Operations Activity Information Booklet

The booklet includes information on the proposed activities, potential impacts, risks and management measures and the presence, based on a review of publicly available information, of environmental, social, economic, and cultural features and/or values within the environment that may be affected. The booklet and further information are located on the Production Operations section of the Santos website.

Seeking information and what's next

At this stage, Santos is seeking information to better understand:

- if you are from a Department or agency, or a person (or organisation) whose functions, interests or activities may be affected by the activity proposed to be carried out under the EP or OEMP; and
- what the functions, interests or activities you or your organisation have that may be affected by the proposed Production Operations activities.

Please contact us at the earliest opportunity if you consider you may be a relevant person to allow time to initiate consultation with you. Please also let us know if you know of other Departments, agencies, persons, or organisations which you believe we should consult. You can do this online via the relevant person nomination form located at Production Operations, via return email at offshore.consultation@santos.com or by calling us toll free on **1800 267 600**.

Consultation

Consultation for Production Operations Activity under Commonwealth environmental regulations will formally commence on **Monday 11 March 2024** with the consultation period closing on **Tuesday 9 April 2024.**

If you would like to provide information, please note that the information you provide will be included in documentation submitted to NOPSEMA and DITT (defined below) for assessment. This will include our assessment of the information you provide so that Santos can better understand the environmental risks and impacts from the activities and our response to you.

The information you provide during consultation will be used for the development of the following documents:

- an Environment Plan for the activity in Commonwealth waters, which will be assessed by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA); and
- an Operations Environmental Management Plan for the activity in Northern Territory coastal waters, which will be assessed by the Energy Division within the Northern Territory Department of Industry, Tourism and Trade (DITT).

Please let us know if you would like any particular information you provide to not be published. If requested, Santos will include your information in a separate report which will not be published on NOPSEMA's website. Santos will handle your information in accordance with our *Offshore Western Australia and Northern Territory Consultation Privacy Policy*. Importantly, we recognise that First Nations people and groups may have concerns about sharing culturally sensitive information so we will follow your guidance when undertaking consultation activities.

https://www.nopsema.gov.au/sites/default/files/documents/Consultation on offshore petroleum environment plans brochure.pdf

Additional resources

NOPSEMA has published information that sets out titleholders' responsibilities for consultation, as well as opportunities for relevant persons to provide guidance for consultation expectations.
Click the image to read the information in full.

We look forward to hearing from you soon.
Regards

Barossa Consultation Coordinator
Email: offshore.consultation@santos.com
Phone: 1800 267 600

Consultation email

From: Consultation, Santos
Sent: Monday, March 11, 2024 5:02 PM
Subject: Santos Barossa Productions Operations - - Environment Plan and Environmental Management Plan - Consultation

Consultation on Barossa Production Operations Activity covered by:

- **the Barossa Production Operations Environment Plan (Commonwealth waters)**
- **the Barossa GEP Operations Environmental Management Plan (Northern Territory waters)**

Santos is contacting you as we are proposing to undertake Barossa Production Operations activities in Commonwealth waters and Northern Territory (NT) waters.
As part of obtaining authorisation for this activity, Santos is undertaking consultation for the following regulatory approvals:

- The Production Operations Environment Plan (EP) relating to the arrival and operations of the FPSO, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285 km section of the GEP located in Commonwealth waters where offshore petroleum activities are regulated under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGS Act).

- The GEP Operations Environmental Management Plan (OEMP) which includes the:
    - 8.26 km section of the GEP in NT coastal waters covered by the *Petroleum (Submerged Lands Act) 1981* (NT) (PSL Act); and
    - ~92 km section of the GEP inshore of NT waters covered by the *Energy Pipelines Act 1981* (NT) (Energy Pipelines Act).

Under section 25 of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations* (Cth) 2023 (OPGGS Environment Regulations), in preparing the EP for the activities in Commonwealth waters, Santos is required to consult with relevant persons, which includes:

Commonwealth Departments or agencies to which our proposed activities may be relevant;
State/Territory Departments or agencies to which our proposed activities may be relevant;
the Department of the responsible Northern Territory Minister; and
persons or organisations whose functions, interests and activities may be affected by our proposed activities.

In preparing an OEMP for activities in Northern Territory coastal waters under the Northern Territory PSL Act and applied Commonwealth environmental regulations, Santos is required to consult with relevant persons.

On 9 February 2024, Santos contacted you to advise that consultation for Barossa Production Operations activities under Commonwealth environmental regulations would commence on 11 March 2024 and to seek information as to whether your department, agency or organisation may be a relevant person for the purposes of the EP or OEMP.

Consultation
As advised in the email of 9 February, consultation for Barossa Production Operations activities under Commonwealth environmental regulations has now commenced, with the consultation period closing on **Tuesday, 9 April 2024**.

During the consultation period we are seeking information on the environmental values in the operational area and the environment that may be affected by the proposed activities, and the environmental impacts and risks associated with the proposed activities.

You can provide information via return email or call us toll free on 1800 267 600.

The information provided by you during consultation will be used for the development of the following documents:

- The EP for the activity in Commonwealth waters, which will be assessed by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA); and
- The OEMP for the activity in NT coastal waters, which will be assessed by the Energy Division within the NT Department of Industry, Tourism and Trade (DITT).

https://www.santos.com/wp-content/uploads/2024/02/Production-Operations-Information-Booklet.pdfA booklet containing information about these activities in Commonwealth and NT coastal waters has been prepared by Santos.
It includes information on the proposed activities, potential impacts, risks and management measures and the presence, based on a review of publicly available information, of environmental, social, economic, and cultural features and/or values within the environment that may be affected.

The booklet can be found online at Barossa Production Operations Activity Information Booklet or by clicking on the image opposite. The booklet and further information are located on the Production Operations section of the Santos website.

Please note that the information you provide will be included in the documentation submitted to NOPSEMA and DITT for assessment. This will include our assessment of the information you provide so that Santos can better understand the environmental risks and impacts from the activities and our response to you.

Please let us know if you would like any particular information you provide to not be published. If requested, Santos will include your information in a separate report which will not be published on NOPSEMA's website. Santos will handle your information in accordance with our *Offshore Western Australia and Northern Territory Consultation Privacy Policy*.

Importantly, we recognise that Indigenous people and groups may have concerns about sharing culturally sensitive information so we will follow your guidance when undertaking consultation activities.

Relevant persons being consulted under the OPGGS Environment Regulations should note that they:

- are entitled to be given sufficient information to allow them to make an informed assessment of the possible consequences of the activity on their functions, interests or activities; and
- are entitled to be allowed a reasonable period for the consultation.

NOPSEMA has published information that sets out titleholders' responsibilities for consultation, as well as opportunities for relevant persons to provide guidance for consultation expectations. Click the image to read in full.

Santos has previously sought information to better understand:

- if you are from a government Department or agency, how the proposed Production Operations activities may be relevant to your Department or agency;
- if you know of other government Departments, agencies, persons or organisations which you believe we should consult; and
- what (if any) functions, interests or activities you or your organisation have that may be affected by the proposed activities.

You can still contact us with this information during consultation.

We look forward to hearing from you soon.

Regards

Barossa Consultation Coordinator
Email: offshore.consultation@santos.com
Phone: 1800 267 600

Production operations information booklet – original version

Santos

INFORMATION BOOKLET

BAROSSA PRODUCTION OPERATIONS ACTIVITY

INTRODUCTION

The activities described in this booklet relate to the extraction, processing, and distribution of gas and condensate from the Barossa Field.

The Barossa Development facilities used in these activities consist of a Floating Production Storage and Offloading (FPSO) facility, subsea production wells, supporting in-field subsea infrastructure **(Figure 1)**, a 285 km Gas Export Pipeline (GEP) in Commonwealth waters, and an 8.26 km section of the GEP in Northern Territory (NT) coastal waters; collectively termed in this booklet as "Production Operations Activity".

As part of obtaining authorisation for this activity, Santos is undertaking consultation for the following regulatory approvals:

- The Production Operations Environment Plan (EP) relating to the arrival and operations of the FPSO, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285km section of the GEP located in Commonwealth waters where offshore petroleum activities are regulated under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth)* (OPGGS Act).
- The Operations Environmental Management Plan (OEMP) which includes the:
  - 8.26 km section of the GEP in NT coastal waters covered by the *Petroleum (Submerged Lands Act) 1981 (NT)* (PSL Act); and
  - ~92km section of the GEP inshore of NT waters covered by the *Energy Pipelines Act 1981 (NT)* (Energy Pipelines Act).

The term 'GEP' refers to the Gas Export Pipeline through which Barossa gas will be transported from the Barossa field to Darwin LNG. However, the scope of the GEP covered in this booklet, is limited to the 8.26 km section of the GEP located in NT coastal waters.

The activities, environmental impacts, and risks for the GEP in NT waters (~92km) are broadly similar to those for the GEP in Commonwealth waters (described in this booklet). The activities, environmental impacts and risks specific to the GEP in NT waters, not covered in this booklet, will be provided in a separate factsheet.

The estimated life of the Barossa Development is 25 years, and the Production Operations EP and the OEMP will be reviewed every five years following initial regulator authorisation. This booklet provides a summary of the credible environmental impacts and risks associated with the first five years (also known as Barossa Phase 1) of the Production Operations Activity.

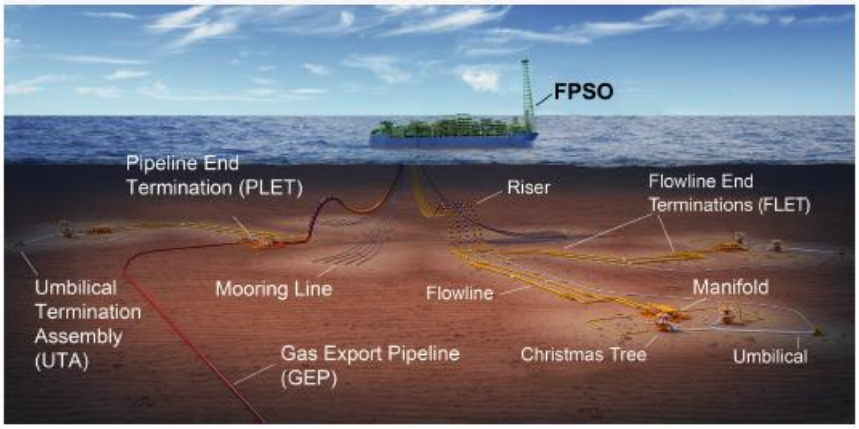


Figure 1: Schematic of the Barossa Field Subsea production system and infrastructure, and FPSO

BAROSSA GAS PROJECT OVERVIEW

The Santos-operated Barossa Gas Project is an offshore gas and condensate project with the purpose of providing a new source of gas to the existing Darwin liquified natural gas (DLNG) facility at Wickham Point in the NT. It is intended that natural gas and condensate would be extracted from the Barossa field, located in Commonwealth waters approximately 285 kilometres offshore north-northwest from Darwin. Initial processing would occur at the FPSO, to separate the natural gas, water and condensate. The dry natural gas would be transported through the GEP for onshore processing at the DLNG facility. The condensate would be transferred from the FPSO facility to purpose-built tankers for international export.

DLNG facility at Wickham Point where Barossa gas will be sent for onshore processing.

ACTIVITY LOCATION

The planned Production Operation Activity is confined to two key operational areas. These areas are simply termed Operational Area 1 (OA1) and Operational Area 2 (OA2) **(Figure 2)**.

OA1: The Barossa field. This is the area in which the FPSO, subsea production system, and supporting subsea infrastructure will be used to process gas and condensate extracted from the Barossa wells. The area is confined to Commonwealth waters, approximately 285 km north-north-west of Darwin (the closest major populated centre), approximately 210 km north-west of the mainland NT coastline, and approximately 130 km north of the Tiwi Islands at the closest point (Seagull Island).

OA2: The 285 km section of the GEP from OA1 to the Commonwealth waters/ NT waters boundary; and the 8.26 km section of the GEP situated in NT coastal waters between the Commonwealth waters/NT coastal waters boundary and the Territorial Sea Baseline (TSB). Not included in this section is the remaining GEP in NT waters (~92 kms). Information on this is covered elsewhere.

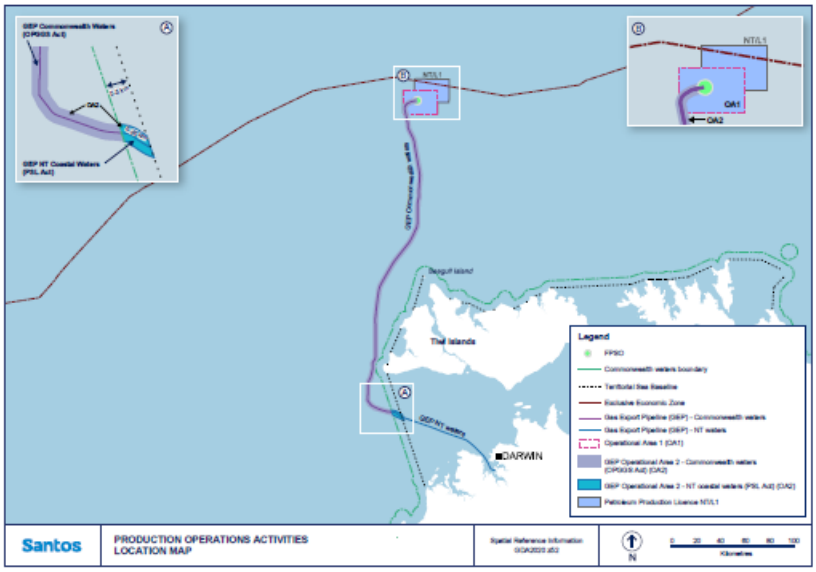


Figure 2: Location of the Barossa Operational Area 1 (OA1) in Commonwealth waters (OPPGS Act) and Operational Area 2 (OA2) in Commonwealth waters and NT coastal waters (PSL Act).

SUMMARY OF ACTIVITIES

The Barossa FPSO, which will be known as BW Opal, is a permanently moored vessel which is able to freely rotate with the strongest wind direction and remain connected to subsea facilities. The operational design life for all Barossa facilities is 25 years. **Figures 3 and 4** depict key features of the FPSO and utilities/marine systems.

Gas and condensate extracted from the Barossa field will be processed on the FPSO to separate the natural gas and condensate (a light liquid hydrocarbon, straw coloured and flammable). The dry gas will be exported to the DLNG facility via the GEP, and the condensate will be transferred from the FPSO to offtake tankers for export approximately four to five times per year. The key activities proposed under the Production Operations EP are detailed below.

Most of the below activities are only applicable to OA1 as this is where the FPSO and subsea infrastructure is located, and the condensate offtakes will occur. The main activity in OA2 will be inspection, maintenance, monitoring, and repair (IMMR) of the GEP.

- **FPSO arrival in the field:** connection of the FPSO to the mooring buoy; equipment and systems testing (also termed commissioning), start-up operations.
- **FPSO operations:** process gas and condensate from the Barossa field. The gas and condensate separation and treatment systems have a gas export capacity of approximately 635 million standard cubic feet per day (a little over 7000 Olympic-size swimming pools) with a condensate processing capacity of approximately 11,000 barrels per day (a little more than half an Olympic-size swimming pool) and a produced water processing maximum capacity of 20,000 barrels per day (over one Olympic-size swimming pool). Under normal operating conditions produced water discharge rates will be approximately a quarter (~5,000 barrels per day) of the maximum discharge capacity (~1/4 of an Olympic-size swimming pool). The FPSO generates its own electricity using Barossa production gas, and potable water supply. Living quarters are provided for the operations workforce.
- **Gas export to DLNG:** dry natural gas will be transported through the GEP for onshore processing at the DLNG facility.
- **Storage and Offtake operations:** storage of condensate onboard the FPSO and offloading of condensate to offtake tankers. Approximately 650,000 barrels (~ 40 Olympic-size swimming pools) will be offloaded approximately once every two to three months (four to five times per year).

- **Support operations:** offshore support vessels periodically visit the FPSO to resupply materials (such as stores, consumables, chemicals and fuel) and return surplus goods and wastes to the Australian mainland for disposal or recycling. Helicopters will be used to transport the operations workforce to and from operations facilities.
- **Subsea system and GEP inspection, maintenance, monitoring and repair (IMMR):** visual inspection of subsea infrastructure and/or the GEP using Remotely Operated Vehicles (a submersible craft used to perform underwater visual inspections operated from a vessel). This activity will be performed according to a planned inspection and maintenance schedule, or at other intervals if unplanned inspections or repairs are required.

1 Engine Room
2 Living Quarters
3 Laydown Areas
4 Seawater Lift Caissons
5 Utilities
6 Gas Treatment A & B
7 Condensate & Produced Water Treatment
8 Production Separation Module
9 Flare Knock Out Drum
10 Flare
11 Electrical-House
12 Central Piperack
13 Power Generation A, B & C
14 Gas Treatment C
15 Flash Gas Compressor
16 Future LP Gas Compressor
17 Export Gas Compressor
18 Turret

Key infrastructure information

A Length 355 m B Depth 32 m C Breadth 64 m ● Maximum persons on board - 140

Figure 3: FPSO key features

1. Condensate Offloading System
2. Aft Service Crane
3. Communications & Radar
4. Aft Pedestal Crane
5. Thermal Oxidiser
6. Helideck Parking Area
7. Forward Pedestal Crane
8. Power Generation Exhaust
9. Midship Pedestal Crane
10. Helideck Landing Area
11. Daughter Craft
12. Freefall Lifeboats
13. Engine Room Exhaust

Figure 4: FPSO utilities and marine systems

REGIONAL EXISTING ENVIRONMENT SUMMARY

Environment that may be affected (EMBA)

Santos recognises the region's various environmental values and sensitivities. In an EP, although planned activity occurs in OA1 and OA2, it is common to present a geographically defined area of the environment that may be affected (EMBA) by an offshore activity e.g. an unplanned hydrocarbon spill.

In the case of the Production Operations Activity, the broadest extent of the EMBA, is determined by a potential loss of heavy fuel oil from a condensate offtake tanker due to impact from another vessel. Potential loss of heavy fuel oil is a risk associated with any large marine vessel and is managed through established maritime laws and safeguards. Barossa condensate offtake operations are a low frequency activity (four to five times a year) which further reduces the likelihood of such an event, which is already a very low probability of occurring.

Figure 5 depicts operational areas OA1 and OA2 and the EMBA (blue line). The EMBA is generated by modelling and represents the greatest geographical extent that could be affected by 300 individual hydrocarbon spill scenarios occurring simultaneously across the full range of seasonal conditions. It should be noted that an actual spill event is more accurately represented by only one of the 300 simulations from the modelling, meaning a much smaller geographical area would be affected in the event of an actual spill; and the EMBA does not take account of spill response mitigations which would reduce the extent of an unplanned spill. The primary purpose of the EMBA is to assist with spill response planning and preparedness in the unlikely event of a hydrocarbon spill. The EMBA also provides the basis for assessing the range of potential socio-economic impacts and establishes a planning area for scientific monitoring during an unplanned spill event.

The Moderate Exposure Value (MEVA) (pink line) represents the predicted extent of ecological impacts and is used to inform the environmental impact assessment and spill response plans. Beyond the MEVA, impacts to ecological receptors are not expected.

To learn more about spill modelling, exposure values and spill response, see NOPSEMA Spill Modelling Video.

Regional protected and significant areas

Figures 6, 7, and 8 illustrate the boundaries and zonings of regional marine parks and reserves, key ecological features, wetlands, EMBA, the MEVA and the OAs. **Figure 9** illustrates the shoals and banks in relation to the OAs.

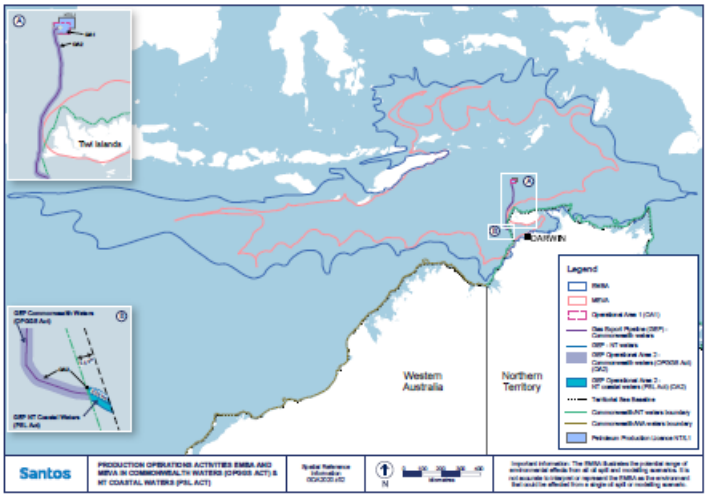


Figure 5: Production Operations Activities EMBA and MEVA in Commonwealth waters (OPGGS Act) and NT coastal waters (PSL Act)

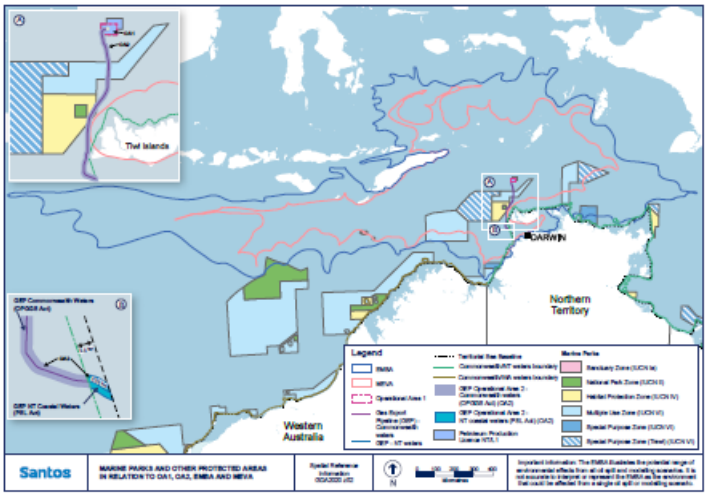


Figure 6: Marine Parks and Other Protected Areas in relation to OA1, OA2, EMBA and MEVA

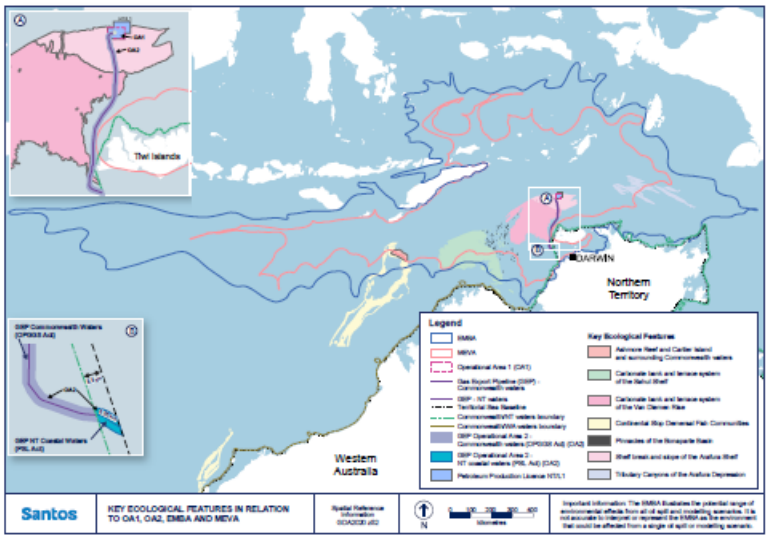


Figure 7: Key Ecological Features in relation to OA1, OA2, EMBA and MEVA

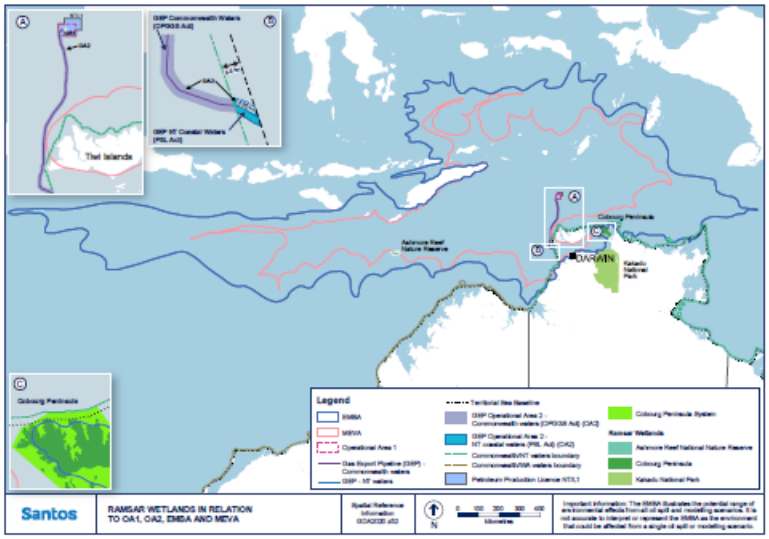


Figure 8: RAMSAR wetlands in relation to OA1, OA2, EMBA and MEVA

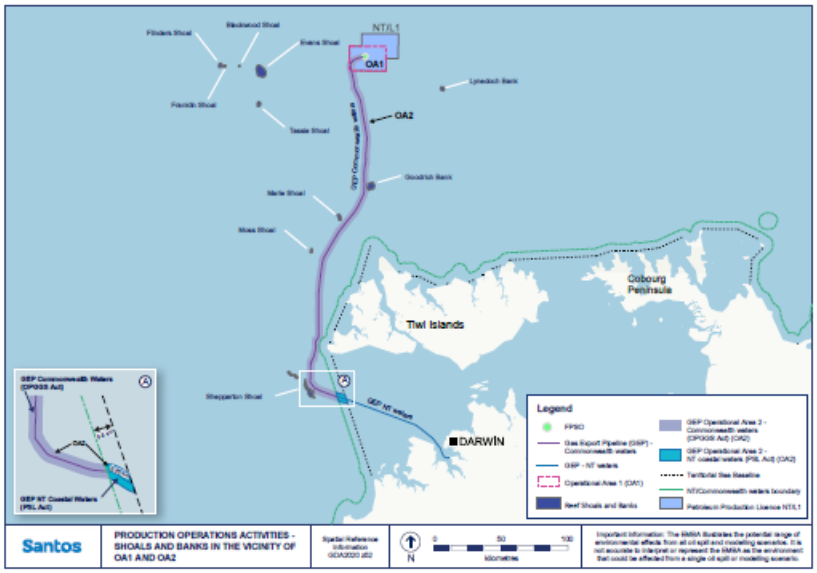


Figure 9: Shoals and Banks in the vicinity of OA1 and OA2

Marine fauna and biologically important areas

Biologically important areas (BIAs) are areas used by protected marine species for carrying out critical life functions, such as reproduction, feeding, migration or resting. BIAs are areas that contain habitat crucial to the survival of protected species and are defined by the Australian Government under the Environment Protection and Biodiversity Conservation Act 2009 (EPBC Act). As shown in Figure 10, some BIAs occur within the EMBA. These areas are known to include protected marine species such as whale sharks, pygmy blue whales, dugongs, olive ridley turtles, loggerhead turtles, green turtles, hawksbill turtles, flatback turtles, and 12 types of seabirds and shorebirds. In addition, the EMBA overlaps the spawning grounds for southern bluefin tuna, a listed species under the EPBC Act, between northern Western Australia and Java.

The BIAs for flatback turtles overlap with OA2. There are no BIAs within OA1. Two turtle species, the flatback turtle and olive ridley turtle, have critical habitat that overlap with OA2.

Activities in OA1 will be conducted in water depths ranging from approximately 220 – 280 m. There are a variety of highly mobile marine fauna that may transit OA1 in low numbers, such as:

- Bryde's, blue, fin, humpback, sperm and sei whales
- orcas, Australian snubfin dolphin and spotted bottlenose dolphin
- dugongs (mostly in shallow waters)
- olive ridley, green, loggerhead, hawksbill, leatherback and flatback turtles
- sea snakes
- whale sharks
- migratory seabirds and shorebirds
- fishes, sharks, rays and sawfish.

An additional three species – the grey nurse shark, Omura's whale and the turtle-headed sea snake have been included as they were observed within or near OA1 and OA2 during the Barossa Marine Studies Program.

Santos recognises the region's various environmental values and sensitivities and has considered government guidance, including protected species management plans, recovery plans, conservation advice and threat abatement plans in the development of the Production Operations and OEMP, and has developed control measures to reduce impacts and risks to marine fauna and biologically important areas to as low as reasonably practicable and acceptable levels.

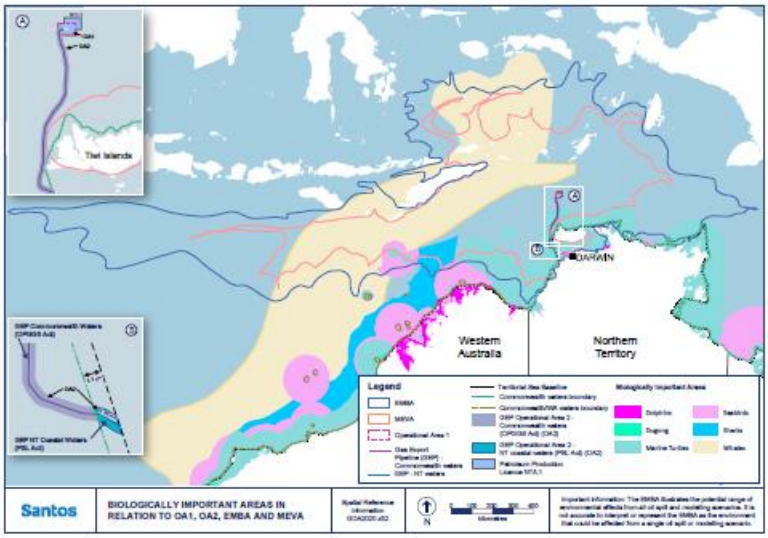


Figure 10: Biologically important areas in relation to OA1, OA2, EMBA and MEVA.

REGIONAL SOCIO-ECONOMIC SUMMARY

Socioeconomic activities that may occur within the OAs or EMBA might include commercial, recreational and traditional (subsistence) fishing, aquaculture, tourism, petroleum industry activities, defence activities, shipping and to a lesser extent in the deeper offshore waters, recreational fishing and tourism.

Underwater cultural heritage and cultural values may also exist across the region. Darwin will be the logistics hub and supply base for the capitals when stating Production Operations Activity bringing employment and economic benefits to the local community.

Nearest population centres

OA2, at its closest point, is located approximately seven kilometres from Bathurst Island, which is part of the Tiwi Islands. Darwin is the closest regional city, which approximately 285 km north-north-west of OA1.

Summary of other uses within the EMBA

Santos' existing understanding of the uses and values of the area and its strategies to reduce impacts or risks to these uses and values, will be supplemented with any new information obtained during consultation. Santos has set out in the list below a summary of the uses and values of the area based on existing information or previous consultation. Santos welcomes further information that may be provided during consultation to inform the Production Operations EP and OEMP.

Commercial fishing

Santos recognises the presence and rights of commercial fishers within the operational area and EMBA. Within the OAs, interaction with some commercial fishing is possible. These fisheries include Northern Prawn, Spanish Mackerel, Pearl Oyster, Offshore Net and Line, and Demersal. Santos has been consulting with the relevant fisheries representative associations, licence-holders and government over many years.

Petroleum industry

Several oil and gas companies hold petroleum permits near the OAs; however, no established oil and gas operations are located within or in the immediate surrounds. The closest operational offshore production facilities and in-field subsea infrastructure are associated with the Santos-operated Bayu-Undan platform, located approximately 400km to the southwest of OA1 and west of OA2.

Tourism, recreational fishing and traditional fishing

The OA1 is located in offshore waters that are not likely to be accessed for tourism activities (e.g. charter boat operations) or recreational fishing, as these tend to be centred around nearshore waters, islands and coastal areas. However, previous consultation on a different Barossa Gas Project EP has identified one fishing charter operator who may on occasions conduct tours near Evans Shoal, approximately 62km west of OA1. Tourism activities may occur within OA2, but they are likely to be limited to vessels transiting the area to access other destinations within the region e.g. islands, shoals, and shipwrecks. Indonesian and Timorese traditional fishers, as well as Australian recreational fishers, are expected to transit and fish in the EMBA. Santos continues to consult regarding recreational and traditional fishing and hunting within the EMBA.

Defence Activities

Several oil and gas companies hold petroleum permits near the OAs; however, no established oil and gas operations are located within or in the immediate surrounds. The closest operational offshore production facilities and in-field subsea infrastructure are associated with the Santos-operated Bayu-Undan platform, located approximately 400km to the southwest of OA1 and west of OA2.

Telecommunications cables

The North-West Cable System (NWCS) is a submarine telecommunication fibre cable system located within the EMBA and crosses the GEP in the southern portion of OA1. It is located approximately 230 km and 30 km south of OA1 and OA2. Extending 2100 km from Darwin to Port Hedland, the NWCS connects Australia's remote northern and western regions, including offshore oil and gas facilities, with onshore locations.

Listed Heritage

There are no world heritage properties, national heritage places or Commonwealth heritage places within the OAs; however, the EMBA (including the MEVA) overlaps the Ashmore Reef Marine Park, a Commonwealth heritage place. The closest World Heritage Property is the Kakadu National Park, located onshore in the NT. A small portion of the coastal edge overlaps the EMBA. **(Figure 8)**

There are no recorded Aboriginal heritage sites within the OAs. The Tiwi Islands are a declared Aboriginal reserve and a number of protected sacred sites under the Aboriginal Sacred Sites Act 1989 (NT) have been recorded on the islands.

Under the Commonwealth Underwater Cultural Heritage Act 2018, Australia's underwater cultural heritage is protected in Commonwealth waters, such as shipwrecks, sunken aircraft and other types of underwater cultural heritage including Australia's Aboriginal and Torres Strait Islander underwater cultural heritage. No known shipwrecks are located within the OAs. Multiple known shipwrecks, sunken aircrafts, historic aircrafts and shipwrecks (greater than 75 years old) and other sites occur within the EMBA. Some unlocated wrecks could fall within the boundaries of the OAs or EMBA.

In the course of preparing the Barossa Drilling and Completions EP, SURF EP and commencing works under the GEP EP, Santos engaged independent consultants to investigate potential for underwater cultural heritage within OA1. First Nations underwater cultural heritage is not relevant to OA1 due to its location in water depths beyond the extent of the ancient coastline at the 125 m water depth contour. A 262km section of the GEP within OA2 has been surveyed for both First Nations and other underwater cultural heritage

The results of those surveys concluded there are no specific underwater cultural heritage places along the Barossa GEP to which people, in accordance with Indigenous tradition, may have spiritual and cultural connections that may be affected by the activities covered by the GEP Environment Plan. Further similar surveys are planned for the remainder of OA2 in 2024.

Shipping

The closest port to the OAs is Darwin Port, which is approximately 290km away from OA1 and 116km away from OA2. No designated shipping fairways overlap the OAs, however the southern end of OA2 is an area of high shipping activity.

Cultural Values

Traditional hunting and fishing continue to occur on the Tiwi Islands, although typically these occur within 3 nm of the shoreline.

Mapping exercises and workshops conducted on the Tiwi Islands have identified Aboriginal heritage sites along the northern, western and southern coastlines of the Tiwi Islands, including areas used for food collection, sacred sites, camping sites and a dreaming site. These coastlines are within the EMBA but outside the OAs.

Santos has identified that the Croker Island native title determination (DCD1998/001) partially overlaps the EMBA. The native title holders within the Croker Island native title determination are the Yuwurrumu members of the Mandilarri-Ildugij, the Mangalara, the Murran, the GaduraMinaga and the Ngaynjaharr clans. The Larrakia native title determination (DCD2006/001) also partially overlaps the EMBA. This determination found that native title does not exist within the claim area.

Mapping exercises and workshops conducted on the Tiwi Islands have identified Aboriginal heritage sites along the northern, western and southern coastlines of the Tiwi Islands, including areas used for food collection, sacred sites, camping sites and a dreaming site. These coastlines are within the EMBA but outside the OAs.

Santos acknowledges coastal First Nations peoples' connection with culture through Sea Country and is seeking to improve knowledge and understanding of cultural features within the EMBA, including through consultation with First Nations people and their relevant representative bodies.

SUMMARY OF ENVIRONMENTAL IMPACTS AND RISKS

Environmental impact and risk assessment is the process by which proposed activities are assessed for their impacts (consequences) on the environment (physical, biological, socio-economic and cultural). For the purposes of assessing impacts and risks, proposed activities are divided into planned activities and unplanned events.

Planned activities occur within OA 1 and OA 2 can have unavoidable impacts, such as light, noise and atmospheric emissions, seabed disturbance, discharges to the marine environment, and interactions with other marine users. Unplanned events are not expected to occur but are considered so that contingency measures are in place should they ever eventuate. Unplanned events include dropped objects, introduction of invasive marine species, interactions with marine fauna, accidental discharges, or spills.

Planned activities are assessed based on consequence of impact. Unplanned events are assessed based on their potential impact (consequence) and likelihood of occurrence, which informs the associated risk level.

Santos has conducted an environmental assessment in order to consider the potential environmental impacts and risks associated with activities under this EP. The identification of potential impacts and risks, and the measures proposed to reduce these impacts and risks, may be revised and amended as a result of the consultation process. This includes information obtained during consultation to improve Santos' understanding of potential impacts and risks in regards to cultural values within the EMBA and adoption of any appropriate measures.

PLANNED ACTIVITIES

Santos proposes to adopt a suite of control measures to reduce impacts and risks associated with planned activities to a level that results in a minor or negligible environmental consequence. These consequence levels are considered by Santos to be acceptable and to have been reduced to as low as reasonably practicable (ALARP). **Figure 11** shows several emissions and discharges from planned activities associated with the operation of the FPSO.

Figure 11: Emissions and discharges from planned activities associated with the operation of the Floating Storage and Offloading (FPSO) facility.

GHG EMISSIONS

The Production Operations EP will consider the contribution of emissions from the Barossa Development to national and global emissions and the potential indirect impacts of climate change on the Australian environment, noting that as a result of the complex nature of the global emissions system, climate change impacts cannot be meaningfully linked to any one activity or emissions source.

GHG emissions can be categorised into Scope 1, Scope 2 and Scope 3.

- Scope 1 - direct emissions from sources that Santos owns or controls, due to fuel combustion, flaring, venting, CO2 removal and fugitive emissions.
- Scope 2 - indirect emissions from the generation of energy that Santos purchases for its operations including electricity purchased for ancillary activities such as office buildings.
- Scope 3 - includes all indirect emissions not included in Scope 2. The vast majority of Scope 3 emissions from Santos' activities are emissions from the use of sold products.

The Production Operations Activity will not produce scope 2 emissions as it does not consume externally generated electricity or other forms of externally generated energy.

Total annual Barossa Scope 1 emissions are estimated to be 2.5 Mt CO2e (carbon dioxide equivalent), and total annual Scope 3 emissions are estimated to be 12.7 Mt CO2e.

What impacts are expected?

Barossa GHG emissions (Scope 1 and 3) estimates account for approximately 0.86% of annual Australian GHG emissions (Department of Climate Change, Energy, the Environment and Water, 2022).

The GHG emissions attributable to the Barossa Development are not expected to be significant relative to national and international GHG emissions and are considered to be low risk.

How will Santos manage impacts?

Scope 1 emissions from Barossa are managed under Australian regulations and scope 3 emissions are managed using control measures consistent with the UN Paris Agreement, to which the Australian Government is a signatory. Key proposed control measures include:

Scope 1 emissions:

- Barossa will comply with Safeguard Mechanism obligations, including surrendering carbon credit units for any emissions above the Safeguard baseline for the assessment year.
- Barossa will implement a GHG management plan that minimises GHG emissions to ALARP and acceptable levels over the life of the field operations.
- Barossa facilities design has been optimised to reduce fuel, flare and vent (FFV) emissions, and to enable the possibility of future export of reservoir CO2 to a Carbon Capture and Storage (CCS) project.

Scope 3 emissions:

- Products generated from the Barossa Development will only be sold to customers from countries that are signatories to the Paris Agreement (or that have policies for reducing greenhouse gas emissions that are equivalent to policies required by the Paris Agreement), as at the date of the relevant contract of sale.

ATMOSPHERIC EMISSIONS

Fuel consumption, flaring and venting excess gas is required to process gas and condensate which results in the release of air pollutants, such as sulphur oxides (SOX), nitrogen oxides (NOX) and volatile organic compounds (VOCs) to the atmosphere. This mix of continuous and infrequent (e.g. flaring of excess gas) sources of atmospheric emissions associated with operating the Barossa facilities may result in a temporary, localised reduction in air quality.

Intermittent flaring is expected to be of short duration during initial start-up operations and unplanned process trips/upsets during steady-state operations.

Atmospheric emissions will also be generated from support vessel and helicopter operations.

All activities described above that may result in air emissions could be expected within OA1, however only emissions associated with vessel activities would be expected in OA2. In the offshore environment, air emissions quickly dissipate into the surrounding airshed.

What impacts are expected?

Impacts are considered very localised and not significant. Seabirds and migratory shorebirds are unlikely to be impacted by the localised and temporary reduction in air quality.

The potential impact from the release of air emissions includes the decrease in air quality of the local airshed.

Behavioural impacts, such as avoidance, could be expected if seabirds fly in the vicinity of OA1. Impacts to threatened, migratory or local fauna (seabirds) are considered to be minor.

As Barossa's operational activities occur in remote offshore waters, Production Operations Activity emissions will not impact air quality in coastal towns. Atmospheric emissions will quickly dissipate into the surrounding atmosphere and are not considered to be a potential source of impact for protected areas or threatened ecological communities.

How will Santos manage impacts?

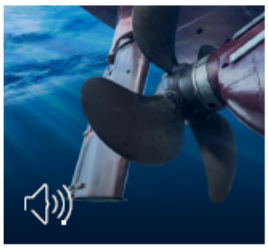
The FPSO power generation system reduces emissions to the atmosphere by primarily using production gas as fuel. Combined-cycle gas turbines (CCGT) will also be used to improve fuel use efficiency. CCGT are highly efficient and best practice resulting in reduced pollution. The steam turbines use low NOx burners, which significantly reduces NOx emissions.

Further FPSO facility design measures to reduce atmospheric emissions include:

- surplus waste gas burned to completely remove methane (minimal flaring)
- vapor recovery instead of releasing to atmosphere
- ozone Depleting Substances (ODS) are not used as refrigerants.

Santos proposes to adopt numerous control measures to manage vessel emissions, including requiring contractor vessels' compliance with MARPOL requirements for low-sulphur fuel and air pollution prevention certifications. ('MARPOL' is a reference to the International Convention for the Prevention of Pollution from Ships).

The control measures to be adopted are designed to be consistent with maritime regulations and petroleum industry standards.



NOISE SOURCES

In OA1 the main FPSO noise sources are intermittent and short-term flaring during initial start-up operations and unplanned process trips/upsets during steady-state operations. FPSO power and processing equipment will also generate a continuous source of noise. Other noise sources include:

- support vessels;
- helicopters;
- ROVs, acoustic positioning systems and survey equipment
- operation of subsea infrastructure such as wellheads, flowlines and valves.

In OA2 the types of noise generated by these activities can be categorised as either: impulsive (brief, high intensity) e.g. from operation of survey equipment or, non-impulsive noises (ongoing or continuous) e.g., from vessel engines. Noise emitted from activities in OA1 and OA2 are expected to be at low levels, similar to ambient noise levels in the region.

What impacts are expected?

Santos has engaged subject matter experts to conduct the underwater noise assessments for the activities.

Noise emissions from the FPSO, helicopters, survey equipment and vessels may result in marine mammals (e.g. whales) changing their behaviour (e.g. avoidance or diving to avoid noise). This change in behaviour is expected to be localised (within the area of the noise source in OA1 or OA2) and short term (e.g. periods of minimal flaring in OA1). Noise emissions are not expected to cause long term population impacts (e.g. distribution & abundance).

Low level noise can occur from the operation of the pipeline which will dissipate to background levels within 100m of the pipeline. The GEP route (OA2) crosses two small areas of important turtle habitat and impacts to marine turtles in these areas are expected to be limited to behavioural (e.g. avoidance). Impacts to marine turtles from any infrequent survey equipment use is also expected to result only in temporary and localised behavioural changes, given the low level of noise. Vessels will be moving when undertaking surveys and it is highly unlikely any individual would remain near the noise source for any length of time.

Other protected species of marine reptiles (such as sea snakes), seabirds and fish (such as sharks and sawfish) are not expected to be affected at the population level, given their wide distribution (in the case of sea snakes and sharks), distances to seabird breeding colonies, and preference for shallow coastal habitats (sawfish).

Noise emissions could result in behavioural changes in marine fauna within the Oceanic Shoals Marine Park, as OA2 is located in this area **(Figure 4)**.

Noise is not expected to impact socio-economic receptors, including commercial fisheries, due to low noise levels and low socio-economic activity levels within and near the Operation Areas. Behavioural impacts to fish of potential commercial value would be restricted to within hundreds of metres of the noise source, a very small portion of the total available fishing area.

How will Santos manage impacts?

A source of significant underwater noise has been eliminated from the FPSO facility by designing the facility to be permanently moored without the use of a propulsion system.

Vapour recovery on the flare system reduces the frequency at which flaring occurs during operations and therefore reduces the amount of noise emitted during routine operations.

Activity vessels are required to comply with Santos's Protected Marine Fauna Interaction and Sighting Procedure to comply with regulatory requirements for managing fauna noise impacts. Marine assurance standards and planned vessel maintenance will minimise noise generated from vessels by ensuring contracted vessels are operated, maintained and crewed in accordance with industry standards and regulatory requirements.

LIGHT SOURCES

Artificial lighting is required for operational and navigational safety during the activity. Light sources include safety and navigational lighting on vessels, campaign-specific lighting when needed, such as deploying or retrieving equipment or when ROVs are working underwater, and intermittent flaring from the FPSO.

What impacts are expected?

Permanent safety and navigational lighting on the FPSO and intermittent flaring will result in light emissions in OA1. Light emissions are not expected to have an effect on adult turtles or hatchlings, given the offshore location and distance from the nearest turtles nesting beaches.

OA2 overlaps BIAs for marine turtles surrounding the Tiwi Islands. The closest turtle nesting beach is Cape Fourcroy, on the Tiwi Islands. Lighting emissions in OA2 will only occur from infrequent vessel inspection and maintenance activities in this location, which are of short durations. Vessel activities in OA2 are expected to produce similar light levels to other marine vessel activities in the region.

Impact to nesting females or hatchlings is not expected to occur. There is potential for hatchlings at sea to be attracted to light emissions if they are carried by currents to within approximately 3.3 km of an IMMR vessel. In the unlikely event hatchlings are attracted to vessel light, the proportion impacted is considered negligible when compared to the total number of hatchlings emerging from Bathurst Island beaches across the year. It will also be a temporary phenomenon, occurring during hours of darkness only. After sunrise, hatchling dispersal behaviour will resume. Displacement of individuals from critical habitat areas is therefore not a credible outcome.

Fish, sharks and birds have been shown to be attracted to artificial light sources, leading to a short-term localised increase in fauna activity, however large-scale changes in species abundance or distribution are unlikely.

How will Santos manage impacts?

The FPSO facility is equipped with a centralised battery system providing an uninterrupted power supply to the FPSO LED lighting which also allows for dimming and controlling in individual areas. Lighting is to be limited to that required for safe operations and navigation and will be compliant with maritime regulations (similar to other commercial vessels operating in the region).

SEABED DISTURBANCE

Seabed disturbance will occur because of:

- physical presence of installed subsea infrastructure and GEP on the seabed
- temporary placement and set down of equipment and subsea infrastructure on the seabed used during IMMR activities

What impacts are expected?

Seabed disturbance resulting from IMMR activities will be confined to the OAs and might result in localised disturbance under the subsea infrastructure and GEP. Seabed disturbance resulting from a subsea repair or replacement will be localised with a potential footprint of approximately 50 m^2 up to 1,600 m^2.

Given the nature and relatively small scale of seabed disturbance, it is not expected to cause a decrease in local population size, area of occupancy of species, loss or disruption of critical habitat, or disruption to the breeding cycle of any protected marine fauna.

Given localised disturbance is restricted to the OAs, which is mostly bare sediment and does not contain any significant habitat features, the consequence level for the physical environment or habitat is negligible. Impacts to the seabed within the Oceanic Shoals Marine Park or overlapping key ecological features (KEFs) (Carbonate bank and terrace system of the Van Diemen Rise KEF and the Shelf break and slope of the Arafura Shelf KEF) are considered to be minor.

While OA1 does not overlap any marine turtle BIAs, the southern end of OA2 traverses internesting buffer habitat critical to survival for flatback and olive ridley turtles, overlaps a portion of the the internesting BIA for flatback turtles, and is adjacent to the internesting BIA for olive ridley turtles. Considering the water depth along the pipeline route in OA2 is greater than the maximum turtle interesting depth of 30 m , it is unlikely the species will be present in significant numbers or for significant periods. Any impact to marine turtles from seabed disturbance or resultant turbidity in both OA1 and OA2 would likely be temporary and negligible, based on the nature and scale of impact.

Seabed disturbance is not expected to impact commercial fisheries, based on the small size of disturbance compared with the total available fishing area.

How will Santos manage impacts?

During IMMR activities Santos' vessels will undertake safe and accurate placement of infrastructure using dynamic positioning to minimise seabed disturbance during placement. Santos will also maintain a comprehensive inventory of all installed equipment to enable recovery of all equipment during decommissioning to limit impacts to the seabed.

INTERACTIONS WITH OTHER MARINE USERS

Other marine users will be displaced from part of OA1 over the life of Barossa operations, and temporarily restricted within parts of OA2 during IMMR. In OA2, the GEP may present a hazard to marine users due to the potential for snagging.

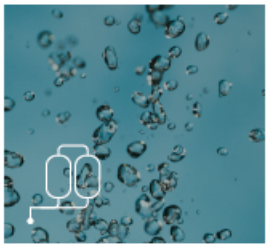
What Impacts are expected?

Other marine users will have restricted access within petroleum safety zones (PSZ). A permanent 500m exclusion PSZ will extend around the outer edge of the Barossa Production Operations wells, the subsea infrastructure and mooring system in OA1. During IMMR activities along the GEP IN OA2, a temporary 500m PSZ will be maintained around vessel operations.

Commercial fishing, shipping, military exercises and other incidental marine traffic in the OAs are expected to be low frequency. The area marine users will be excluded from is small when compared to the large area available for their use.

How will Santos manage Impacts?

Santos will notify and communicate with other marine users using standard maritime notifications (e.g. Notice to Mariners) before, during and at the end of IMMR activities. Infrastructure locations will be marked on nautical charts. These proposed control measures are consistent with maritime regulations and industry practices.



PRODUCED WATER DISCHARGES

Produced water is naturally occurring water that is extracted from the seabed along with hydrocarbons (condensate and gas in the case of the Barossa field). It is separated from the hydrocarbon components during processing and treated before being discharged to the marine environment from a pipe at least 10 m below the sea surface on the FPSO. This produced water consists of naturally occurring formation water (from the body of rock below the hydrocarbon formation), condensed water (water vapour present within the produced hydrocarbons which condenses when brought to the surface) as well as introduced water-soluble chemicals and other contaminants. While produced water treatment is performed before discharge, the effluent may contain residual inorganic (such as chemicals used for production) and organic (such as oil) contaminants.

The produced water treatment system is divided into two stages - removal of hydrocarbons through a filtration system and designed to handle 20,000 barrels per day (over one Olympic-size swimming pool). During operations the produced water discharge will vary from 3,500 to 5,000 barrels per day (bbl/day), or a quarter to a third of an Olympic-size swimming pool, with a peak rate after 11 years estimated up to 16,500 bbl/day (one Olympic-size swimming pool). Best available technology has been selected to remove oil-in-water concentrations to as low as reasonably practicable (ALARP) and the treatment system will operate well below its design capacity over the majority of the field life.

What impacts are expected?

Water quality may be impacted at the discharge point while the produced water is discharged **(Figure 12)**. Discharge modelling has been undertaken for a conservative maximum discharge rate of 20,000 bbl/day (over one Olympic-size swimming pool). Under normal operating conditions produced water discharge rates will be approximately a quarter (~5,000 bbl/day) of the modelled maximum discharge rate. Modelling results indicated that species protection thresholds for waterborne contaminants is achieved at approximately 6 km from the FPSO. As a result, predicted impacts will be localised and considered minor.

Marine turtles may occur within the produced water mixing zone. It is possible individual turtles may traverse the mixing zone; however significant impacts are not expected to occur, and large numbers of animals are not expected to be exposed. That is because the discharge water depth and discharge location are not within the proximity of internesting turtle habitat, and there is minimal reef habitat in the mixing zone. Given marine turtles are transient through the produced water mixing zone, they will not be exposed to the produced water for enough time for contaminants to accumulate within their body. Behavioural impacts (such as avoidance) may occur to a small proportion (individuals) of a local population close to the produced water discharge.

Like turtles, produced water exposure to plankton, fish, invertebrates and sharks is expected to be brief due to the transient nature of these animals.

Potential impacts to fishery resources are unlikely to result in changes in distribution and abundance of fish species outside the produced water mixing zone.

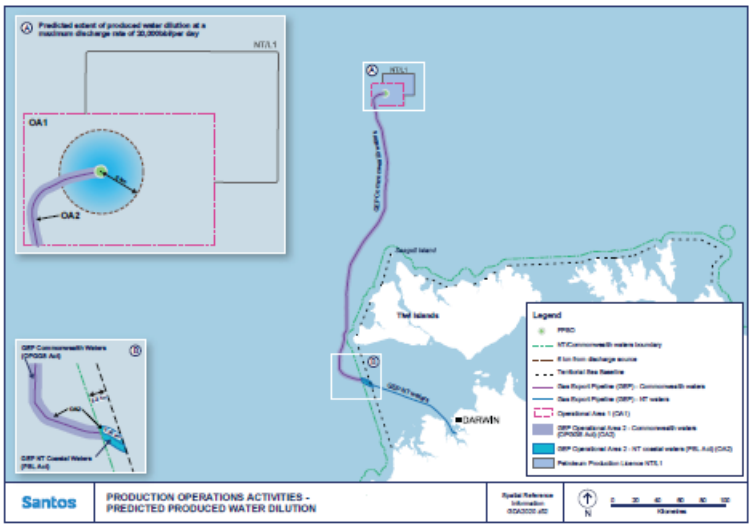


Figure 12: Predicted extent of the produced water dilution at a maximum discharge rate of 20,000 bbl/day.

How will Santos manage impacts?

Activity discharges are to be managed through the application of Santos' Chemical Selection Process, designed so that environmentally acceptable process chemicals (which are likely to be mixed with produced water discharge) are used. Additives have been selected and optimised for biodegradability as well as low aquatic toxicity and bioaccumulation potential.

The produced water discharge will be continuously monitored for oil-in-water content and any reading over the limit of 30 mg/l over any 24-hour period, will be diverted to a dedicated storage tank and returned to the produced water treatment system until suitable for discharge. Strict protocols will be in place for taking regular water samples and perform laboratory testing to ensure the produced water is within acceptable levels before disposing into the marine environment. The Production Operations Environment Plan will include a produced water adaptive management plan that prescribes a water quality monitoring regime which enables the detection of potential impacts of produced water discharge on the marine environment and if remedial actions are necessary to retain the discharge within acceptable limits.

OPERATIONAL DISCHARGES

Operational discharges associated with the activities may cause localised impacts to water quality in the direction of the prevailing current. The environment that may be affected by operational discharges will likely be contained within the OAs. Water quality conditions will return to normal within minutes to hours once discharging stops.

FPSO facility and subsea system discharges

Operational discharges from the FPSO in OA1 will occur each day resulting in localised changes to water quality. Discharges of warm cooling water will include low concentrations of chlorine which break down quickly in the environment and is non-toxic at low concentrations. Minor discharges of water based hydraulic fluid used in the subsea system are classified by the offshore chemical notification scheme as being environmentally acceptable.

Vessel discharges

The types of anticipated discharges in OA1 and OA2 are typical of most offshore commercial vessels and include deck runoff, treated sewage, grey water, machinery cooling water, bilge water (treated via the oily water system), ballast water, macerated food scraps and brine (from water making). These discharges will be small in volume and released into surface waters.

What impacts are expected?

Sensitive receptors that may be impacted include plankton, fish, seabirds, marine turtles and mammals. Impacts to water quality will be localised and temporary occurring only during discharge.

Some fish and oceanic seabirds may be attracted to the FPSO by the discharge of food scraps. However, given the small quantities, intermittent nature of disposal and swift currents, any attraction is likely to be minor and is not anticipated to result in adverse impacts at an ecosystem or population level. Given the controls in place to manage the FPSO discharges in OA1 in accordance with regulatory requirements, impacts to commercial fish species are not predicted.

Operational discharges in OA1 are predicted to quickly dilute and disperse in the offshore environment. Water quality changes will be localised and will occur only when the discharges occur. Given the temporary nature of activities within OA2 (limited to vessel based IMMR) and the relatively deep offshore environment with significant current and tidal action, impacts to water quality will be localised and will occur only for the duration of the discharge.

How will Santos manage impacts?

Vessel discharges are to be managed to acceptable levels as regulated by maritime laws and conventions (e.g. management of sewage treatment systems and oily water systems), such as MARPOL and relevant Marine Orders. Santos also intends to implement management measures including waste management procedures and chemical management and selection procedures.

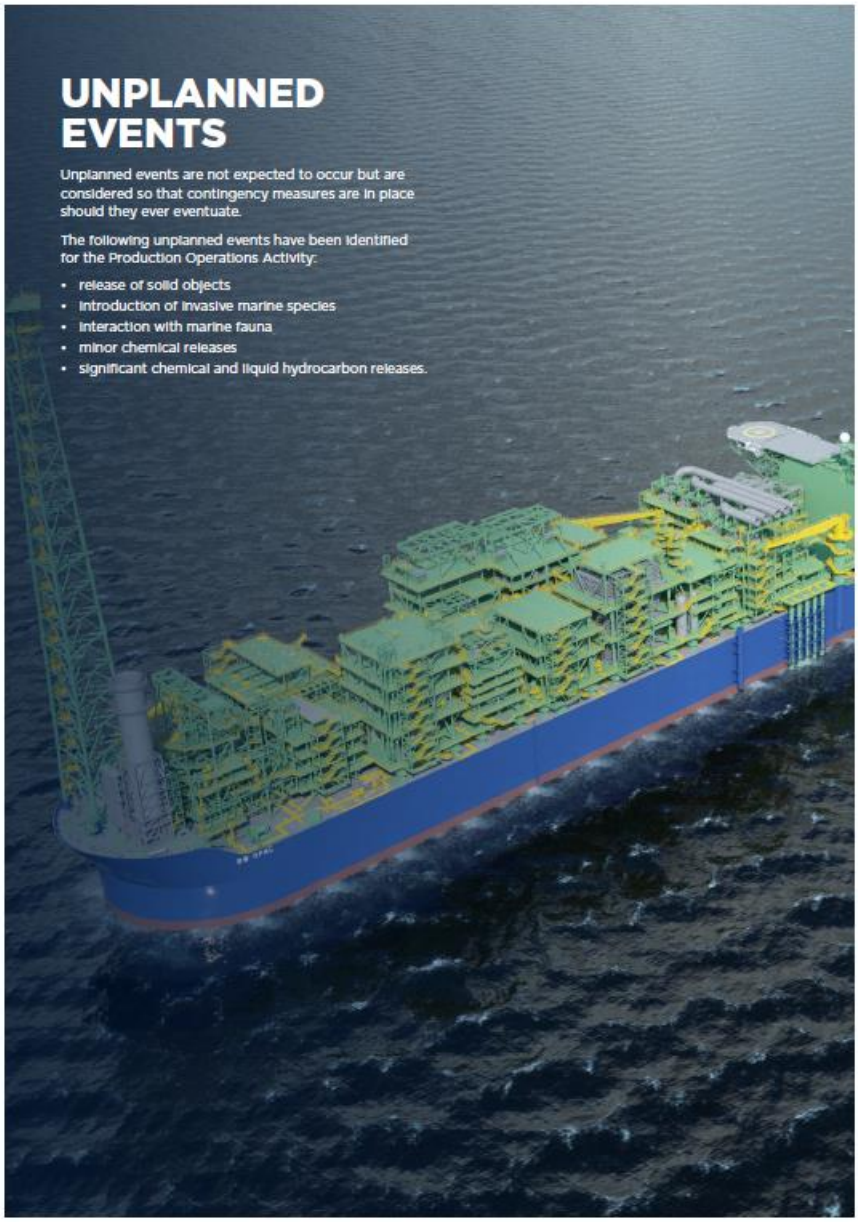
Santos procedures require that all operational chemicals used on the FPSO and chemicals potentially discharged to sea are risk assessed. Santos also implements general chemical management procedures to reduce the risk of accidental discharges.

UNPLANNED EVENTS

Unplanned events are not expected to occur but are considered so that contingency measures are in place should they ever eventuate.

The following unplanned events have been identified for the Production Operations Activity:

- release of solid objects
- introduction of invasive marine species
- interaction with marine fauna
- minor chemical releases
- significant chemical and liquid hydrocarbon releases.



DROPPED OBJECTS

How could dropped objects occur?

There is the potential for objects to be accidentally released to the marine environment from support vessels during steady state operations in OA1 or during IMMR activities in OA2. Dropped objects may be non-hazardous solid waste (e.g. paper, packaging materials), hazardous waste (e.g. batteries, aerosol cans etc.). A dropped object event could result from overfilling waste containers, unsecured objects during lifting operations or failed sea fastening.

What environmental impacts could occur?

Objects that float could potentially move beyond the OAs. All non-buoyant objects are expected to sink to the seabed and remain within the OAs. This could cause localised and short-term damage to the seabed.

Marine debris (including plastics and microplastics) is listed as a potential threat to several marine fauna species. Depending on debris size of the dropped object, there is potential for entanglement or ingestion by marine fauna, including turtles and vertebrate wildlife, which could result in injury or death. However, given the limited quantities that might be dropped, impacts to fauna would be limited.

Considering the low frequency of such an unplanned event, even in a worst-case release of a solid object, impacts to fauna would be very localised and limited to individuals, and are not expected to result in impacts to the local population.

How will Santos manage the risk?

Santos has numerous control measures to prevent dropped objects, and to mitigate consequence of impacts of an event does occur. These measures include:

- safety standards and procedures to reduce the likelihood of tools and other equipment being dropped during lifting operations
- waste management procedures to reduce the likelihood of windblown waste entering the marine environment
- implementation of chemical selection processes and the International Maritime Dangerous Goods Code to limit the environmental impact of chemicals if lost overboard
- dropped objects, regardless of size, must be reported and attempts made to recover the object according to safety and environment criteria.

These control measures are designed to comply with maritime legislation. In addition, these control measures are consistent with applicable actions described in the relevant fauna recovery plans and conservation advice, reducing the residual risk to low.

INVASIVE MARINE SPECIES

What are IMS?

Invasive marine species (IMS) are marine flora and fauna that have been introduced into a region that is beyond their natural range but have the ability to survive, and possibly thrive. The majority of climatically compatible IMS to northern Australia are found in south-east Asian countries.

How might IMS be introduced?

Some IMS pose a significant risk to environmental values, biodiversity, ecosystem health, human health, fisheries, aquaculture, shipping, ports and tourism. The risk of introducing IMS is common for all maritime activities. The introduction of IMS may occur due to the following:

- biofouling on FPSO and vessels, external/internal niches (such as sea chests and sea water systems) and routinely submerged equipment
- discharge of FPSO ballast water when the FPSO first transits from the international shipyard to the Barossa field
- discharge of high-risk ballast water where vessels have transited from international destinations.

What environmental impacts could occur?

If successfully established, IMS can:

- outcompete native species for food or space
- prey on native species
- impact fisheries or aquaculture
- impact on human health through released toxins
- reduce coastal aesthetics
- cause damage to marine and industrial equipment and infrastructure.

The above impacts can result in flow-on detrimental effects to marine parks, tourism and recreation.

The ability of invasive marine species to colonise a habitat depends on several environmental conditions. For example, highly disturbed environments (such as marinas) or shallower areas are more susceptible to colonisation than open-water environments (OA2 is 33 metres deep at its shallowest point and not considered sufficiently shallow to be conducive for IMS colonisation). OA1 provides an unfavourable habitat for IMS due to water depth (over 200 metres) and the long distance to the coast. These conditions limit light availability and have low habitat biodiversity with sparse epibiota, therefore, it is highly unlikely that IMS would be able to survive or colonise in OA1.

How will Santos manage the risk?

The pathways and vessel mitigation measures for IMS introduction are well established. The offtake tankers used for condensate export and specialised IMMR vessel(s) (if required) are sourced internationally, whilst the regular support vessels to and from the FPSO are sourced domestically. Vessels contracted to Santos, and vessel ballast, are to be managed according to control measures that comply with maritime regulations, industry practices, and the Biosecurity Act 2015. The FPSO and support vessels will also have ballast water management, vessel biofouling management and anti-fouling systems in place. With these control measures adopted, the residual risk of introducing IMS is assessed as low and reduced to as low as reasonably practicable.

The initial mobilisation of the FPSO out of Singapore to the Barossa gas field will be managed under a quarantine management plan including arrangements for invasive species, biofouling and ballast water exchange.

INTERACTION WITH MARINE FAUNA

How could interactions with marine fauna occur?

During the Production Operations Activity, approximately two vessels per week will travel between the Barossa field and Darwin servicing the FPSO, which is a minor increase relative to the existing levels of regional marine vessel traffic.

The highest potential for interactions with marine fauna, including potential accidental strike or collision resulting in injury or mortality, will be during IMMR vessel operations in OA2 where there is higher likelihood of marine fauna presence. In OA1, where marine fauna presence is of a lower likelihood, the FPSO will remain stationary once on location in position and support vessel movements within the operational area are limited and slow-moving, hence marine fauna interactions are not anticipated and are expected to be minimal.

Marine fauna such as marine mammals (such as whales and dolphins), marine turtles and whale sharks that swim at or near the water surface are most at risk from vessel collisions. Some of these species are threatened, and some marine fauna may have cultural significance.

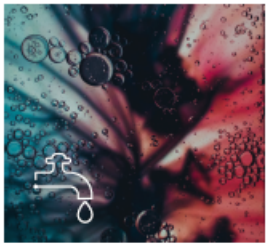
Marine mammals (such as whales and dolphins) and whale sharks may transit through the OAs but are expected to be in low numbers in OA1 **(Figure 10)**. Considering the relatively slow vessel speeds, short duration of activities, and the mobility of these species, it is unlikely that activity vessels will adversely interact with any individuals.

How will Santos manage the risk?

The likelihood of marine fauna interaction resulting in injury or death is considered unlikely given the proposed implementation of the following control measures:

- Santos' Protected Marine Fauna Interaction and Sighting Procedure, which aligns with the *Environment Protection and Biodiversity Conservation Regulations 2000*. This procedure limits marine fauna approach distances and speed, allowing marine fauna to be avoided or to move away.
- Operational area vessel speed restrictions

The control measures are designed to align with management actions outlined in government-published fauna recovery plans and conservation advice. The risk of interactions with marine fauna is assessed as very low and reduced to as low as reasonably practicable and acceptable levels. The risk is no higher than for any other regional maritime activity.



NON-HYDROCARBON LIQUID RELEASE

How could non-hydrocarbon liquids be released?

Non-hydrocarbon liquids including miscellaneous chemicals for use during the Production Operations Activity and waste by-products are transferred to and from supply vessels to the FPSO in OA1. Examples of non-hydrocarbon liquids include chemicals used in the production process, domestic products used in the living quarters for cleaning and general maintenance products such as greases and paints.

An accidental release of non-hydrocarbon liquids into the marine environment has the potential to occur from:

- transferring, storing or using bulk products (e.g. production chemicals)
- mechanical failure of equipment, such as a tank or pipework failure
- handling and storage spills and leaks due to insufficient fastening or inadequate bunding
- floating hose failure or rupture, coupling failure or tank overfilling
- lifting and incorrect handling (e.g. dropped objects damaging storage containers)
- firefighting foam during an emergency response incident.

What environmental impacts could occur?

A release of non-hydrocarbon liquids may result in impacts to water quality and any sensitive environmental receptors.

The maximum volume of non-hydrocarbon liquids that could be released during routine operations is likely to be small and limited to the volume of individual storage containers. Individual containers stored on the FPSO include process chemicals and lube oil storage tanks (approximately 4.5 m^3).

If the spill is not contained on deck, a release to the marine environment would likely disperse rapidly, with one in 1,000 dilution usually occurring within 30 minutes.

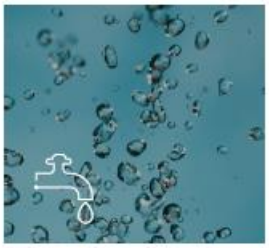
The environment that may be affected for non-hydrocarbon liquids releases resulting in a decrease in water quality is likely to be restricted to the immediate vicinity of the FPSO or support vessel and contained within the OAs.

Potential receptors include the physical environment (e.g. water and sediment quality, benthic habitats), threatened, migratory or local fauna (e.g. marine mammals, marine reptiles, sharks and rays, other fish, and birds) and socioeconomic features of the environment (including cultural features).

How will Santos manage the risk?

Santos has a suite of procedures to manage the selection, storage, handling and clean-up of non-hydrocarbon liquids releases. Vessels also have spill response plans. All chemicals are reviewed and accepted for use, and any chemical that might be discharged to the environment is assessed under the Santos chemical selection procedure to ensure environmental acceptability. These procedures will assist to minimise the likelihood of non-hydrocarbon liquid spills, and subsequent environmental consequences should they occur.

The control measures proposed to be adopted are designed to be consistent with maritime and petroleum industry standards and appropriate to manage the residual risks to as low as reasonably practicable and acceptable levels.



MINOR LIQUID HYRDOCARBON RELEASES

How could a minor liquid hydrocarbon release occur?

Minor releases refer to relatively small volumes of hydrocarbons from storage containers, transfer equipment and pipework on the FPSO or support vessels, that enters the marine environment. Typically, such spills occur as a result of human error during tank filling or storage container transfers. Most of these types of release occur within bunded deck areas, and are less than 1m3, however it remains possible for such spills to enter the marine environment.

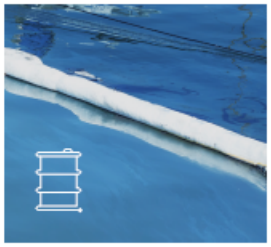
What environmental impacts could occur?

A localised decrease in water quality may occur, however due to the relatively small volumes impacts are expected to be short term as the hydrocarbon would rapidly dilute and dissolve into the ocean. Marine fauna may transit through the OAs and come into contact with the release. However it is expected impacts to fauna would be short term and result in behavioural changes, as they move away from the area where the spill occurred.

How will Santos manage the risk?

A suite of procedures will be in place to manage the handling and transfer of hydrocarbons on both support vessels and the FPSO. Response procedures such as stopping the source of the of the release and cleaning it up on deck to prevent it entering the ocean will be in place to manage minor releases should they occur.

The control measures proposed to be adopted are designed to be consistent with maritime and petroleum industry standards and appropriate to manage the residual risks to as low as reasonably practicable and acceptable levels.



LARGER HYDROCARBON RELEASES

Larger volumes of hydrocarbons may accidentally be released during production operations. These include accidental spills from support vessels or the FPSO, as well as from subsea equipment (e.g. wells and flowlines). A range of different types of hydrocarbons that may be accidentally released are discussed below.

MARINE DIESEL OIL OR MARINE GAS OIL

How could a marine diesel or gas release occur?

Marine vessel fuels (marine diesel oil or marine gas oil) could be released to the environment if there is a collision event between two vessels. An accidental collision could occur due to factors such as human error, poor navigation, vessel equipment failure or poor weather. If a marine vessel collided with the FPSO, the vessel or FPSO hull may rupture and release fuel to the marine environment.

If a vessel fuel tank is ruptured a fuel called marine diesel could be released. The FPSO uses a lighter fuel for some of its power requirements called marine gas oil which could be released if a fuel tank is ruptured.

Although the risk is higher in OA1 than OA2, it should be noted that it is considered unlikely that a vessel collision would occur that would result in releasing fuel to the environment. A sequence of events would need to occur for a vessel collision to escalate to a large volume of fuel released to the environment, including:

1. the vessel must be involved in a collision
2. collision must occur with enough force to rupture a fuel tank
3. rupture must be of such a nature that the fuel can be released into the environment.

What environmental impacts could occur?

Marine diesel oil and marine gas oil fuels are typically characterised by a high percentage of volatile components (typically >95%), which will evaporate when on the sea surface over several days. A small fraction (typically <5%) of persistent hydrocarbons remains, which will not evaporate, and will decay over time. The heavier components of the fuels tend to become entrained in the upper water column as droplets in the presence of waves but can refloat to the surface if wave energies abate. Both marine diesel oil and marine gas oil fuels are expected to weather quickly through evaporation and dispersion and are unlikely to persist in the environment for a significant period.

Such releases will cause a decline in water quality and may cause chemical (e.g. toxicity) and physical impacts to marine species (e.g. ingestion of hydrocarbons). The severity of the impact depends on the magnitude of the release (i.e. extent, duration) and sensitivity of the receptor, however, may include impacts to the physical environment, threatened or migratory marine fauna, protected and significant areas and socioeconomic receptors (fisheries, tourism, recreation, cultural features and other oil and gas operators).

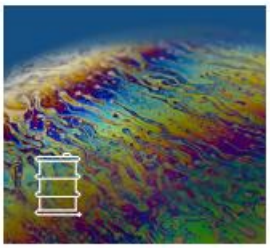
How will Santos manage the risk?

The FPSO in OA1 is fitted with a collision avoidance radar so it appears on the display of the triggering radars, providing range, bearing and identification information, alerting vessels to its presence. Santos has also designed the FPSO hull to be double-sided and double-bottomed, which provides two physical barriers between the fuel tanks and the marine environment for side impact, reducing the likelihood of fuel release in the event of a collision.

A petroleum safety zone (PSZ) will be established alerting other marine users to the presence of the FPSO in OA1 which includes precautions for marine activities (e.g. reduced speed limits, communication protocols and automatic identification systems to aid in their detection at sea). Third party vessels are not permitted to enter a PSZ, thereby reducing the likelihood of other interactions with the FPSO and support vessels. In OA2 during IMMR activities a similar exclusion zone will also be established restricting access to other marine users.

The Production Operations Activity facilities in OA1 & OA2 will be included on navigational charts making other vessels aware of the presence of Barossa facilities. Santos will also provide maritime notifications to relevant departments to ensure marine users are informed of vessel movements.

Santos has also developed response plans which will detail the actions to take to control the release and manage the cleanup activities in the event of a release.



CONDENSATE

How could a condensate release occur?

Barossa condensate has the potential to be released to the marine environment under several scenarios. Of those scenarios, three worst-case events are summarised below.

1. In the event of a vessel collision (e.g. those described above for marine diesel oil or marine gas oil) which ruptures the FPSO condensate storage tank.
2. In the event of an impact to, or failure of the subsea hydrocarbon containing equipment.
3. In the event of an impact to, or failure of multiple production well barriers.

Other scenarios exist that may result in other smaller condensate releases to the marine environment. All scenarios are very low probability of occurring.

What environmental impacts could occur?

Condensate, being a lighter hydrocarbon behaves in a similar fashion to marine diesel when released to the marine environment. The fate of the condensate will depend greatly on the proportion on the surface, which will be transported by prevailing currents and wind and can evaporate readily. Condensate that entrains or dissolves in the water column will be transported by prevailing current and, hence, will follow a different path.

As with the marine diesel oil, the heavier components contained in the condensate will have a strong tendency to physically entrain into the upper water column but can re-float to the surface if these energies abate.

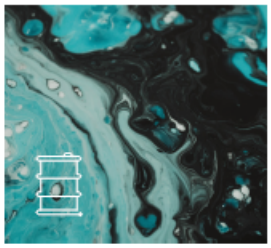
Such releases will impact the marine environment much in the same way as marine diesel oil and marine gas oils, described above. However, in the event of a subsea condensate release, more entrainment of hydrocarbons in the water column could occur, rather than being present on the sea-surface.

How will Santos manage the risk?

In the unlikely event a vessel collision occurs which ruptures an FPSO condensate tank, Santos will manage the risk in accordance with the accepted Production Operations Oil Pollution Emergency Plan.

In the unlikely event of a subsea release in the OA1 area from subsea flowlines or wells, Santos has a range of operating procedures and plans to ensure that the integrity of the subsea infrastructure is maintained and well barriers are in place. Santos will submit a well operations management plan (WOMP) to NOPSEMA that will contain the full details of systems in place to ensure well design and integrity is managed for the well lifecycle. All production wells must be in compliance with the NOPSEMA accepted WOMP at all times. Hydrocarbon containing subsea infrastructure is also within a petroleum safety zone (PSZ), which third party vessels are not permitted to enter, subsequently reducing any interaction with this infrastructure.

Santos is developing response plans which will detail the actions to take to control a release and manage cleanup activities in the unlikely event of a release.



HEAVY FUEL OIL

How could a heavy fuel oil release occur?

Heavy fuel oil is only used as fuel for offtake tankers who enter the Barossa field periodically (approximately once every three months) to load condensate from the FPSO. The only scenario that could lead to a release of heavy fuel oil is in the unlikely event of a vessel collision (described above for marine diesel oil or marine gas oil), where the offtake tanker hull and heavy fuel oil tank is ruptured.

What environmental impacts could occur?

Heavy fuel oil is heavier and more persistent than marine diesel oils, marine gas oils and condensates. The fuel is often characterised by a very high density and a high dynamic viscosity, which does not evaporate as quickly as other lighter fuels. As the fuel has a high residual component, a portion is expected to become semi-solid and can persist in the marine environment for extended periods.

Such releases will cause a decline in water quality and may cause chemical (e.g. toxicity) and physical impacts to marine species (e.g. ingestion of hydrocarbons, physical coating). The severity of the impact depends on the magnitude of the release (i.e. extent, duration) and sensitivity of the receptor, however, may include those to the physical environment, threatened or migratory marine fauna, protected and significant areas and socioeconomic receptors (fisheries, tourism, recreation, cultural features and other oil and gas operators). Given the persistent and sticky nature of heavy fuel oil, there is a higher risk of coating of the physical environment (e.g. shorelines) and marine fauna compared to the lighter fuels such as marine diesel oil and marine gas oil.

How will Santos manage the risk?

Offtake tankers are third-party operated vessels. They are vetted following Santos' marine assurance procedure and international guidelines before acceptance for condensate offtake operations at the Barossa field. The use of tankers with double hulls and fully segregated ballast tanks is not only a requirement of the vetting process; it is a MARPOL requirement that is monitored by way of regular statutory inspections.

All offtake loading events are planned in advance, occur within a petroleum safety zone (PSZ), and are performed under strict operational procedures.

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All offtake loading events are planned in advance, occur within a petroleum safety zone (PSZ), and are performed under strict operational procedures.

CONTINGENCY SPILL RESPONSE OPERATIONS

In the event of a hydrocarbon spill, response strategies will be implemented to reduce environmental impacts to as low as reasonably practicable. The selection of strategies will be undertaken using the Net Environmental Benefits Assessment (NEBA) process. Spill response will be under the direction of the relevant control agency, as defined in the Production Operations Oil Pollution Emergency Plan (OPEP), which may be Santos, another agency or both. In all instances, Santos will undertake a 'first-strike' spill response and will act as the control agency until the designated control agency assumes control. The response strategies considered to be appropriate for the worst-case spill scenarios identified for the activity are detailed in the OPEP and comprise:

- source control (blowout preventer, relief well)
- monitor and evaluate
- mechanical dispersion
- shoreline protection and clean up
- oiled wildlife response
- scientific monitoring
- waste management.

Response strategies are intended to reduce the environmental consequences of a hydrocarbon spill, but poorly planned and coordinated response activities can result in a lack of, or inadequate, information being available, upon which poor decisions can be made, exacerbating or causing further environmental harm.

What impacts are expected?

Spill response operations may be required at any location within the EMBA. Potential environmental impacts include:

- Noise and light emissions – generated by response vessels and equipment which may impact marine fauna, such as fish (including commercial species), marine reptiles and marine mammals.
- Atmospheric emissions – generated from response equipment and vessels are expected to be localised and are not considered to create emissions on a scale where noticeable impacts would be predicted.
- Operational discharges and waste - generated from response equipment and vessels are expected to be consistent with those of normal commercial vessel operations and may create a localised and temporary reduction in marine water quality. Cleaning of hydrocarbon-contaminated equipment, vehicles and vessels has the potential to spread hydrocarbons from contaminated areas to areas not impacted by a spill. Sewage and other waste will be generated from offshore activities at temporary staging/mooring areas, which may include toilet and washing facilities. These wastes have the potential to impact water quality, impact habitats, and reduce the aesthetic value of the environment, which may be within protected areas.
- Physical presence and disturbance - operating vessels during spill response operations has the potential to disturb the physical environment and marine habitats and fauna (e.g. vessel strike, behavioural changes) or cause disruption to other marine users, coastal areas, townships and commercial fishing.

How will Santos manage the risk?

Santos will rely primarily on the implementation of the Production Operations OPEP to manage the potential impacts associated with a spill response event. Other control measures that would be implemented include:

- procedure for interacting with marine fauna
- chemical selection process
- minimum lighting to meet maritime safety and navigation requirements
- air pollution prevention certification
- sewage and oily water treatment systems on vessels
- notify agreed stakeholders.

The implementation of spill response activities to reduce the potential impacts from a spill are required by legislation. The spill response options selected will be demonstrated to show a net environmental benefit, are standard industry practice and are consistent with relevant standards and guidelines, including the National Plan for Maritime Environmental Emergencies. The controls proposed are intended to reduce the consequences of the potential impacts to minor and as low as reasonably practicable and an acceptable level.

SUMMARY OF SANTOS' RISK MANAGEMENT STRATEGY

Santos has a management system that includes specific measures, to be used for the duration of the Production Operations Activity, which seek to confirm that:

- environmental impacts and risks continue to be identified for the duration of the activity and are reduced to as low as reasonably practicable and acceptable levels
- control measures are effective in reducing environmental impacts and risks to as low as reasonably practicable and acceptable levels
- environmental performance outcomes and standards set out in the EP and OEMP are being met
- there will be ongoing appropriate consultation with relevant authorities and other relevant interested persons or organisations
- the roles, accountabilities and responsibilities are defined and understood
- workforce training is completed and competencies assured
- emergency preparedness and response arrangements are in place
- incident reporting, investigation and follow-up is monitored
- audits, inspections, reporting and notifications and document management are appropriately undertaken.

APPROVALS PROCESS

Production Operations Activities detailed in this booklet require a number of regulatory approvals. Primary environmental approvals required for Production Operations Activities are outlined below:

- An Offshore Project Proposal (the Barossa Offshore Project Proposal (OPP)) was developed for the Commonwealth waters component the Barossa Project and was accepted by NOPSEMA in March 2018. The Barossa OPP, at the time of submission, excluded approximately 23 km of GEP in Commonwealth waters which is subject to a separate EPBC Act approval process (refer below).
- A referral under the EPBC Act, covering the installation, operation and decommissioning of the remaining approximately 23 km of GEP in Commonwealth waters and the 100 km section of GEP in NT waters (inclusive of the 8.26 km in NT coastal waters) was submitted to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for assessment. The activity (referred to as the Darwin Pipeline Duplication Project) was determined to be a 'controlled action' under the EPBC Act and is currently being assessed on preliminary documentation.
- A referral under the *NT Environment Protection Act 2019* (EP Act) for the construction, operation and decommissioning of the 100 km section of GEP in NT waters (part of the Darwin Pipeline Duplication Project) was submitted to the NT Environment Protection Authority (EPA) and was subsequently assessed by way of Supplementary Environmental Report. On 22 December 2023, the NT Minister for Environment, Climate Change and Water Security approved the action the subject of the referral, on the recommendation of the NT EPA.

In addition to the primary environmental approvals outlined above, activity-specific Environmental Plans (EPs) meeting the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) (OPGGS Environment Regulations) are required. For Production Operations activities, the OPGGS Environment Regulations apply to the activities within OA1 in Commonwealth waters and OA2, spanning both Commonwealth waters (285 km) and coastal waters of the NT (8.26 km).

The OPGGS Environment Regulations set out that an EP must (among other things):

- comprehensively describe the activity to be carried out under the EP
- describe the environment that may be affected by the activity, including the values and sensitivities of that environment
- detail and evaluate the environmental impacts and risks for the relevant activity
- demonstrate that the impacts and risks of the activity will be reduced to as low as reasonably practicable and an acceptable level (and detail the control measures to be used to achieve this)
- demonstrate that Santos has consulted, in accordance with regulatory requirements, with each relevant person, including those whose functions, interests or activities may be affected by the activities to be carried out under the EP
- demonstrate that the measures (if any) that Santos has adopted, or proposes to adopt, because of the consultations are appropriate

Santos is currently preparing the Production Operations EP for submission to NOPSEMA, covering Commonwealth waters Production Operations activities in OA1 and OA2.

Santos is also preparing an Operations Environmental Management Plan (OEMP) to cover the operation of the GEP in NT waters for submission to DITT. The OEMP will also cover the operation of the 8.26km GEP in NT coastal waters, under the PSL Act and OPGGS Environment Regulations and operation of the remaining ~92km GEP covered under the Energy Pipelines Act.

In order to meet its proposed schedule for the Barossa Gas Project, Santos is aiming to submit the Productions Operation EP to NOPSEMA and the OEMP to DITT in 2024 and, subject to regulatory acceptance, commence activities in 2025. The timeline for consultation has been developed by Santos to meet this objective, while still providing a reasonable period for meaningful consultation with relevant persons, having regard to Santos's regulatory obligations and to feedback from relevant persons.

SEEKING INFORMATION AND WHAT'S NEXT

Santos is continuing its Barossa Gas Project consultation efforts to further learn, understand and assess values and sensitivities of the environment that may be affected by our proposed activities, and potential environmental impacts and risks. There may be information Santos is not yet aware of but needs to properly understand to assess potential activity impacts and risks. Consultation may inform this. It may also inform what control measures are to be proposed to reduce environmental impacts and risks to as low as reasonably practicable and to an acceptable level.

Santos is consulting on both the Production Operations EP (Commonwealth waters) and OEMP (NT waters) at the same time.

Scan this QR Code for more information on Barossa Production Operations Activity:

YOUR INPUT IS IMPORTANT TO SANTOS:

In preparing an EP for submission to NOPSEMA, a titleholder must consult with each 'relevant person', including relevant Commonwealth, State and Northern Territory Departments or agencies and persons (or organisations) whose functions, interests or activities may be affected by the activity proposed to be carried out under an EP.

Relevant persons being consulted on EPs under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth) (OPGGS Environment Regulations) should note that they:

- are entitled to be given sufficient information to allow them to make an informed assessment of the possible consequences of the activity on their functions, interests or activities;
- are entitled to be allowed a reasonable period for the consultation; and
- may request particular information provided in consultation not be published.

If you request particular information not to be published, Santos will respect and abide by your request. Any information not to be published will be provided to NOPSEMA in a confidential report, separate from the published EP.

Your input is important to Santos:

- so that we can understand the environmental values in the OAs and the environment that may be affected, the environmental impacts and risks associated with the activity, to inform development of the Productions Operations EP (Commonwealth waters) and OEMP (NT waters);
- to inform how consultation processes may need to be adapted for different relevant persons; and
- to ensure that we provide information to relevant persons in an appropriate and accessible manner.

If you think you may be a relevant person for the purposes of one of Santos' proposed activities, please contact Santos on: **1800 267 600** or email **offshore.consultation@santos.com** to seek to be included in consultations and to provide feedback on how you would like to be consulted (if a relevant person).

This can also be done using the form available by scanning the QR Code below:

Visit **www.santos.com/barossa** for more information on the Barossa Gas Project.

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NORTHERN TERRITORY WATERS

GAS EXPORT PIPELINE OPERATIONS

OVERVIEW FACTSHEET

INTRODUCTION

Santos' NT Waters Gas Export Pipeline (GEP) Operations Environmental Management Plan (OEMP) covers operation of the Barossa GEP in NT waters, including the:

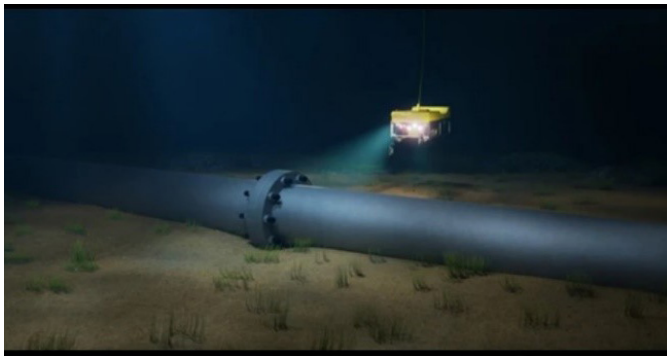
- **8.26km section of the GEP in NT coastal waters - covered by the Petroleum (Submerged Lands Act) 1981 (NT) (PSL Act); and**
- **~92km section of the GEP in NT waters - covered by the Energy Pipelines Act 1981 (NT) (Energy Pipelines Act)**

The purpose of the Barossa GEP is to transport dry natural gas (not oil or condensate) from the Barossa gas field to the existing Darwin Liquified Natural Gas (DLNG) facility.

In December 2023, the NT Government approved the construction of the GEP in NT waters under the NT Environment Protection Act 2019 (NT EP Act) following assessment by the NT Environment Protection Authority (EPA). To obtain authorisation for operation of the GEP in NT waters, Santos will now submit the OEMP to the NT Department of Industry, Tourism and Trade (DITT) for assessment and approval under the PSL Act and the Energy Pipelines Act.

The estimated duration of Barossa Production Operations is 25 years. This factsheet provides a summary of the activity, environmental values and sensitivities relevant to operation of the GEP in NT waters and the impacts, risks and control measures associated with the activity.

The operation of the GEP in Commonwealth waters will be covered by an Environment Plan (EP) requiring acceptance by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Information on the Commonwealth waters Barossa Production Operations EP can be found in a separate information booklet on the Santos website (Production-Operations-Information-Booklet.pdf (santos.com)



KEY ACTIVITY

Inspection, Monitoring, Maintenance & Repair (IMMR)

Inspection, maintenance, monitoring and repair (IMMR) activities are the key activities related to operation of the Barossa GEP.

IMMR activities are performed to assure the ongoing integrity of the GEP and safe and reliable operations. The activities will occur within an Operational Area approximately 500m either side of the pipeline. The Operational Area and location of the GEP in NT waters are shown in Figure 1.

These activities will be infrequent and of relatively short duration (approximately three weeks), occurring approximately every three years, consistent with industry standards. Inspections during the first year of operations will confirm post-construction integrity of the GEP and inform the frequency of subsequent planned inspections.

Additional inspections may be performed following extreme weather events, seismic activity, or unplanned third-party interactions. Maintenance and repair activities may be undertaken if required.

Inspection activities typically include general visual inspection and close visual inspection. This is conducted using remotely operated vehicles (ROVs) from one or more vessels that have dynamic positioning capabilities. Sidescan sonar or multibeam echo sounder may be used as a screening tool to inform further targeted inspections by ROV.

Maintenance activities may include correction of free spans by targeted placement of sand or grout bags. Repair activities may include repair of damaged sections of pipe.

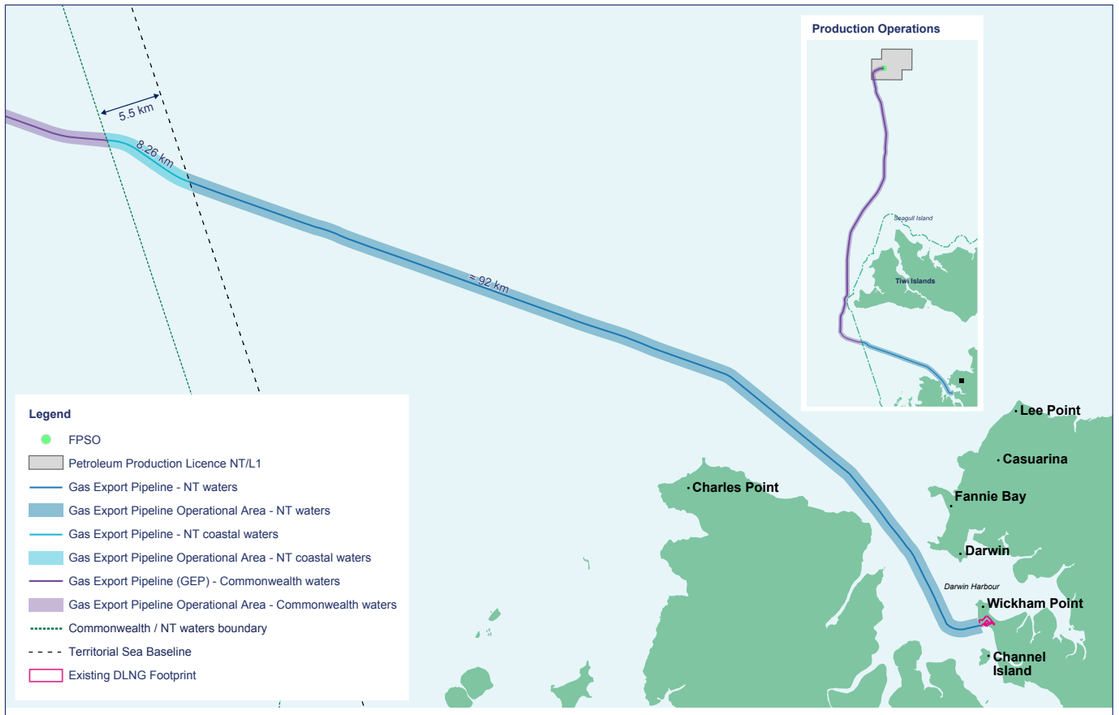


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Figure 1 - NT GEP OEMP Operational Area

EXISTING ENVIRONMENT

Darwin Harbour is a large, drowned river system approximately 500km2 in extent. It is comprised of three arms (East Arm, West Arm, and Middle Arm), which converge into a single unit before opening to the ocean and into Beagle Gulf in the north. Freshwater inflow from the Elizabeth River into the East Arm and the Blackmore and Darwin Rivers into the Middle Arm generally occurs between January and April creating more estuarine conditions.

The Darwin region supports several benthic habitats including mangroves, coral, seagrass and macroalgae. The bathymetry of the Operational Area in NT waters has been thoroughly investigated and is well understood. Recent surveys have shown that the seabed along the GEP route in NT waters is generally flat and featureless and typically less than 30m in depth.

Port Darwin's main channel is approximately 1,525m wide and 15 – 25m deep, with a maximum recorded depth of 36m (Lowest Astronomical Tide). The channel is generally deeper on the eastern side of the Harbour, while the western side is broader with shallower areas with intertidal flats and shoal being more extensive.

The benthic habitats along the pipeline route were found to be silty shelly sand habitat, with burrows and polychaete worm tubes. Biota commonly associated with this habitat type is sparse, including hydroids, soft corals (gorgonians, *Junceella* and *Alcyoniidae*), sea stars and sponges.

Dolphin species are the most recorded marine mammal in Darwin Harbour, with the Australian snubfin (*Orcaella heinsohni*), Indo-Pacific humpback (*Sousa chinensis*) and Indo-Pacific spotted bottlenose (*Tursiops aduncus*) known to occur. Dugongs are also present, as monitoring estimates that approximately 180 to 300 individuals inhabit the Darwin Region.

There are six protected species of marine turtle known to occur in NT waters; of these only green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*) and flatback (*Natator depressus*) turtles are known to occur in Darwin Harbour regularly. Olive ridley (*Lepidochelys olivacea*) and loggerhead (*Caretta caretta*) turtles are known to occasionally occur in Darwin Harbour, and leatherback turtles (*Dermochelys coriacea*) are found offshore as they are an oceanic species. The closest nesting sites are located at Cox Peninsula and Casuarina Beach, although these are not considered significant nesting areas.

Darwin Harbour supports an abundance of fish species across an array of habitats. There is a diverse range from small site-specific species such as gobies, cardinals, and pipefish to larger species of recreational and commercial importance such as mackerel, trevallies and barramundi. Barramundi account for 26% of all recreational fishing in the Northern Territory, making it the most targeted species.

Three protected sawfish species have been recorded within the Darwin Harbour region—the dwarf sawfish (*Pristis clavata*), freshwater sawfish (*Pristis pristis* or *Prisitis microdon*) and green sawfish (*Pristis zijsron*). However, they are unlikely to be encountered in the Operational Area.

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Threatened Fauna

Fauna that are listed as threatened or migratory species under the Environment Protection and *Biodiversity Conservation Act 1999* (Cth) and which have been identified as potentially relevant to the Activity are listed in the table below.

Marine Reptiles	Marine Mammals	Birds
Flatback turtle	Australian snubfin dolphin	Asian dowitcher
Olive ridley turtle	Dugong	Common sandpiper
Green turtle	Indo-Pacific humpback dolphin	Grey plover
Hawksbill turtle	Spotted bottlenose dolphin	Oriental plover
Leatherback turtle		Osprey
Loggerhead turtle		
Salt-water crocodile		

Socio-Economic

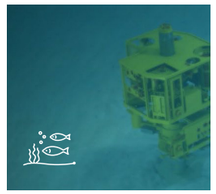
Socio-economic values that are potentially relevant to the Activity are summarised in the table below.

Activity/Value	Description
NT commercial fisheries	Offshore Net and Line Fishery, the Spanish Mackerel Fishery, the Coastal Line Fishery, and the Demersal Fishery and Aquarium Fishery
Recreational fishing	The Darwin Harbour/Surrounds fishing zone supports 63% of total Darwin fishing
Traditional fishing	Traditional Australian Indigenous fishing in NT waters occurs within inshore tidal waters
Shipping	Darwin Port – cruises, naval, livestock, dry bulk ore, oil and gas, general cargo/containers
Tourism	Fishing, boating, scuba-diving, sailing, water-skiing, and beach use
Defence	Darwin air weapons range, North Australian exercise area, Defence training area
Other industries	Telecommunications (e.g. Telstra cables)
Maritime heritage	Numerous shipwrecks and sunken aircraft are located in Darwin Harbour. Most wrecks are associated with either the bombing of Darwin in 1942 or Cyclone Tracy in 1974.
First Nations heritage	The Darwin region was traditionally occupied by the Larrakia people, they maintain an innate connection to the land and sea in the region. Cultural, spiritual and heritage sites of significance are located throughout the region where traditional fishing and hunting continue to be practiced.

IMPACTS & RISKS

The key environmental impacts and risks from planned activities and unplanned events associated with GEP Operations are detailed below. As the key activities associated with GEP Operations, IMMR vessel activities are expected to occur approximately once every three years for approximately three weeks.

PLANNED ACTIVITIES

Planned Activity	Impact	How will Santos manage impacts
LIGHT EMISSIONS 	Behavioural impact to marine life (e.g. attraction and behavioural changes)	Lighting is to be limited on the activity vessels to what is required for safe operations and navigation. Lighting will be compliant with maritime regulations (similar to other commercial vessels operating in the region).
NOISE EMISSIONS 	Behavioural impact to marine life (e.g. avoidance)	Activity vessels are required to comply with Santos' Protected Marine Fauna Interaction and Sighting Procedure to comply with regulatory requirements for managing fauna noise impacts. Marine assurance standards and planned vessel maintenance will minimise noise generated from vessels by ensuring contracted vessels are operated, maintained, and crewed in accordance with industry standards and regulatory requirements.
SEABED DISTURBANCE 	Behavioural impact to marine life (e.g. avoidance)	Activity vessels are required to comply with Santos' Protected Marine Fauna Interaction and Sighting Procedure to comply with regulatory requirements for managing fauna noise impacts. Marine assurance standards and planned vessel maintenance will minimise noise generated from vessels by ensuring contracted vessels are operated, maintained, and crewed in accordance with industry standards and regulatory requirements.
VESSEL DISCHARGES 	Sensitive receptors that may be impacted include plankton, fish, seabirds, marine turtles, and mammals. Impacts to water quality will be localised and temporary occurring only during discharge.	Vessel discharges are to be managed to acceptable levels, as regulated by applicable laws and conventions. Santos selects chemicals that are environmentally acceptable and limits their use to only what is needed. Vessels will have routine discharges such as small volumes of treated sewage, treated bilge water and macerated food scraps. Vessel discharges will be compliant with MARPOL requirements. ('MARPOL' is a reference to the International Convention for the Prevention of Pollution from Ships.)
AIR EMISSIONS 	Impact to air quality, contribution to national greenhouse gas levels, from IMMR vessel emissions	Santos proposes to adopt various control measures to manage vessel emissions, including vessel compliance with MARPOL requirements for low-sulphur fuel and air pollution prevention certifications.
INTERACTIONS WITH OTHER MARINE USERS 	Other marine users will be temporarily restricted from the area around vessels when performing IMMR activities. The GEP may also present a hazard to marine users due to the potential for snagging.	Santos will notify and communicate with other marine users using standard maritime notifications (e.g. Notice to Mariners) before, during and at the end of IMMR activities. Infrastructure locations will be marked on nautical charts. These proposed control measures are consistent with maritime regulations and industry practices.

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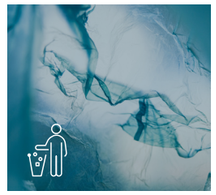
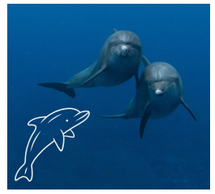
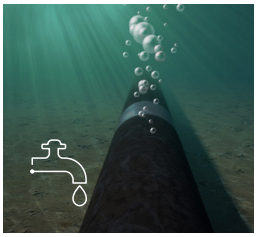
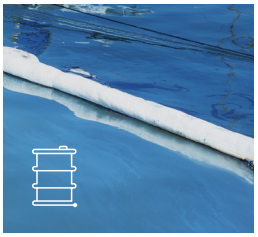
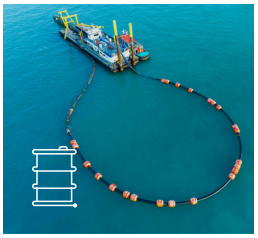
UNPLANNED EVENTS

Unplanned Event	Impact	How will Santos manage impacts
DROPPED OBJECTS 	Impacts to water quality, disturbance to seabed and marine life	Procedures are in place to reduce the likelihood of tools and other equipment being dropped during lifting operations. Waste management procedures reduce the likelihood of windblown waste entering the marine environment. Dropped objects, regardless of size, will be reported and attempts to recover the object will occur, according to safety and environment criteria.
MARINE FAUNA INTERACTION 	Disturbance to marine animals (e.g. fauna strike and behavioural changes such as avoidance)	Santos' Protected Marine Fauna Interaction and Sighting Procedure limits marine fauna approach distances and speed, allowing marine fauna to be avoided or to move away. Vessel speed restrictions will also be in place in the Operational Area to reduce the likelihood of an unplanned interaction. It is unlikely that IMMR vessels will adversely interact with any individuals due to the slow vessel speeds, short duration/low frequency of activities, existing maritime traffic, and fauna mobility.
INVASIVE MARINE SPECIES (IMS) 	If established, IMS can: • Outcompete native species for food or space • Prey on native species • Impact fisheries • Impact on human health through released toxins • Cause damage to maritime equipment and infrastructure.	Vessels contracted to Santos are managed according to control measures that comply with maritime regulations, industry practices, and biosecurity legislation. Vessels will also have ballast water management, vessel biofouling management and anti-fouling systems in place.
NON-HYDROCARBON LIQUID RELEASE 	An accidental release of non-hydrocarbon liquids such as chemicals, may result in impacts to water quality and any sensitive environmental receptors (such as fauna and habitat).	Santos has a suite of procedures to manage the selection, storage, handling, and clean-up of non-hydrocarbon liquids releases. Vessels also have spill response plans. All chemicals are reviewed and accepted for use, and any chemical that might be discharged to the environment is assessed under the Santos chemical selection procedure to ensure environmental acceptability.
MINOR LIQUID HYDROCARBON RELEASE 	A localised decrease in water quality may occur from minor hydrocarbon releases, such as, hydraulic fluids from vessel equipment. However due to the relatively small volumes, impacts are expected to be short term as the hydrocarbon would rapidly dilute and dissolve into the ocean.	A suite of procedures will be in place to manage the handling and storage of hydrocarbons on vessels. Response procedures such as stopping the source of the of the release and cleaning it up on deck to prevent it entering the ocean will be in place to manage minor releases should they occur.

Santos

Unplanned Event	Impact	How will Santos manage impacts
PIPELINE GAS RELEASE 	In the unlikely event of a gas release from the gas export pipeline (GEP), gas would move vertically toward the sea surface resulting in a visible bubble zone at the sea surface and an associated gas cloud before rapidly dispersing into the atmosphere. Any marine fauna or marine users in the vicinity of the gas release and future repairs of the pipeline may be impacted.	Santos has proposed preventative and mitigation measures to manage the impacts and risks of an unplanned gas release from the GEP, such as • Pipeline integrity management plan, monitoring procedures and emergency response procedures • Procedures and standards for lifting equipment, IMMR procedures and contractor management standards • Maritime notifications to ensure marine users are informed of a gas release event • The GEP will be marked on nautical charts • Emergency response procedures, pipeline depressurisation procedures (stop gas from flowing into the pipeline) and emergency pipeline repair plans will be implemented to minimise impacts in the event of a loss of containment from the Barossa GEP.
MARINE DIESEL SPILL 	Although highly unlikely, a spill from a collision between two vessels could rupture a fuel tank resulting in the release of vessel fuel to the sea. This would impact water quality and may cause chemical/physical impacts to marine species.	The risk of collision is reduced by managing interactions with marine users before and during the activity, with maritime notifications, automatic identification systems, navigational lighting, and exclusion zones in place. Operational procedures are designed to minimise refuelling incidents and spill response plans will be in place.
SPILL RESPONSE OPERATIONS 	If a spill occurs, response operations may be required at any location surrounding the Operational Area. Potential environmental impacts include those listed in the Planned Activities table.	Santos will rely on its Oil Pollution Emergency Plan (OPEP) to manage the impacts from a spill response event. Control measures would include: • Procedure for interacting with marine fauna • Chemical selection process • Minimum lighting • Air pollution prevention certification • Sewage and oily water treatment systems on vessels • Notification to agreed stakeholders

CONTACT US

For further information or queries on the Production Operations activity, please contact Santos.

Phone 1800 267 600 or email offshore.consultation@santos.com

For more information about PO activity please scan this QR Code:

Updated email – additional risk

This email, or the content it contains, was sent to relevant entities following the identification of an additional risk.

Since our email to you of 11 March 2024 regarding the consultation Santos is undertaking for the Barossa Gas Project in relation to the proposed Production Operations Environment Plan (EP) and the Gas Export Pipeline Operations Environment Management Plan (OEMP), we advise that the Production Operations information booklet and Gas Export Pipeline Operation factsheet have been updated and that we have extended the consultation period until **21 May 2024.**

In providing this extension of time, we draw your attention to the updated information in the Production Operations information booklet and Gas Export Pipeline Operation factsheet. The information booklet and factsheet have each been updated to account for an additional risk associated with the proposed activity, namely a gas release in the unlikely event of an unplanned pipeline loss of containment. Here is a link to the booklet and a link to the factsheet. This risk, and the measures we propose to manage it, are summarised on page 31 of the updated information booklet and page 6 of the updated factsheet.

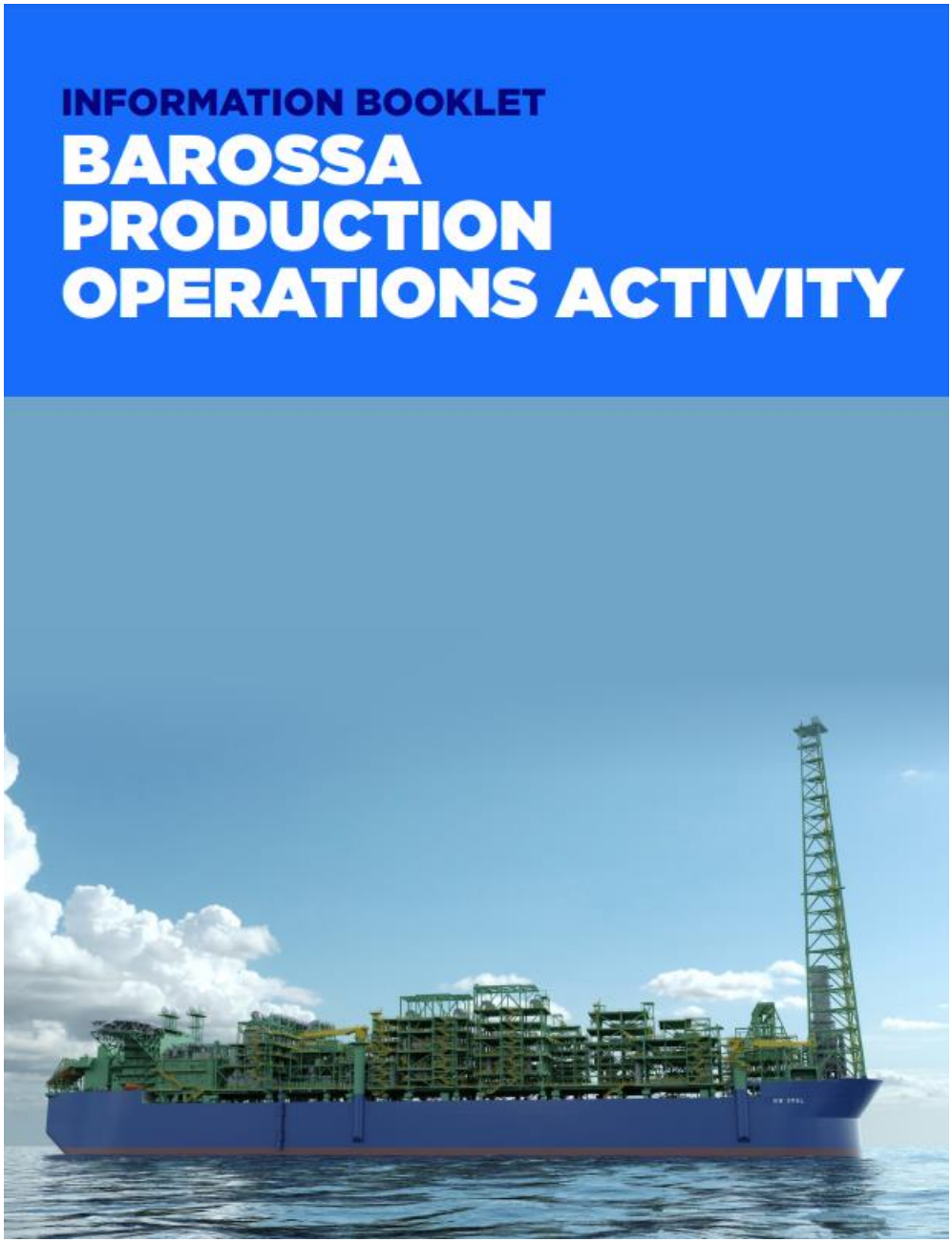
If you wish to provide any further input in light of this update, please call 1800 267 600 or email offshore.consultation@santos.com by the revised consultation closure date of **21 May 2024**. If we do not receive your input by this date, we infer that this means that you do not want Santos to consult with you further on the Productions Operations EP and OEMP.

If and when you provide your input, please let us know if you request particular information you provide during consultation not be published. If you make this request, the information will not be published as part of the plan, in accordance with relevant legislation. Sensitive information we need to give to the regulator to assess our plan will be provided in a separate report, rather than in the published plan. Santos will handle your information in accordance with our *Barossa Gas Project Consultation Privacy Policy.*

Regards,

Santos Offshore Consultation Team

Production operations information booklet – updated version for additional risk



INTRODUCTION

The activities described in this booklet relate to the extraction, processing, and distribution of gas and condensate from the Barossa Field.

The Barossa Development facilities used in these activities consist of a Floating Production Storage and Offloading (FPSO) facility, subsea production wells, supporting in-field subsea infrastructure **(Figure 1)**, a 285 km Gas Export Pipeline (GEP) in Commonwealth waters, and an 8.26 km section of the GEP in Northern Territory (NT) coastal waters; collectively termed in this booklet as "Production Operations Activity".

As part of obtaining authorisation for this activity, Santos is undertaking consultation for the following regulatory approvals:

- The Production Operations Environment Plan (EP) relating to the arrival and operations of the FPSO, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285km section of the GEP located in Commonwealth waters where offshore petroleum activities are regulated under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth)* (OPGGS Act).
- The Operations Environmental Management Plan (OEMP) which includes the:
  - 8.26 km section of the GEP in NT coastal waters covered by the *Petroleum (Submerged Lands Act) 1981 (NT)* (PSL Act); and
  - ~92km section of the GEP inshore of NT waters covered by the *Energy Pipelines Act 1981 (NT)* (Energy Pipelines Act).

The term 'GEP' refers to the Gas Export Pipeline through which Barossa gas will be transported from the Barossa field to Darwin LNG. However, the scope of the GEP covered in this booklet, is limited to the 8.26 km section of the GEP located in NT coastal waters.

The activities, environmental impacts, and risks for the GEP in NT waters (~92km) are broadly similar to those for the GEP in Commonwealth waters (described in this booklet). The activities, environmental impacts and risks specific to the GEP in NT waters, not covered in this booklet, will be provided in a separate factsheet.

The estimated life of the Barossa Development is 25 years, and the Production Operations EP and the OEMP will be reviewed every five years following initial regulator authorisation. This booklet provides a summary of the credible environmental impacts and risks associated with the first five years (also known as Barossa Phase 1) of the Production Operations Activity.

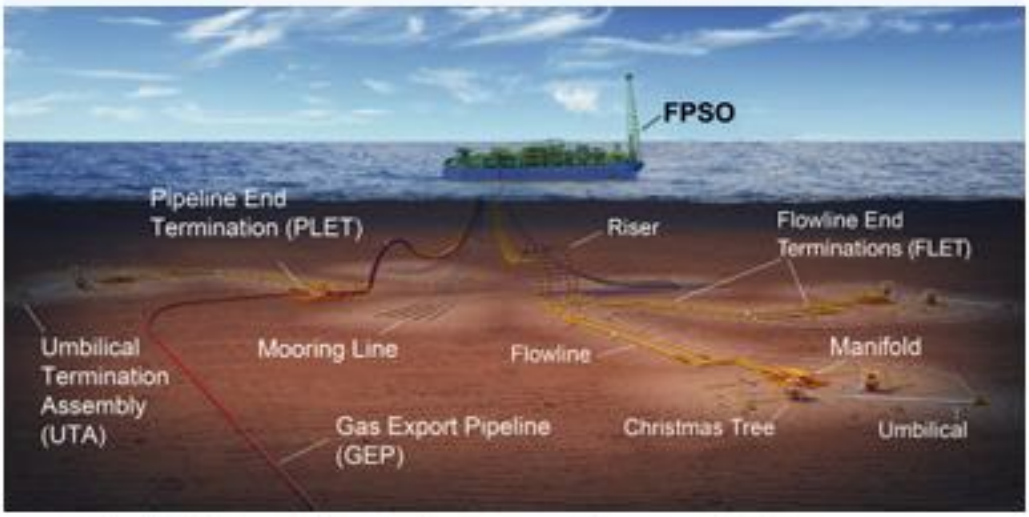


Figure 1: Schematic of the Barossa Field Subsea production system and infrastructure, and FPSO

BAROSSA GAS PROJECT OVERVIEW

The Santos-operated Barossa Gas Project is an offshore gas and condensate project with the purpose of providing a new source of gas to the existing Darwin liquified natural gas (DLNG) facility at Wickham Point in the NT. It is intended that natural gas and condensate would be extracted from the Barossa field, located in Commonwealth waters approximately 285 kilometres offshore north-northwest from Darwin. Initial processing would occur at the FPSO, to separate the natural gas, water and condensate. The dry natural gas would be transported through the GEP for onshore processing at the DLNG facility. The condensate would be transferred from the FPSO facility to purpose-built tankers for international export.

DLNG facility at Wickham Point where Barossa gas will be sent for onshore processing.

ACTIVITY LOCATION

The planned Production Operation Activity is confined to two key operational areas. These areas are simply termed Operational Area 1 (OA1) and Operational Area 2 (OA2) **(Figure 2)**.

OA1: The Barossa field. This is the area in which the FPSO, subsea production system, and supporting subsea infrastructure will be used to process gas and condensate extracted from the Barossa wells. The area is confined to Commonwealth waters, approximately 285 km north-north-west of Darwin (the closest major populated centre), approximately 210 km north-west of the mainland NT coastline, and approximately 130 km north of the Tiwi Islands at the closest point (Seagull Island).

OA2: The 285 km section of the GEP from OA1 to the Commonwealth waters/ NT waters boundary; and the 8.26 km section of the GEP situated in NT coastal waters between the Commonwealth waters/NT coastal waters boundary and the Territorial Sea Baseline (TSB). Not included in this section is the remaining GEP in NT waters (~92 kms). Information on this is covered elsewhere.

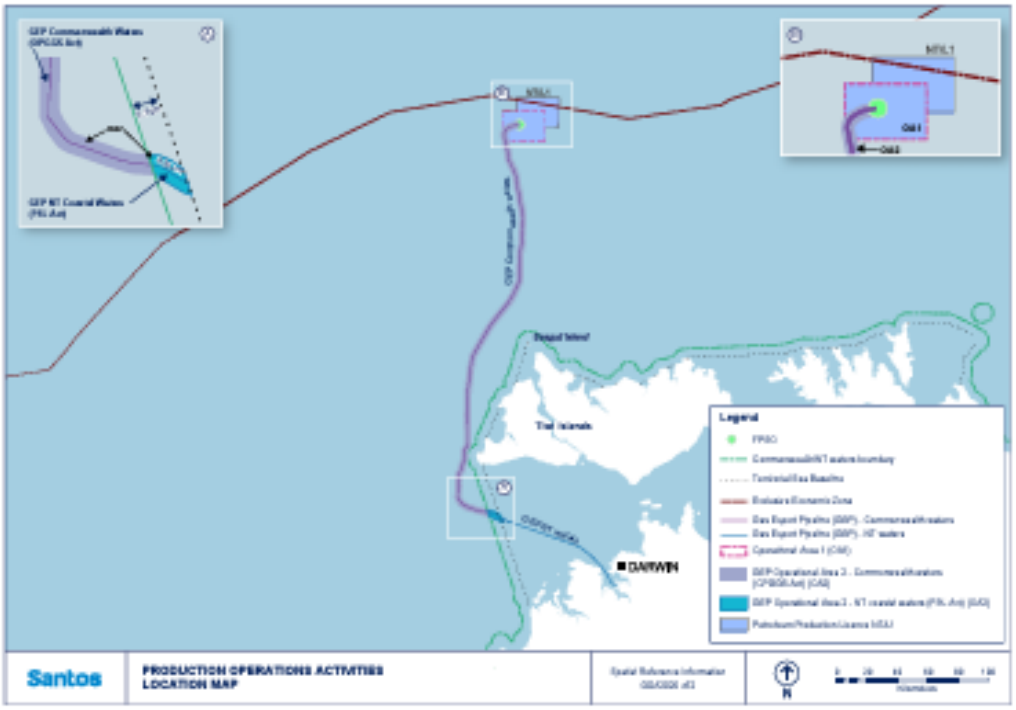


Figure 2: Location of the Barossa Operational Area 1 (OA1) in Commonwealth waters (OPPGS Act) and Operational Area 2 (OA2) in Commonwealth waters and NT coastal waters (PSL Act).

SUMMARY OF ACTIVITIES

The Barossa FPSO, which will be known as BW Opal, is a permanently moored vessel which is able to freely rotate with the strongest wind direction and remain connected to subsea facilities. The operational design life for all Barossa facilities is 25 years. **Figures 3 and 4** depict key features of the FPSO and utilities/marine systems.

Gas and condensate extracted from the Barossa field will be processed on the FPSO to separate the natural gas and condensate (a light liquid hydrocarbon, straw coloured and flammable). The dry gas will be exported to the DLNG facility via the GEP, and the condensate will be transferred from the FPSO to offtake tankers for export approximately four to five times per year. The key activities proposed under the Production Operations EP are detailed below.

Most of the below activities are only applicable to OA1 as this is where the FPSO and subsea infrastructure is located, and the condensate offtakes will occur. The main activity in OA2 will be inspection, maintenance, monitoring, and repair (IMMR) of the GEP.

- **FPSO arrival in the field:** connection of the FPSO to the mooring buoy; equipment and systems testing (also termed commissioning), start-up operations.
- **FPSO operations:** process gas and condensate from the Barossa field. The gas and condensate separation and treatment systems have a gas export capacity of approximately 635 million standard cubic feet per day (a little over 7000 Olympic-size swimming pools) with a condensate processing capacity of approximately 11,000 barrels per day (a little more than half an Olympic-size swimming pool) and a produced water processing maximum capacity of 20,000 barrels per day (over one Olympic-size swimming pool). Under normal operating conditions produced water discharge rates will be approximately a quarter (~5,000 barrels per day) of the maximum discharge capacity (~1/4 of an Olympic-size swimming pool). The FPSO generates its own electricity using Barossa production gas, and potable water supply. Living quarters are provided for the operations workforce.
- **Gas export to DLNG:** dry natural gas will be transported through the GEP for onshore processing at the DLNG facility.
- **Storage and Offtake operations:** storage of condensate onboard the FPSO and offloading of condensate to offtake tankers. Approximately 650,000 barrels (~ 40 Olympic-size swimming pools) will be offloaded approximately once every two to three months (four to five times per year).

- **Support operations:** offshore support vessels periodically visit the FPSO to resupply materials (such as stores, consumables, chemicals and fuel) and return surplus goods and wastes to the Australian mainland for disposal or recycling. Helicopters will be used to transport the operations workforce to and from operations facilities.
- **Subsea system and GEP inspection, maintenance, monitoring and repair (IMMR):** visual inspection of subsea infrastructure and/or the GEP using Remotely Operated Vehicles (a submersible craft used to perform underwater visual inspections operated from a vessel). This activity will be performed according to a planned inspection and maintenance schedule, or at other intervals if unplanned inspections or repairs are required.

Figure 3: FPSO key features

1. Condensate Offloading System
2. Aft Service Crane
3. Communications & Radar
4. Aft Pedestal Crane
5. Thermal Oxidiser
6. Helideck Parking Area
7. Forward Pedestal Crane
8. Power Generation Exhaust
9. Midship Pedestal Crane
10. Helideck Landing Area
11. Daughter Craft
12. Freefall Lifeboats
13. Engine Room Exhaust

Figure 4: FPSO utilities and marine systems

REGIONAL EXISTING ENVIRONMENT SUMMARY

Environment that may be affected (EMBA)

Santos recognises the region's various environmental values and sensitivities. In an EP, although planned activity occurs in OA1 and OA2, it is common to present a geographically defined area of the environment that may be affected (EMBA) by an offshore activity e.g. an unplanned hydrocarbon spill.

In the case of the Production Operations Activity, the broadest extent of the EMBA, is determined by a potential loss of heavy fuel oil from a condensate offtake tanker due to impact from another vessel. Potential loss of heavy fuel oil is a risk associated with any large marine vessel and is managed through established maritime laws and safeguards. Barossa condensate offtake operations are a low frequency activity (four to five times a year) which further reduces the likelihood of such an event, which is already a very low probability of occurring.

Figure 5 depicts operational areas OA1 and OA2 and the EMBA (blue line). The EMBA is generated by modelling and represents the greatest geographical extent that could be affected by 300 individual hydrocarbon spill scenarios occurring simultaneously across the full range of seasonal conditions. It should be noted that an actual spill event is more accurately represented by only one of the 300 simulations from the modelling, meaning a much smaller geographical area would be affected in the event of an actual spill; and the EMBA does not take account of spill response mitigations which would reduce the extent of an unplanned spill. The primary purpose of the EMBA is to assist with spill response planning and preparedness in the unlikely event of a hydrocarbon spill. The EMBA also provides the basis for assessing the range of potential socio-economic impacts and establishes a planning area for scientific monitoring during an unplanned spill event.

The Moderate Exposure Value (MEVA) (pink line) represents the predicted extent of ecological impacts and is used to inform the environmental impact assessment and spill response plans. Beyond the MEVA, impacts to ecological receptors are not expected.

To learn more about spill modelling, exposure values and spill response, see NOPSEMA Spill Modelling Video.

Regional protected and significant areas

Figures 6, 7, and 8 illustrate the boundaries and zonings of regional marine parks and reserves, key ecological features, wetlands, EMBA, the MEVA and the OAs. **Figure 9** illustrates the shoals and banks in relation to the OAs.

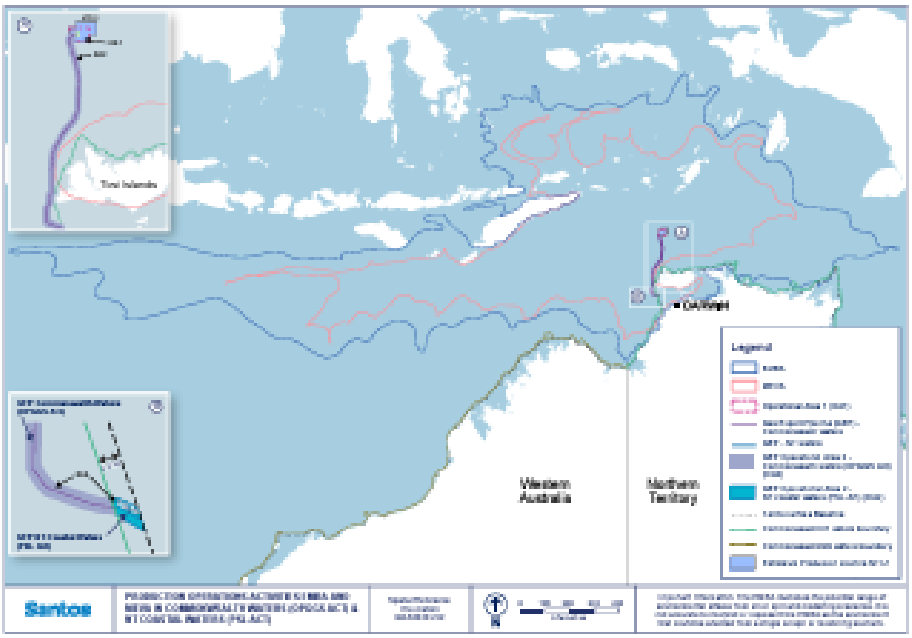


Figure 5: Production Operations Activities EMBA and MEVA in Commonwealth waters (OPGGS Act) and NT coastal waters (PSL Act)

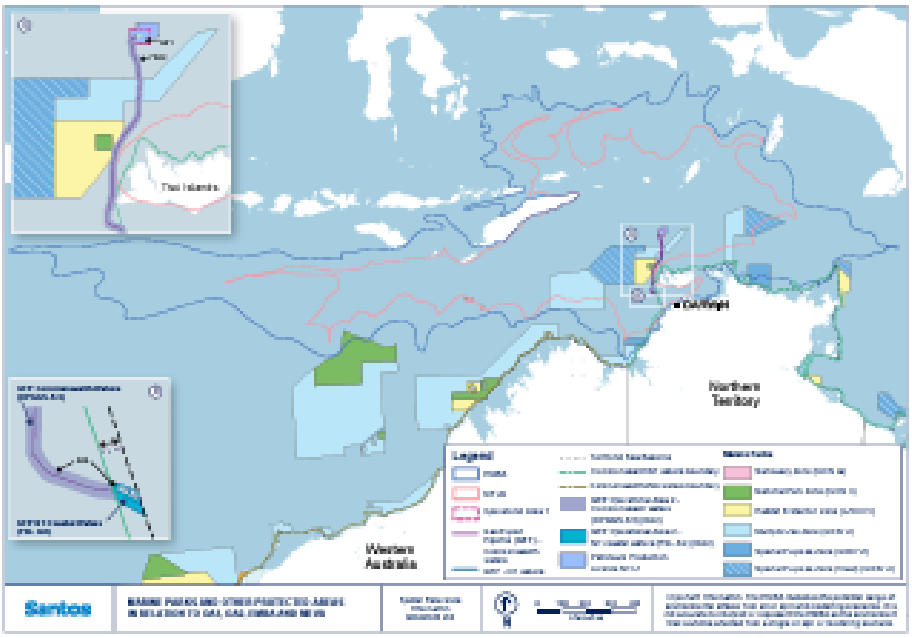


Figure 6: Marine Parks and Other Protected Areas in relation to OA1, OA2, EMBA and MEVA

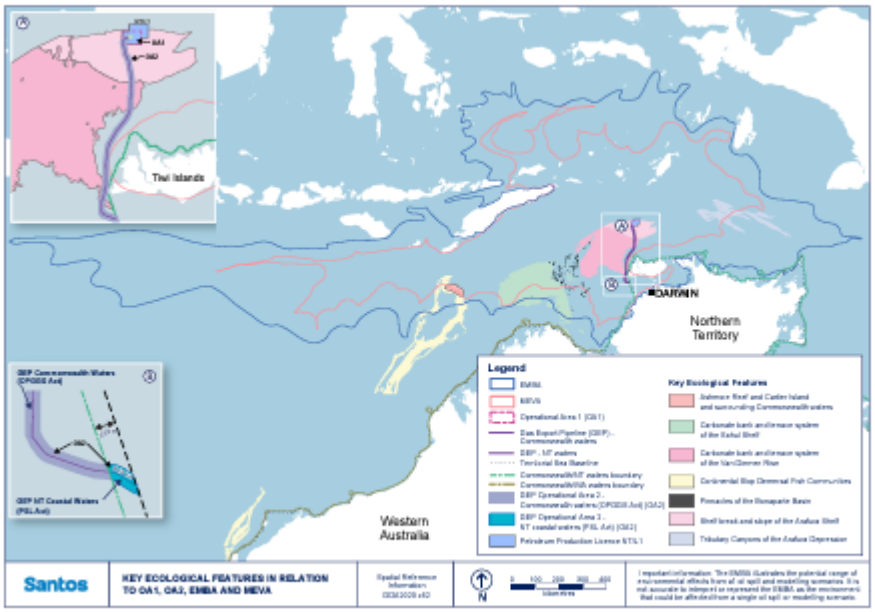


Figure 7: Key Ecological Features in relation to OA1, OA2, EMBA and MEVA

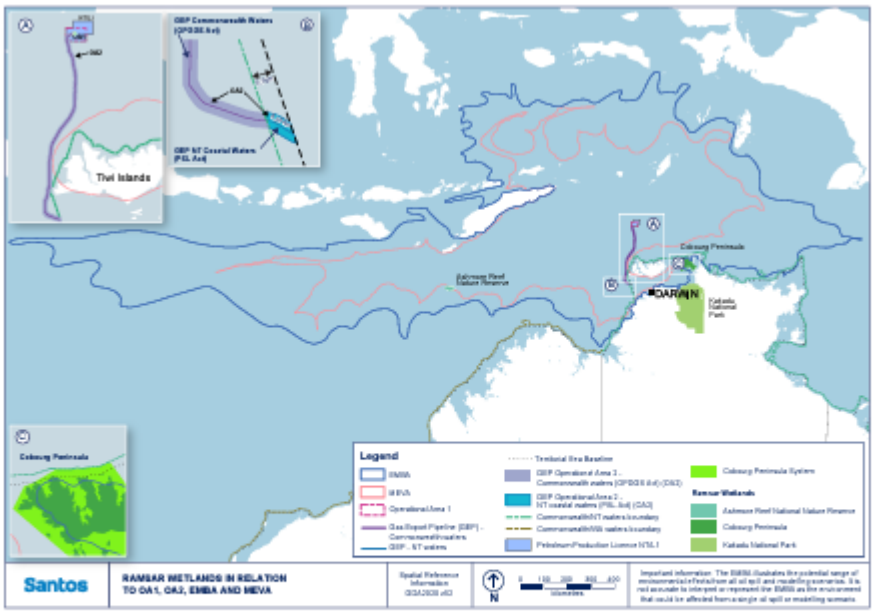


Figure 8: RAMSAR wetlands in relation to OA1, OA2, EMBA and MEVA

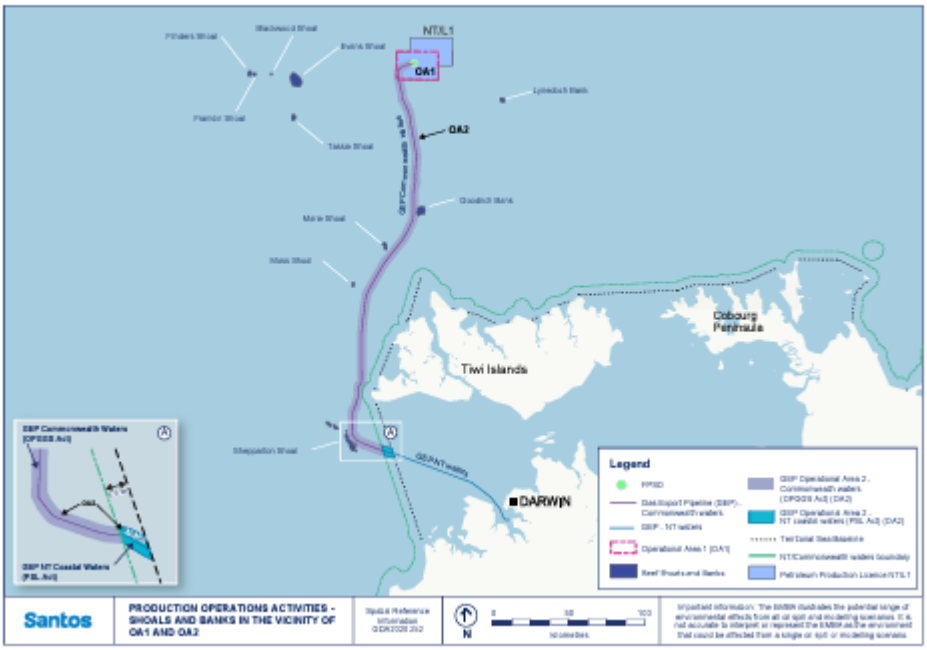


Figure 9: Shoals and Banks in the vicinity of OA1 and OA2

Marine fauna and biologically important areas

Biologically important areas (BIAs) are areas used by protected marine species for carrying out critical life functions, such as reproduction, feeding, migration or resting. BIAs are areas that contain habitat crucial to the survival of protected species and are defined by the Australian Government under the Environment Protection and Biodiversity Conservation Act 2009 (EPBC Act). As shown in Figure 10, some BIAs occur within the EMBA. These areas are known to include protected marine species such as whale sharks, pygmy blue whales, dugongs, olive ridley turtles, loggerhead turtles, green turtles, hawksbill turtles, flatback turtles, and 12 types of seabirds and shorebirds. In addition, the EMBA overlaps the spawning grounds for southern bluefin tuna, a listed species under the EPBC Act, between northern Western Australia and Java.

The BIAs for flatback turtles overlap with OA2. There are no BIAs within OA1. Two turtle species, the flatback turtle and olive ridley turtle, have critical habitat that overlap with OA2.

Activities in OA1 will be conducted in water depths ranging from approximately 220 – 280 m. There are a variety of highly mobile marine fauna that may transit OA1 in low numbers, such as:

- Bryde's, blue, fin, humpback, sperm and sei whales
- orcas, Australian snubfin dolphin and spotted bottlenose dolphin
- dugongs (mostly in shallow waters)
- olive ridley, green, loggerhead, hawksbill, leatherback and flatback turtles
- sea snakes
- whale sharks
- migratory seabirds and shorebirds
- fishes, sharks, rays and sawfish.

An additional three species – the grey nurse shark, Omura's whale and the turtle-headed sea snake have been included as they were observed within or near OA1 and OA2 during the Barossa Marine Studies Program.

Santos recognises the region's various environmental values and sensitivities and has considered government guidance, including protected species management plans, recovery plans, conservation advice and threat abatement plans in the development of the Production Operations and OEMP, and has developed control measures to reduce impacts and risks to marine fauna and biologically important areas to as low as reasonably practicable and acceptable levels.

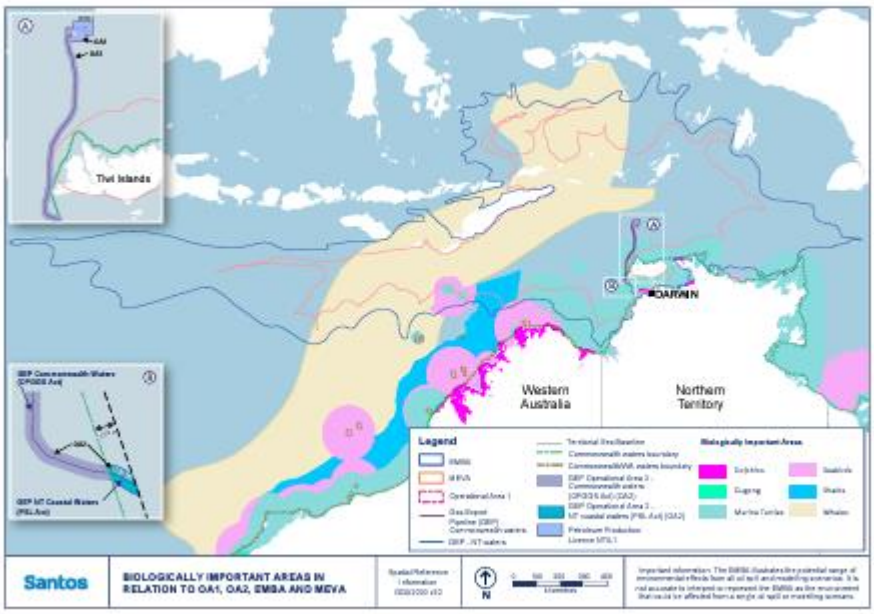


Figure 10: Biologically important areas in relation to OA1, OA2, EMBA and MEVA.

REGIONAL SOCIO-ECONOMIC SUMMARY

Socioeconomic activities that may occur within the OAs or EMBA might include commercial, recreational and traditional (subsistence) fishing, aquaculture, tourism, petroleum industry activities, defence activities, shipping and to a lesser extent in the deeper offshore waters, recreational fishing and tourism.

Underwater cultural heritage and cultural values may also exist across the region. Darwin will be the logistics hub and supply base for the Production Operations Activity bringing employment and economic benefits to the local community.

Nearest population centres

OA2, at its closest point, is located approximately seven kilometres from Bathurst Island, which is part of the Tiwi Islands. Darwin is the closest regional city, which approximately 285 km north-north-west of OA1.

Summary of other uses within the EMBA

Santos' existing understanding of the uses and values of the area and its strategies to reduce impacts or risks to these uses and values, will be supplemented with any new information obtained during consultation. Santos has set out in the list below a summary of the uses and values of the area based on existing information or previous consultation. Santos welcomes further information that may be provided during consultation to inform the Production Operations EP and OEMP.

Commercial fishing

Santos recognises the presence and rights of commercial fishers within the operational area and EMBA. Within the OAs, interaction with some commercial fishing is possible. These fisheries include Northern Prawn, Spanish Mackerel, Pearl Oyster, Offshore Net and Line, and Demersal. Santos has been consulting with the relevant fisheries representative associations, licence-holders and government over many years.

Petroleum industry

Several oil and gas companies hold petroleum permits near the OAs; however, no established oil and gas operations are located within or in the immediate surrounds. The closest operational offshore production facilities and in-field subsea infrastructure are associated with the Santos-operated Bayu-Undan platform, located approximately 400km to the southwest of OA1 and west of OA2.

Tourism, recreational fishing and traditional fishing

The OA1 is located in offshore waters that are not likely to be accessed for tourism activities (e.g. charter boat operations) or recreational fishing, as these tend to be centred around nearshore waters, islands and coastal areas. However, previous consultation on a different Barossa Gas Project EP has identified one fishing charter operator who may on occasions conduct tours near Evans Shoal, approximately 62km west of OA1. Tourism activities may occur within OA2, but they are likely to be limited to vessels transiting the area to access other destinations within the region e.g. islands, shoals, and shipwrecks. Indonesian and Timorese traditional fishers, as well as Australian recreational fishers, are expected to transit and fish in the EMBA. Santos continues to consult regarding recreational and traditional fishing and hunting within the EMBA.

Defence Activities

No designated military and defence exercise areas occur within OA1. OA2 partially intersects the Darwin Air Weapons Range central practice area, which comprises practice and training areas used for offshore naval exercises and onshore weapons-firing training by the Department of Defence. Australian Border Force vessels also undertake civil and maritime surveillance (and enforcement) in Australian offshore waters, therefore they may transit through the operational areas and EMBA.

Telecommunications cables

The North-West Cable System (NWCS) is a submarine telecommunication fibre cable system located within the EMBA and crosses the GEP in the southern portion of OA1. It is located approximately 230 km and 30 km south of OA1 and OA2. Extending 2100 km from Darwin to Port Hedland, the NWCS connects Australia's remote northern and western regions, including offshore oil and gas facilities, with onshore locations.

Listed Heritage

There are no world heritage properties, national heritage places or Commonwealth heritage places within the OAs; however, the EMBA (including the MEVA) overlaps the Ashmore Reef Marine Park, a Commonwealth heritage place. The closest World Heritage Property is the Kakadu National Park, located onshore in the NT. A small portion of the coastal edge overlaps the EMBA. **(Figure 8)**

There are no recorded Aboriginal heritage sites within the OAs. The Tiwi Islands are a declared Aboriginal reserve and a number of protected sacred sites under the Aboriginal Sacred Sites Act 1989 (NT) have been recorded on the Islands.

Under the Commonwealth Underwater Cultural Heritage Act 2018, Australia's underwater cultural heritage is protected in Commonwealth waters, such as shipwrecks, sunken aircraft and other types of underwater cultural heritage including Australia's Aboriginal and Torres Strait Islander underwater cultural heritage. No known shipwrecks are located within the OAs. Multiple known shipwrecks, sunken aircrafts, historic aircrafts and shipwrecks (greater than 75 years old) and other sites occur within the EMBA. Some unlocated wrecks could fall within the boundaries of the OAs or EMBA.

In the course of preparing the Barossa Drilling and Completions EP, SURF EP and commencing works under the GEP EP, Santos engaged independent consultants to investigate potential for underwater cultural heritage within OA1. First Nations underwater cultural heritage is not relevant to OA1 due to its location in water depths beyond the extent of the ancient coastline at the 125 m water depth contour. A 262km section of the GEP within OA2 has been surveyed for both First Nations and other underwater cultural heritage

The results of those surveys concluded there are no specific underwater cultural heritage places along the Barossa GEP to which people, in accordance with Indigenous tradition, may have spiritual and cultural connections that may be affected by the activities covered by the GEP Environment Plan. Further similar surveys are planned for the remainder of OA2 in 2024.

Shipping

The closest port to the OAs is Darwin Port, which is approximately 290km away from OA1 and 116km away from OA2. No designated shipping fairways overlap the OAs, however the southern end of OA2 is an area of high shipping activity.

Cultural Values

Traditional hunting and fishing continue to occur on the Tiwi Islands, although typically these occur within 3 nm of the shoreline.

Mapping exercises and workshops conducted on the Tiwi Islands have identified Aboriginal heritage sites along the northern, western and southern coastlines of the Tiwi Islands, including areas used for food collection, sacred sites, camping sites and a dreaming site. These coastlines are within the EMBA but outside the OAs.

Santos has identified that the Croker Island native title determination (DCD1998/001) partially overlaps the EMBA. The native title holders within the Croker Island native title determination are the Yuwurrumu members of the Mandilarri-Ildugij, the Mangalara, the Murran, the GaduraMinaga and the Ngaynjaharr clans. The Larrakia native title determination (DCD2006/001) also partially overlaps the EMBA. This determination found that native title does not exist within the claim area.

Mapping exercises and workshops conducted on the Tiwi Islands have identified Aboriginal heritage sites along the northern, western and southern coastlines of the Tiwi Islands, including areas used for food collection, sacred sites, camping sites and a dreaming site. These coastlines are within the EMBA but outside the OAs.

Santos acknowledges coastal First Nations peoples' connection with culture through Sea Country and is seeking to improve knowledge and understanding of cultural features within the EMBA, including through consultation with First Nations people and their relevant representative bodies.

SUMMARY OF ENVIRONMENTAL IMPACTS AND RISKS

Environmental impact and risk assessment is the process by which proposed activities are assessed for their impacts (consequences) on the environment (physical, biological, socio-economic and cultural). For the purposes of assessing impacts and risks, proposed activities are divided into planned activities and unplanned events.

Planned activities occur within OA 1 and OA 2 can have unavoidable impacts, such as light, noise and atmospheric emissions, seabed disturbance, discharges to the marine environment, and interactions with other marine users. Unplanned events are not expected to occur but are considered so that contingency measures are in place should they ever eventuate. Unplanned events include dropped objects, introduction of invasive marine species, interactions with marine fauna, accidental discharges, or spills.

Planned activities are assessed based on consequence of impact. Unplanned events are assessed based on their potential impact (consequence) and likelihood of occurrence, which informs the associated risk level.

Santos has conducted an environmental assessment in order to consider the potential environmental impacts and risks associated with activities under this EP. The identification of potential impacts and risks, and the measures proposed to reduce these impacts and risks, may be revised and amended as a result of the consultation process. This includes information obtained during consultation to improve Santos' understanding of potential impacts and risks in regards to cultural values within the EMBA and adoption of any appropriate measures.

PLANNED ACTIVITIES

Santos proposes to adopt a suite of control measures to reduce impacts and risks associated with planned activities to a level that results in a minor or negligible environmental consequence. These consequence levels are considered by Santos to be acceptable and to have been reduced to as low as reasonably practicable (ALARP). **Figure 11** shows several emissions and discharges from planned activities associated with the operation of the FPSO.

Figure 11: Emissions and discharges from planned activities associated with the operation of the Floating Storage and Offloading (FPSO) facility.

GHG EMISSIONS

The Production Operations EP will consider the contribution of emissions from the Barossa Development to national and global emissions and the potential indirect impacts of climate change on the Australian environment, noting that as a result of the complex nature of the global emissions system, climate change impacts cannot be meaningfully linked to any one activity or emissions source.

GHG emissions can be categorised into Scope 1, Scope 2 and Scope 3.

- Scope 1 - direct emissions from sources that Santos owns or controls, due to fuel combustion, flaring, venting, CO2 removal and fugitive emissions.
- Scope 2 - Indirect emissions from the generation of energy that Santos purchases for its operations including electricity purchased for ancillary activities such as office buildings.
- Scope 3 - includes all indirect emissions not included in Scope 2. The vast majority of Scope 3 emissions from Santos' activities are emissions from the use of sold products.

The Production Operations Activity will not produce scope 2 emissions as it does not consume externally generated electricity or other forms of externally generated energy.

Total annual Barossa Scope 1 emissions are estimated to be 2.5 Mt CO2e (carbon dioxide equivalent), and total annual Scope 3 emissions are estimated to be 12.7 Mt CO2e.

What impacts are expected?

Barossa GHG emissions (Scope 1 and 3) estimates account for approximately 0.86% of annual Australian GHG emissions (Department of Climate Change, Energy, the Environment and Water, 2022).

The GHG emissions attributable to the Barossa Development are not expected to be significant relative to national and international GHG emissions and are considered to be low risk.

How will Santos manage impacts?

Scope 1 emissions from Barossa are managed under Australian regulations and scope 3 emissions are managed using control measures consistent with the UN Paris Agreement, to which the Australian Government is a signatory. Key proposed control measures include:

Scope 1 emissions:

- Barossa will comply with Safeguard Mechanism obligations, including surrendering carbon credit units for any emissions above the Safeguard baseline for the assessment year.
- Barossa will implement a GHG management plan that minimises GHG emissions to ALARP and acceptable levels over the life of the field operations.
- Barossa facilities design has been optimised to reduce fuel, flare and vent (FFV) emissions, and to enable the possibility of future export of reservoir CO2 to a Carbon Capture and Storage (CCS) project.

Scope 3 emissions:

- Products generated from the Barossa Development will only be sold to customers from countries that are signatories to the Paris Agreement (or that have policies for reducing greenhouse gas emissions that are equivalent to policies required by the Paris Agreement), as at the date of the relevant contract of sale.

ATMOSPHERIC EMISSIONS

Fuel consumption, flaring and venting excess gas is required to process gas and condensate which results in the release of air pollutants, such as sulphur oxides (SOX), nitrogen oxides (NOX) and volatile organic compounds (VOCs) to the atmosphere. This mix of continuous and infrequent (e.g. flaring of excess gas) sources of atmospheric emissions associated with operating the Barossa facilities may result in a temporary, localised reduction in air quality.

Intermittent flaring is expected to be of short duration during initial start-up operations and unplanned process trips/upsets during steady-state operations.

Atmospheric emissions will also be generated from support vessel and helicopter operations.

All activities described above that may result in air emissions could be expected within OA1, however only emissions associated with vessel activities would be expected in OA2. In the offshore environment, air emissions quickly dissipate into the surrounding airshed.

What impacts are expected?

Impacts are considered very localised and not significant. Seabirds and migratory shorebirds are unlikely to be impacted by the localised and temporary reduction in air quality.

The potential impact from the release of air emissions includes the decrease in air quality of the local airshed.

Behavioural impacts, such as avoidance, could be expected if seabirds fly in the vicinity of OA1. Impacts to threatened, migratory or local fauna (seabirds) are considered to be minor.

As Barossa's operational activities occur in remote offshore waters, Production Operations Activity emissions will not impact air quality in coastal towns. Atmospheric emissions will quickly dissipate into the surrounding atmosphere and are not considered to be a potential source of impact for protected areas or threatened ecological communities.

How will Santos manage impacts?

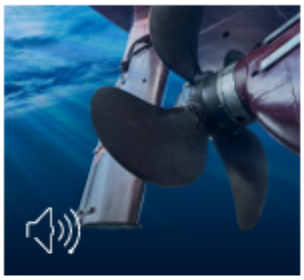
The FPSO power generation system reduces emissions to the atmosphere by primarily using production gas as fuel. Combined-cycle gas turbines (CCGT) will also be used to improve fuel use efficiency. CCGT are highly efficient and best practice resulting in reduced pollution. The steam turbines use low NOx burners, which significantly reduces NOx emissions.

Further FPSO facility design measures to reduce atmospheric emissions include:

- surplus waste gas burned to completely remove methane (minimal flaring)
- vapor recovery instead of releasing to atmosphere
- ozone Depleting Substances (ODS) are not used as refrigerants.

Santos proposes to adopt numerous control measures to manage vessel emissions, including requiring contractor vessels' compliance with MARPOL requirements for low-sulphur fuel and air pollution prevention certifications. ('MARPOL' is a reference to the International Convention for the Prevention of Pollution from Ships).

The control measures to be adopted are designed to be consistent with maritime regulations and petroleum industry standards.



NOISE SOURCES

In OA1 the main FPSO noise sources are intermittent and short-term flaring during initial start-up operations and unplanned process trips/upsets during steady-state operations. FPSO power and processing equipment will also generate a continuous source of noise. Other noise sources include:

- support vessels;
- helicopters;
- ROVs, acoustic positioning systems and survey equipment
- operation of subsea infrastructure such as wellheads, flowlines and valves.

In OA2 the types of noise generated by these activities can be categorised as either: impulsive (brief, high intensity) e.g. from operation of survey equipment or, non-impulsive noises (ongoing or continuous) e.g., from vessel engines. Noise emitted from activities in OA1 and OA2 are expected to be at low levels, similar to ambient noise levels in the region.

What impacts are expected?

Santos has engaged subject matter experts to conduct the underwater noise assessments for the activities.

Noise emissions from the FPSO, helicopters, survey equipment and vessels may result in marine mammals (e.g. whales) changing their behaviour (e.g. avoidance or diving to avoid noise). This change in behaviour is expected to be localised (within the area of the noise source in OA1 or OA2) and short term (e.g. periods of minimal flaring in OA1). Noise emissions are not expected to cause long term population impacts (e.g. distribution & abundance).

Low level noise can occur from the operation of the pipeline which will dissipate to background levels within 100m of the pipeline. The GEP route (OA2) crosses two small areas of important turtle habitat and impacts to marine turtles in these areas are expected to be limited to behavioural (e.g. avoidance). Impacts to marine turtles from any infrequent survey equipment use is also expected to result only in temporary and localised behavioural changes, given the low level of noise. Vessels will be moving when undertaking surveys and it is highly unlikely any individual would remain near the noise source for any length of time.

Other protected species of marine reptiles (such as sea snakes), seabirds and fish (such as sharks and sawfish) are not expected to be affected at the population level, given their wide distribution (in the case of sea snakes and sharks), distances to seabird breeding colonies, and preference for shallow coastal habitats (sawfish).

Noise emissions could result in behavioural changes in marine fauna within the Oceanic Shoals Marine Park, as OA2 is located in this area **(Figure 4)**.

Noise is not expected to impact socio-economic receptors, including commercial fisheries, due to low noise levels and low socio-economic activity levels within and near the Operation Areas. Behavioural impacts to fish of potential commercial value would be restricted to within hundreds of metres of the noise source, a very small portion of the total available fishing area.

How will Santos manage impacts?

A source of significant underwater noise has been eliminated from the FPSO facility by designing the facility to be permanently moored without the use of a propulsion system.

Vapour recovery on the flare system reduces the frequency at which flaring occurs during operations and therefore reduces the amount of noise emitted during routine operations.

Activity vessels are required to comply with Santos's Protected Marine Fauna Interaction and Sighting Procedure to comply with regulatory requirements for managing fauna noise impacts. Marine assurance standards and planned vessel maintenance will minimise noise generated from vessels by ensuring contracted vessels are operated, maintained and crewed in accordance with industry standards and regulatory requirements.

LIGHT SOURCES

Artificial lighting is required for operational and navigational safety during the activity. Light sources include safety and navigational lighting on vessels, campaign-specific lighting when needed, such as deploying or retrieving equipment or when ROVs are working underwater, and intermittent flaring from the FPSO.

What impacts are expected?

Permanent safety and navigational lighting on the FPSO and intermittent flaring will result in light emissions in OA1. Light emissions are not expected to have an effect on adult turtles or hatchlings, given the offshore location and distance from the nearest turtles nesting beaches.

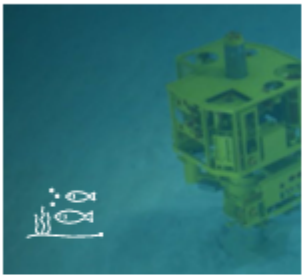
OA2 overlaps BIAs for marine turtles surrounding the Tiwi Islands. The closest turtle nesting beach is Cape Fourcroy, on the Tiwi Islands. Lighting emissions in OA2 will only occur from infrequent vessel inspection and maintenance activities in this location, which are of short durations. Vessel activities in OA2 are expected to produce similar light levels to other marine vessel activities in the region.

Impact to nesting females or hatchlings is not expected to occur. There is potential for hatchlings at sea to be attracted to light emissions if they are carried by currents to within approximately 3.3 km of an IMMR vessel. In the unlikely event hatchlings are attracted to vessel light, the proportion impacted is considered negligible when compared to the total number of hatchlings emerging from Bathurst Island beaches across the year. It will also be a temporary phenomenon, occurring during hours of darkness only. After sunrise, hatchling dispersal behaviour will resume. Displacement of individuals from critical habitat areas is therefore not a credible outcome.

Fish, sharks and birds have been shown to be attracted to artificial light sources, leading to a short-term localised increase in fauna activity, however large-scale changes in species abundance or distribution are unlikely.

How will Santos manage impacts?

The FPSO facility is equipped with a centralised battery system providing an uninterrupted power supply to the FPSO LED lighting which also allows for dimming and controlling in individual areas. Lighting is to be limited to that required for safe operations and navigation and will be compliant with maritime regulations (similar to other commercial vessels operating in the region).



SEABED DISTURBANCE

Seabed disturbance will occur because of:

- physical presence of installed subsea infrastructure and GEP on the seabed
- temporary placement and set down of equipment and subsea infrastructure on the seabed used during IMMR activities

What impacts are expected?

Seabed disturbance resulting from IMMR activities will be confined to the OAs and might result in localised disturbance under the subsea infrastructure and GEP. Seabed disturbance resulting from a subsea repair or replacement will be localised with a potential footprint of approximately 50 m^2 up to 1,600 m^2.

Given the nature and relatively small scale of seabed disturbance, it is not expected to cause a decrease in local population size, area of occupancy of species, loss or disruption of critical habitat, or disruption to the breeding cycle of any protected marine fauna.

Given localised disturbance is restricted to the OAs, which is mostly bare sediment and does not contain any significant habitat features, the consequence level for the physical environment or habitat is negligible. Impacts to the seabed within the Oceanic Shoals Marine Park or overlapping key ecological features (KEFs) (Carbonate bank and terrace system of the Van Diemen Rise KEF and the Shelf break and slope of the Arafura Shelf KEF) are considered to be minor.

While OA1 does not overlap any marine turtle BIAs, the southern end of OA2 traverses internesting buffer habitat critical to survival for flatback and olive ridley turtles, overlaps a portion of the the internesting BIA for flatback turtles, and is adjacent to the internesting BIA for olive ridley turtles. Considering the water depth along the pipeline route in OA2 is greater than the maximum turtle interesting depth of 30 m , it is unlikely the species will be present in significant numbers or for significant periods. Any impact to marine turtles from seabed disturbance or resultant turbidity in both OA1 and OA2 would likely be temporary and negligible, based on the nature and scale of impact.

Seabed disturbance is not expected to impact commercial fisheries, based on the small size of disturbance compared with the total available fishing area.

How will Santos manage impacts?

During IMMR activities Santos' vessels will undertake safe and accurate placement of infrastructure using dynamic positioning to minimise seabed disturbance during placement. Santos will also maintain a comprehensive inventory of all installed equipment to enable recovery of all equipment during decommissioning to limit impacts to the seabed.

INTERACTIONS WITH OTHER MARINE USERS

Other marine users will be displaced from part of OA1 over the life of Barossa operations, and temporarily restricted within parts of OA2 during IMMR. In OA2, the GEP may present a hazard to marine users due to the potential for snagging.

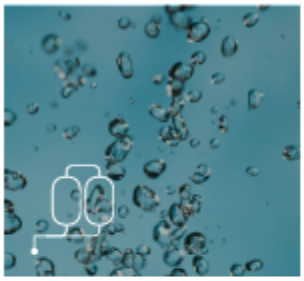
What impacts are expected?

Other marine users will have restricted access within petroleum safety zones (PSZ). A permanent 500m exclusion PSZ will extend around the outer edge of the Barossa Production Operations wells, the subsea infrastructure and mooring system in OA1. During IMMR activities along the GEP IN OA2, a temporary 500m PSZ will be maintained around vessel operations.

Commercial fishing, shipping, military exercises and other incidental marine traffic in the OAs are expected to be low frequency. The area marine users will be excluded from is small when compared to the large area available for their use.

How will Santos manage impacts?

Santos will notify and communicate with other marine users using standard maritime notifications (e.g. Notice to Mariners) before, during and at the end of IMMR activities. Infrastructure locations will be marked on nautical charts. These proposed control measures are consistent with maritime regulations and industry practices.



PRODUCED WATER DISCHARGES

Produced water is naturally occurring water that is extracted from the seabed along with hydrocarbons (condensate and gas in the case of the Barossa field). It is separated from the hydrocarbon components during processing and treated before being discharged to the marine environment from a pipe at least 10 m below the sea surface on the FPSO. This produced water consists of naturally occurring formation water (from the body of rock below the hydrocarbon formation), condensed water (water vapour present within the produced hydrocarbons which condenses when brought to the surface) as well as introduced water-soluble chemicals and other contaminants. While produced water treatment is performed before discharge, the effluent may contain residual inorganic (such as chemicals used for production) and organic (such as oil) contaminants.

The produced water treatment system is divided into two stages - removal of hydrocarbons through a filtration system and designed to handle 20,000 barrels per day (over one Olympic-size swimming pool). During operations the produced water discharge will vary from 3,500 to 5,000 barrels per day (bbl/day), or a quarter to a third of an Olympic-size swimming pool, with a peak rate after 11 years estimated up to 16,500 bbl/day (one Olympic-size swimming pool). Best available technology has been selected to remove oil-in-water concentrations to as low as reasonably practicable (ALARP) and the treatment system will operate well below its design capacity over the majority of the field life.

What impacts are expected?

Water quality may be impacted at the discharge point while the produced water is discharged **(Figure 12)**. Discharge modelling has been undertaken for a conservative maximum discharge rate of 20,000 bbl/day (over one Olympic-size swimming pool). Under normal operating conditions produced water discharge rates will be approximately a quarter (~5,000 bbl/day) of the modelled maximum discharge rate. Modelling results indicated that species protection thresholds for waterborne contaminants is achieved at approximately 6 km from the FPSO. As a result, predicted impacts will be localised and considered minor.

Marine turtles may occur within the produced water mixing zone. It is possible individual turtles may traverse the mixing zone; however significant impacts are not expected to occur, and large numbers of animals are not expected to be exposed. That is because the discharge water depth and discharge location are not within the proximity of internesting turtle habitat, and there is minimal reef habitat in the mixing zone. Given marine turtles are transient through the produced water mixing zone, they will not be exposed to the produced water for enough time for contaminants to accumulate within their body. Behavioural impacts (such as avoidance) may occur to a small proportion (individuals) of a local population close to the produced water discharge.

Like turtles, produced water exposure to plankton, fish, invertebrates and sharks is expected to be brief due to the transient nature of these animals.

Potential impacts to fishery resources are unlikely to result in changes in distribution and abundance of fish species outside the produced water mixing zone.

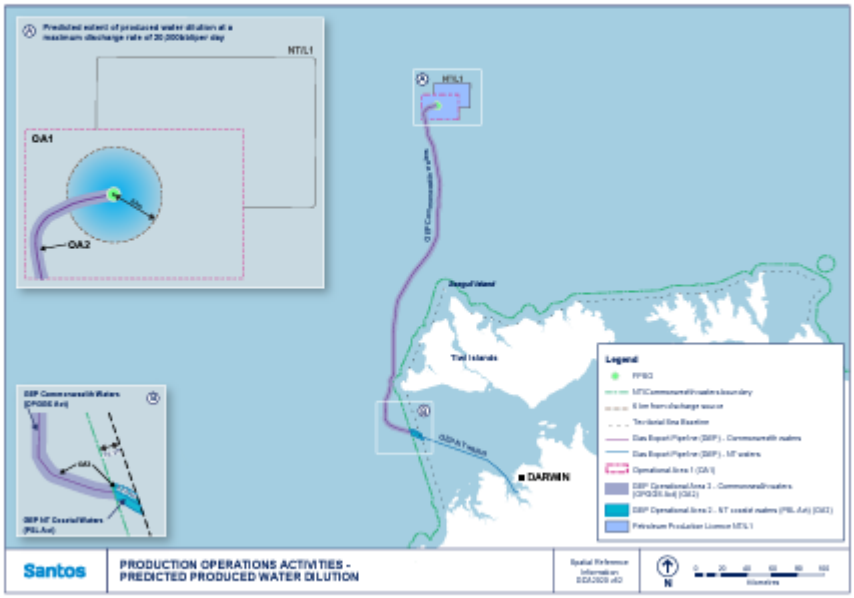


Figure 12: Predicted extent of the produced water dilution at a maximum discharge rate of 20,000 bbl/day.

How will Santos manage impacts?

Activity discharges are to be managed through the application of Santos' Chemical Selection Process, designed so that environmentally acceptable process chemicals (which are likely to be mixed with produced water discharge) are used. Additives have been selected and optimised for biodegradability as well as low aquatic toxicity and bioaccumulation potential.

The produced water discharge will be continuously monitored for oil-in-water content and any reading over the limit of 30 mg/l over any 24-hour period, will be diverted to a dedicated storage tank and returned to the produced water treatment system until suitable for discharge. Strict protocols will be in place for taking regular water samples and perform laboratory testing to ensure the produced water is within acceptable levels before disposing into the marine environment. The Production Operations Environment Plan will include a produced water adaptive management plan that prescribes a water quality monitoring regime which enables the detection of potential impacts of produced water discharge on the marine environment and if remedial actions are necessary to retain the discharge within acceptable limits.

OPERATIONAL DISCHARGES

Operational discharges associated with the activities may cause localised impacts to water quality in the direction of the prevailing current. The environment that may be affected by operational discharges will likely be contained within the OAs. Water quality conditions will return to normal within minutes to hours once discharging stops.

FPSO facility and subsea system discharges

Operational discharges from the FPSO in OA1 will occur each day resulting in localised changes to water quality. Discharges of warm cooling water will include low concentrations of chlorine which break down quickly in the environment and is non-toxic at low concentrations. Minor discharges of water based hydraulic fluid used in the subsea system are classified by the offshore chemical notification scheme as being environmentally acceptable.

Vessel discharges

The types of anticipated discharges in OA1 and OA2 are typical of most offshore commercial vessels and include deck runoff, treated sewage, grey water, machinery cooling water, bilge water (treated via the oily water system), ballast water, macerated food scraps and brine (from water making). These discharges will be small in volume and released into surface waters.

What impacts are expected?

Sensitive receptors that may be impacted include plankton, fish, seabirds, marine turtles and mammals. Impacts to water quality will be localised and temporary occurring only during discharge.

Some fish and oceanic seabirds may be attracted to the FPSO by the discharge of food scraps. However, given the small quantities, intermittent nature of disposal and swift currents, any attraction is likely to be minor and is not anticipated to result in adverse impacts at an ecosystem or population level. Given the controls in place to manage the FPSO discharges in OA1 in accordance with regulatory requirements, impacts to commercial fish species are not predicted.

Operational discharges in OA1 are predicted to quickly dilute and disperse in the offshore environment. Water quality changes will be localised and will occur only when the discharges occur. Given the temporary nature of activities within OA2 (limited to vessel based IMMR) and the relatively deep offshore environment with significant current and tidal action, impacts to water quality will be localised and will occur only for the duration of the discharge.

How will Santos manage impacts?

Vessel discharges are to be managed to acceptable levels as regulated by maritime laws and conventions (e.g. management of sewage treatment systems and oily water systems), such as MARPOL and relevant Marine Orders. Santos also intends to implement management measures including waste management procedures and chemical management and selection procedures.

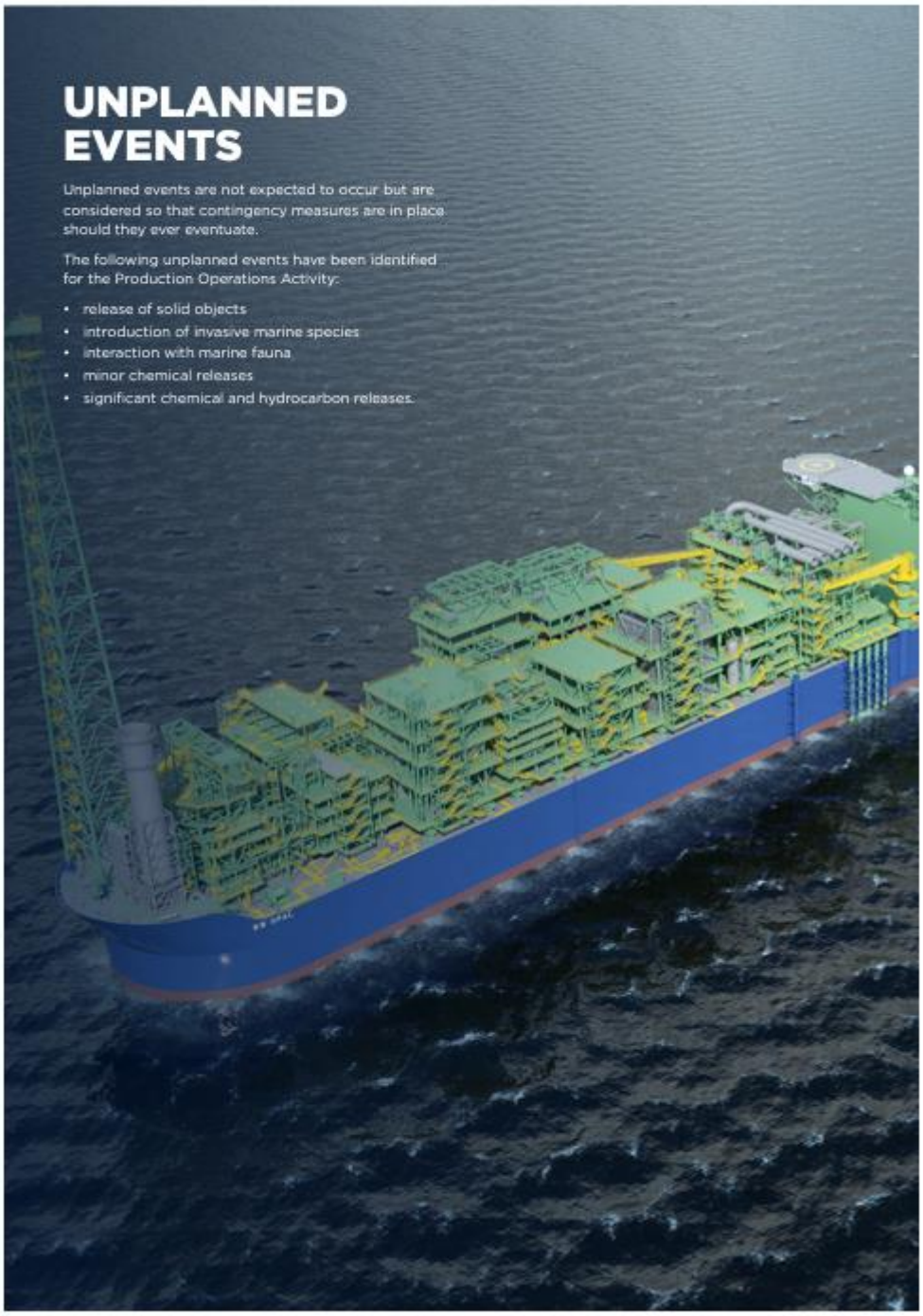
Santos procedures require that all operational chemicals used on the FPSO and chemicals potentially discharged to sea are risk assessed. Santos also implements general chemical management procedures to reduce the risk of accidental discharges.

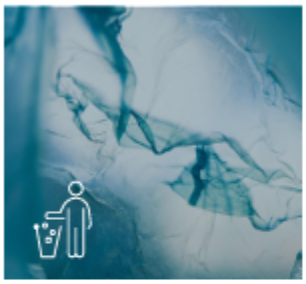
UNPLANNED EVENTS

Unplanned events are not expected to occur but are considered so that contingency measures are in place should they ever eventuate.

The following unplanned events have been identified for the Production Operations Activity:

- release of solid objects
- introduction of invasive marine species
- interaction with marine fauna
- minor chemical releases
- significant chemical and hydrocarbon releases.





DROPPED OBJECTS

How could dropped objects occur?

There is the potential for objects to be accidentally released to the marine environment from support vessels during steady state operations in OA1 or during IMMR activities in OA2. Dropped objects may be non-hazardous solid waste (e.g. paper, packaging materials), hazardous waste (e.g. batteries, aerosol cans etc.). A dropped object event could result from overfilling waste containers, unsecured objects during lifting operations or failed sea fastening.

What environmental impacts could occur?

Objects that float could potentially move beyond the OAs. All non-buoyant objects are expected to sink to the seabed and remain within the OAs. This could cause localised and short-term damage to the seabed.

Marine debris (including plastics and microplastics) is listed as a potential threat to several marine fauna species. Depending on debris size of the dropped object, there is potential for entanglement or ingestion by marine fauna, including turtles and vertebrate wildlife, which could result in injury or death. However, given the limited quantities that might be dropped, impacts to fauna would be limited.

Considering the low frequency of such an unplanned event, even in a worst-case release of a solid object, impacts to fauna would be very localised and limited to individuals, and are not expected to result in impacts to the local population.

How will Santos manage the risk?

Santos has numerous control measures to prevent dropped objects, and to mitigate consequence of impacts of an event does occur. These measures include:

- safety standards and procedures to reduce the likelihood of tools and other equipment being dropped during lifting operations
- waste management procedures to reduce the likelihood of windblown waste entering the marine environment
- implementation of chemical selection processes and the International Maritime Dangerous Goods Code to limit the environmental impact of chemicals if lost overboard
- dropped objects, regardless of size, must be reported and attempts made to recover the object according to safety and environment criteria.

These control measures are designed to comply with maritime legislation. In addition, these control measures are consistent with applicable actions described in the relevant fauna recovery plans and conservation advice, reducing the residual risk to low.

INVASIVE MARINE SPECIES

What are IMS?

Invasive marine species (IMS) are marine flora and fauna that have been introduced into a region that is beyond their natural range but have the ability to survive, and possibly thrive. The majority of climatically compatible IMS to northern Australia are found in south-east Asian countries.

How might IMS be introduced?

Some IMS pose a significant risk to environmental values, biodiversity, ecosystem health, human health, fisheries, aquaculture, shipping, ports and tourism. The risk of introducing IMS is common for all maritime activities. The introduction of IMS may occur due to the following:

- biofouling on FPSO and vessels, external/internal niches (such as sea chests and sea water systems) and routinely submerged equipment
- discharge of FPSO ballast water when the FPSO first transits from the international shipyard to the Barossa field
- discharge of high-risk ballast water where vessels have transited from international destinations.

What environmental impacts could occur?

If successfully established, IMS can:

- outcompete native species for food or space
- prey on native species
- impact fisheries or aquaculture
- impact on human health through released toxins
- reduce coastal aesthetics
- cause damage to marine and industrial equipment and infrastructure.

The above impacts can result in flow-on detrimental effects to marine parks, tourism and recreation.

The ability of invasive marine species to colonise a habitat depends on several environmental conditions. For example, highly disturbed environments (such as marinas) or shallower areas are more susceptible to colonisation than open-water environments (OA2 is 33 metres deep at its shallowest point and not considered sufficiently shallow to be conducive for IMS colonisation). OA1 provides an unfavourable habitat for IMS due to water depth (over 200 metres) and the long distance to the coast. These conditions limit light availability and have low habitat biodiversity with sparse epibiota, therefore, it is highly unlikely that IMS would be able to survive or colonise in OA1.

How will Santos manage the risk?

The pathways and vessel mitigation measures for IMS introduction are well established. The offtake tankers used for condensate export and specialised IMMR vessel(s) (if required) are sourced internationally, whilst the regular support vessels to and from the FPSO are sourced domestically. Vessels contracted to Santos, and vessel ballast, are to be managed according to control measures that comply with maritime regulations, industry practices, and the Biosecurity Act 2015. The FPSO and support vessels will also have ballast water management, vessel biofouling management and anti-fouling systems in place. With these control measures adopted, the residual risk of introducing IMS is assessed as low and reduced to as low as reasonably practicable.

The initial mobilisation of the FPSO out of Singapore to the Barossa gas field will be managed under a quarantine management plan including arrangements for invasive species, biofouling and ballast water exchange.

INTERACTION WITH MARINE FAUNA

How could interactions with marine fauna occur?

During the Production Operations Activity, approximately two vessels per week will travel between the Barossa field and Darwin servicing the FPSO, which is a minor increase relative to the existing levels of regional marine vessel traffic.

The highest potential for interactions with marine fauna, including potential accidental strike or collision resulting in injury or mortality, will be during IMMR vessel operations in OA2 where there is higher likelihood of marine fauna presence. In OA1, where marine fauna presence is of a lower likelihood, the FPSO will remain stationary once on location in position and support vessel movements within the operational area are limited and slow-moving, hence marine fauna interactions are not anticipated and are expected to be minimal.

Marine fauna such as marine mammals (such as whales and dolphins), marine turtles and whale sharks that swim at or near the water surface are most at risk from vessel collisions. Some of these species are threatened, and some marine fauna may have cultural significance.

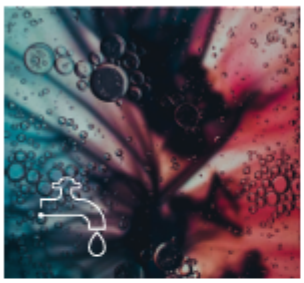
Marine mammals (such as whales and dolphins) and whale sharks may transit through the OAs but are expected to be in low numbers in OA1 **(Figure 10)**. Considering the relatively slow vessel speeds, short duration of activities, and the mobility of these species, it is unlikely that activity vessels will adversely interact with any individuals.

How will Santos manage the risk?

The likelihood of marine fauna interaction resulting in injury or death is considered unlikely given the proposed implementation of the following control measures:

- Santos' Protected Marine Fauna Interaction and Sighting Procedure, which aligns with the *Environment Protection and Biodiversity Conservation Regulations 2000*. This procedure limits marine fauna approach distances and speed, allowing marine fauna to be avoided or to move away.
- Operational area vessel speed restrictions

The control measures are designed to align with management actions outlined in government-published fauna recovery plans and conservation advice. The risk of interactions with marine fauna is assessed as very low and reduced to as low as reasonably practicable and acceptable levels. The risk is no higher than for any other regional maritime activity.



NON-HYDROCARBON LIQUID RELEASE

How could non-hydrocarbon liquids be released?

Non-hydrocarbon liquids including miscellaneous chemicals for use during the Production Operations Activity and waste by-products are transferred to and from supply vessels to the FPSO in OA1. Examples of non-hydrocarbon liquids include chemicals used in the production process, domestic products used in the living quarters for cleaning and general maintenance products such as greases and paints.

An accidental release of non-hydrocarbon liquids into the marine environment has the potential to occur from:

- transferring, storing or using bulk products (e.g. production chemicals)
- mechanical failure of equipment, such as a tank or pipework failure
- handling and storage spills and leaks due to insufficient fastening or inadequate bunding
- floating hose failure or rupture, coupling failure or tank overfilling
- lifting and incorrect handling (e.g. dropped objects damaging storage containers)
- firefighting foam during an emergency response incident.

What environmental impacts could occur?

A release of non-hydrocarbon liquids may result in impacts to water quality and any sensitive environmental receptors.

The maximum volume of non-hydrocarbon liquids that could be released during routine operations is likely to be small and limited to the volume of individual storage containers. Individual containers stored on the FPSO include process chemicals and lube oil storage tanks (approximately 4.5 m^3).

If the spill is not contained on deck, a release to the marine environment would likely disperse rapidly, with one in 1,000 dilution usually occurring within 30 minutes.

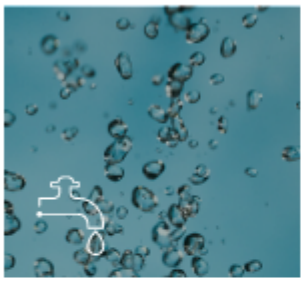
The environment that may be affected for non-hydrocarbon liquids releases resulting in a decrease in water quality is likely to be restricted to the immediate vicinity of the FPSO or support vessel and contained within the OAs.

Potential receptors include the physical environment (e.g. water and sediment quality, benthic habitats), threatened, migratory or local fauna (e.g. marine mammals, marine reptiles, sharks and rays, other fish, and birds) and socioeconomic features of the environment (including cultural features).

How will Santos manage the risk?

Santos has a suite of procedures to manage the selection, storage, handling and clean-up of non-hydrocarbon liquids releases. Vessels also have spill response plans. All chemicals are reviewed and accepted for use, and any chemical that might be discharged to the environment is assessed under the Santos chemical selection procedure to ensure environmental acceptability. These procedures will assist to minimise the likelihood of non-hydrocarbon liquid spills, and subsequent environmental consequences should they occur.

The control measures proposed to be adopted are designed to be consistent with maritime and petroleum industry standards and appropriate to manage the residual risks to as low as reasonably practicable and acceptable levels.



MINOR LIQUID HYRDOCARBON RELEASES

How could a minor liquid hydrocarbon release occur?

Minor releases refer to relatively small volumes of hydrocarbons from storage containers, transfer equipment and pipework on the FPSO or support vessels, that enters the marine environment. Typically, such spills occur as a result of human error during tank filling or storage container transfers. Most of these types of release occur within bunded deck areas, and are less than 1m3, however it remains possible for such spills to enter the marine environment.

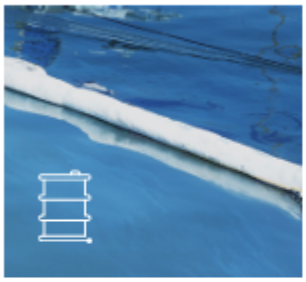
What environmental impacts could occur?

A localised decrease in water quality may occur, however due to the relatively small volumes impacts are expected to be short term as the hydrocarbon would rapidly dilute and dissolve into the ocean. Marine fauna may transit through the OAs and come into contact with the release. However it is expected impacts to fauna would be short term and result in behavioural changes, as they move away from the area where the spill occurred.

How will Santos manage the risk?

A suite of procedures will be in place to manage the handling and transfer of hydrocarbons on both support vessels and the FPSO. Response procedures such as stopping the source of the of the release and cleaning it up on deck to prevent it entering the ocean will be in place to manage minor releases should they occur.

The control measures proposed to be adopted are designed to be consistent with maritime and petroleum industry standards and appropriate to manage the residual risks to as low as reasonably practicable and acceptable levels.



LARGER HYDROCARBON RELEASES

Larger volumes of hydrocarbons may accidentally be released during production operations. These include accidental spills from support vessels or the FPSO, as well as from subsea equipment (e.g. wells and flowlines). A range of different types of hydrocarbons that may be accidentally released are discussed below.

MARINE DIESEL OIL OR MARINE GAS OIL

How could a marine diesel or gas release occur?

Marine vessel fuels (marine diesel oil or marine gas oil) could be released to the environment if there is a collision event between two vessels. An accidental collision could occur due to factors such as human error, poor navigation, vessel equipment failure or poor weather. If a marine vessel collided with the FPSO, the vessel or FPSO hull may rupture and release fuel to the marine environment.

If a vessel fuel tank is ruptured a fuel called marine diesel could be released. The FPSO uses a lighter fuel for some of its power requirements called marine gas oil which could be released if a fuel tank is ruptured.

Although the risk is higher in OA1 than OA2, it should be noted that it is considered unlikely that a vessel collision would occur that would result in releasing fuel to the environment. A sequence of events would need to occur for a vessel collision to escalate to a large volume of fuel released to the environment, including:

1. the vessel must be involved in a collision
2. collision must occur with enough force to rupture a fuel tank
3. rupture must be of such a nature that the fuel can be released into the environment.

What environmental impacts could occur?

Marine diesel oil and marine gas oil fuels are typically characterised by a high percentage of volatile components (typically >95%), which will evaporate when on the sea surface over several days. A small fraction (typically <5%) of persistent hydrocarbons remains, which will not evaporate, and will decay over time. The heavier components of the fuels tend to become entrained in the upper water column as droplets in the presence of waves but can refloat to the surface if wave energies abate. Both marine diesel oil and marine gas oil fuels are expected to weather quickly through evaporation and dispersion and are unlikely to persist in the environment for a significant period.

Such releases will cause a decline in water quality and may cause chemical (e.g. toxicity) and physical impacts to marine species (e.g. ingestion of hydrocarbons). The severity of the impact depends on the magnitude of the release (i.e. extent, duration) and sensitivity of the receptor, however, may include impacts to the physical environment, threatened or migratory marine fauna, protected and significant areas and socioeconomic receptors (fisheries, tourism, recreation, cultural features and other oil and gas operators).

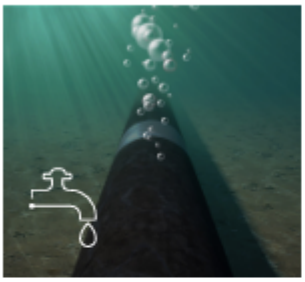
How will Santos manage the risk?

The FPSO in OA1 is fitted with a collision avoidance radar so it appears on the display of the triggering radars, providing range, bearing and identification information, alerting vessels to its presence. Santos has also designed the FPSO hull to be double-sided and double-bottomed, which provides two physical barriers between the fuel tanks and the marine environment for side impact, reducing the likelihood of fuel release in the event of a collision.

A petroleum safety zone (PSZ) will be established alerting other marine users to the presence of the FPSO in OA1 which includes precautions for marine activities (e.g. reduced speed limits, communication protocols and automatic identification systems to aid in their detection at sea). Third party vessels are not permitted to enter a PSZ, thereby reducing the likelihood of other interactions with the FPSO and support vessels. In OA2 during IMMR activities a similar exclusion zone will also be established restricting access to other marine users.

The Production Operations Activity facilities in OA1 & OA2 will be included on navigational charts making other vessels aware of the presence of Barossa facilities. Santos will also provide maritime notifications to relevant departments to ensure marine users are informed of vessel movements.

Santos has also developed response plans which will detail the actions to take to control the release and manage the cleanup activities in the event of a release.



PIPELINE GAS RELEASE

How could a dry natural gas release occur?

Although highly unlikely, dropped objects from vessels (Santos or a third party) may pose a risk of damage to the Barossa GEP. Damage from dropped objects could result in a potential rupture to the GEP that would release dry natural gas into the environment.

What environmental impacts could occur?

Gas would move vertically toward the sea surface resulting in a visible bubble zone at the sea surface and an associated gas cloud before rapidly dispersing into the atmosphere.

Potential receptors include the physical environment (water and air quality); threatened, migratory or local fauna (marine mammals, marine reptiles, sharks and rays, other fish, and birds); socioeconomic (other marine users) and cultural features. Potentially the gas cloud may impact air-breathing fauna, such as marine mammals, marine reptiles and birds. Impacts to marine mammals, turtles and birds are not expected to be significant due to the very localised disturbance area and the rapid dispersion of the gas into the atmosphere. Following the initial gas release, marine fauna are expected to avoid the gas release location limiting the potential for any further impacts.

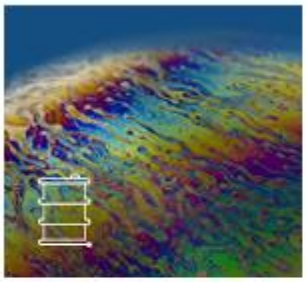
The gas release could also result in a loss of methane, contributing to GHG emissions. The contribution of the gas release to GHG emissions would be temporary and limited to the duration of the release event.

Socio-economic receptors

For the Barossa GEP release, a gas cloud could form an explosive mix that, that if ignited, could result in injury/death of other marine users and property damage. In the highly unlikely event of a Barossa GEP release, safety exclusion zones may be established for the duration of the gas release (weeks) and pipeline repair works (months) which may also temporarily restrict access for fishers (traditional and commercial), tourism and recreational users.

How will Santos manage the risk?

Preventative measures include pipeline design, targeted pipeline protection structures, and pipeline integrity management. Maritime notifications ensure marine users are informed of a gas release event, reducing the likelihood of unplanned interactions. The location of the Barossa GEP will be marked on nautical charts. The risk of impact to subsea infrastructure from dropped objects will be reduced through implementing procedures and standards for lifting equipment, IMMR, and contractor management. Emergency response procedures, pipeline depressurisation procedures (stop gas from flowing into the pipeline) and emergency pipeline repair plans will be implemented to minimise impacts in the event of a loss of containment from the Barossa GEP.



CONDENSATE RELEASE

How could a condensate release occur?

Barossa condensate has the potential to be released to the marine environment under several scenarios. Of those scenarios, three worst-case events are summarised below.

1. In the event of a vessel collision (e.g. those described above for marine diesel oil or marine gas oil) which ruptures the FPSO condensate storage tank.
2. In the event of an impact to, or failure of the subsea hydrocarbon containing equipment.
3. In the event of an impact to, or failure of multiple production well barriers.

Other scenarios exist that may result in other smaller condensate releases to the marine environment. All scenarios are very low probability of occurring.

What environmental impacts could occur?

Condensate, being a lighter hydrocarbon behaves in a similar fashion to marine diesel when released to the marine environment. The fate of the condensate will depend greatly on the proportion on the surface, which will be transported by prevailing currents and wind and can evaporate readily. Condensate that entrains or dissolves in the water column will be transported by prevailing current and, hence, will follow a different path.

As with the marine diesel oil, the heavier components contained in the condensate will have a strong tendency to physically entrain into the upper water column but can re-float to the surface if these energies abate.

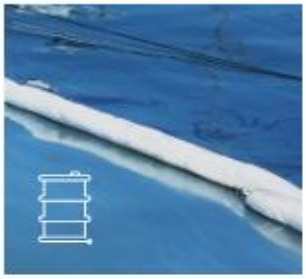
Such releases will impact the marine environment much in the same way as marine diesel oil and marine gas oils, described above. However, in the event of a subsea condensate release, more entrainment of hydrocarbons in the water column could occur, rather than being present on the sea-surface.

How will Santos manage the risk?

In the unlikely event a vessel collision occurs which ruptures an FPSO condensate tank, Santos will manage the risk in accordance with the accepted Production Operations Oil Pollution Emergency Plan.

In the unlikely event of a subsea release in the OA1 area from subsea flowlines or wells, Santos has a range of operating procedures and plans to ensure that the integrity of the subsea infrastructure is maintained and well barriers are in place. Santos will submit a well operations management plan (WOMP) to NOPSEMA that will contain the full details of systems in place to ensure well design and integrity is managed for the well lifecycle. All production wells must be in compliance with the NOPSEMA accepted WOMP at all times. Hydrocarbon containing subsea infrastructure is also within a petroleum safety zone (PSZ), which third party vessels are not permitted to enter, subsequently reducing any interaction with this infrastructure.

Santos is developing response plans which will detail the actions to take to control a release and manage cleanup activities in the unlikely event of a release.



MARINE DIESEL SPILL

What environmental impacts could occur?

Although highly unlikely, a spill from a collision between two vessels could rupture a fuel tank resulting in the release of vessel fuel to the sea. This would impact water quality and may cause chemical/physical impacts to marine species.

How will Santos manage the risk?

The risk of collision is reduced by managing interactions with marine users before and during the activity, with maritime notifications, automatic identification systems, navigational lighting, and exclusion zones in place. Operational procedures are designed to minimise refuelling incidents and spill response plans will be in place.

SPILL RESPONSE OPERATIONS

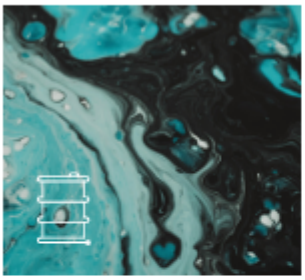
What environmental impacts could occur?

If a spill occurs, response operations may be required at any location surrounding the Operational Area. Potential environmental impacts include those listed in the Planned Activities table.

How will Santos manage the risk?

Santos will rely on its Oil Pollution Emergency Plan (OPEP) to manage the impacts from a spill response event. Control measures would include:

- Procedure for interacting with marine fauna
- Chemical selection process
- Minimum lighting
- Air pollution prevention certification
- Sewage and oily water treatment systems on vessels
- Notification to agreed stakeholders



HEAVY FUEL OIL

How could a heavy fuel oil release occur?

Heavy fuel oil is only used as fuel for offtake tankers who enter the Barossa field periodically (approximately once every three months) to load condensate from the FPSO. The only scenario that could lead to a release of heavy fuel oil is in the unlikely event of a vessel collision (described above for marine diesel oil or marine gas oil), where the offtake tanker hull and heavy fuel oil tank is ruptured.

What environmental impacts could occur?

Heavy fuel oil is heavier and more persistent than marine diesel oils, marine gas oils and condensates. The fuel is often characterised by a very high density and a high dynamic viscosity, which does not evaporate as quickly as other lighter fuels. As the fuel has a high residual component, a portion is expected to become semi-solid and can persist in the marine environment for extended periods.

Such releases will cause a decline in water quality and may cause chemical (e.g. toxicity) and physical impacts to marine species (e.g. ingestion of hydrocarbons, physical coating). The severity of the impact depends on the magnitude of the release (i.e. extent, duration) and sensitivity of the receptor, however, may include those to the physical environment, threatened or migratory marine fauna, protected and significant areas and socioeconomic receptors (fisheries, tourism, recreation, cultural features and other oil and gas operators). Given the persistent and sticky nature of heavy fuel oil, there is a higher risk of coating of the physical environment (e.g. shorelines) and marine fauna compared to the lighter fuels such as marine diesel oil and marine gas oil.

How will Santos manage the risk?

Offtake tankers are third-party operated vessels. They are vetted following Santos' marine assurance procedure and international guidelines before acceptance for condensate offtake operations at the Barossa field. The use of tankers with double hulls and fully segregated ballast tanks is not only a requirement of the vetting process; it is a MARPOL requirement that is monitored by way of regular statutory inspections.

All offtake loading events are planned in advance, occur within a petroleum safety zone (PSZ), and are performed under strict operational procedures.

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All offtake loading events are planned in advance, occur within a petroleum safety zone (PSZ), and are performed under strict operational procedures.

CONTINGENCY SPILL RESPONSE OPERATIONS

In the event of a hydrocarbon spill, response strategies will be implemented to reduce environmental impacts to as low as reasonably practicable. The selection of strategies will be undertaken using the Net Environmental Benefits Assessment (NEBA) process. Spill response will be under the direction of the relevant control agency, as defined in the Production Operations Oil Pollution Emergency Plan (OPEP), which may be Santos, another agency or both. In all instances, Santos will undertake a 'first-strike' spill response and will act as the control agency until the designated control agency assumes control. The response strategies considered to be appropriate for the worst-case spill scenarios identified for the activity are detailed in the OPEP and comprise:

- source control (blowout preventer, relief well)
- monitor and evaluate
- mechanical dispersion
- shoreline protection and clean up
- oiled wildlife response
- scientific monitoring
- waste management.

Response strategies are intended to reduce the environmental consequences of a hydrocarbon spill, but poorly planned and coordinated response activities can result in a lack of, or inadequate, information being available, upon which poor decisions can be made, exacerbating or causing further environmental harm.

What impacts are expected?

Spill response operations may be required at any location within the EMBA. Potential environmental impacts include:

- Noise and light emissions – generated by response vessels and equipment which may impact marine fauna, such as fish (including commercial species), marine reptiles and marine mammals.
- Atmospheric emissions – generated from response equipment and vessels are expected to be localised and are not considered to create emissions on a scale where noticeable impacts would be predicted.
- Operational discharges and waste - generated from response equipment and vessels are expected to be consistent with those of normal commercial vessel operations and may create a localised and temporary reduction in marine water quality. Cleaning of hydrocarbon-contaminated equipment, vehicles and vessels has the potential to spread hydrocarbons from contaminated areas to areas not impacted by a spill. Sewage and other waste will be generated from offshore activities at temporary staging/mooring areas, which may include toilet and washing facilities. These wastes have the potential to impact water quality, impact habitats, and reduce the aesthetic value of the environment, which may be within protected areas.
- Physical presence and disturbance - operating vessels during spill response operations has the potential to disturb the physical environment and marine habitats and fauna (e.g. vessel strike, behavioural changes) or cause disruption to other marine users, coastal areas, townships and commercial fishing.

How will Santos manage the risk?

Santos will rely primarily on the implementation of the Production Operations OPEP to manage the potential impacts associated with a spill response event. Other control measures that would be implemented include:

- procedure for interacting with marine fauna
- chemical selection process
- minimum lighting to meet maritime safety and navigation requirements
- air pollution prevention certification
- sewage and oily water treatment systems on vessels
- notify agreed stakeholders.

The implementation of spill response activities to reduce the potential impacts from a spill are required by legislation. The spill response options selected will be demonstrated to show a net environmental benefit, are standard industry practice and are consistent with relevant standards and guidelines, including the National Plan for Maritime Environmental Emergencies. The controls proposed are intended to reduce the consequences of the potential impacts to minor and as low as reasonably practicable and an acceptable level.

SUMMARY OF SANTOS' RISK MANAGEMENT STRATEGY

Santos has a management system that includes specific measures, to be used for the duration of the Production Operations Activity, which seek to confirm that:

- environmental impacts and risks continue to be identified for the duration of the activity and are reduced to as low as reasonably practicable and acceptable levels
- control measures are effective in reducing environmental impacts and risks to as low as reasonably practicable and acceptable levels
- environmental performance outcomes and standards set out in the EP and OEMP are being met
- there will be ongoing appropriate consultation with relevant authorities and other relevant interested persons or organisations
- the roles, accountabilities and responsibilities are defined and understood
- workforce training is completed and competencies assured
- emergency preparedness and response arrangements are in place
- incident reporting, investigation and follow-up is monitored
- audits, inspections, reporting and notifications and document management are appropriately undertaken.

APPROVALS PROCESS

Production Operations Activities detailed in this booklet require a number of regulatory approvals. Primary environmental approvals required for Production Operations Activities are outlined below:

- An Offshore Project Proposal (the Barossa Offshore Project Proposal (OPP)) was developed for the Commonwealth waters component the Barossa Project and was accepted by NOPSEMA in March 2018. The Barossa OPP, at the time of submission, excluded approximately 23 km of GEP in Commonwealth waters which is subject to a separate EPBC Act approval process (refer below).
- A referral under the EPBC Act, covering the installation, operation and decommissioning of the remaining approximately 23 km of GEP in Commonwealth waters and the 100 km section of GEP in NT waters (inclusive of the 8.26 km in NT coastal waters) was submitted to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for assessment. The activity (referred to as the Darwin Pipeline Duplication Project) was determined to be a 'controlled action' under the EPBC Act and is currently being assessed on preliminary documentation.
- A referral under the *NT Environment Protection Act 2019* (EP Act) for the construction, operation and decommissioning of the 100 km section of GEP in NT waters (part of the Darwin Pipeline Duplication Project) was submitted to the NT Environment Protection Authority (EPA) and was subsequently assessed by way of Supplementary Environmental Report. On 22 December 2023, the NT Minister for Environment, Climate Change and Water Security approved the action the subject of the referral, on the recommendation of the NT EPA.

In addition to the primary environmental approvals outlined above, activity-specific Environmental Plans (EPs) meeting the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) (OPGGS Environment Regulations) are required. For Production Operations activities, the OPGGS Environment Regulations apply to the activities within OA1 in Commonwealth waters and OA2, spanning both Commonwealth waters (285 km) and coastal waters of the NT (8.26 km).

The OPGGS Environment Regulations set out that an EP must (among other things):

- comprehensively describe the activity to be carried out under the EP
- describe the environment that may be affected by the activity, including the values and sensitivities of that environment
- detail and evaluate the environmental impacts and risks for the relevant activity
- demonstrate that the impacts and risks of the activity will be reduced to as low as reasonably practicable and an acceptable level (and detail the control measures to be used to achieve this)
- demonstrate that Santos has consulted, in accordance with regulatory requirements, with each relevant person, including those whose functions, interests or activities may be affected by the activities to be carried out under the EP
- demonstrate that the measures (if any) that Santos has adopted, or proposes to adopt, because of the consultations are appropriate

Santos is currently preparing the Production Operations EP for submission to NOPSEMA, covering Commonwealth waters Production Operations activities in OA1 and OA2.

Santos is also preparing an Operations Environmental Management Plan (OEMP) to cover the operation of the GEP in NT waters for submission to DITT. The OEMP will also cover the operation of the 8.26km GEP in NT coastal waters, under the PSL Act and OPGGS Environment Regulations and operation of the remaining ~92km GEP covered under the Energy Pipelines Act.

In order to meet its proposed schedule for the Barossa Gas Project, Santos is aiming to submit the Productions Operation EP to NOPSEMA and the OEMP to DITT in 2024 and, subject to regulatory acceptance, commence activities in 2025. The timeline for consultation has been developed by Santos to meet this objective, while still providing a reasonable period for meaningful consultation with relevant persons, having regard to Santos's regulatory obligations and to feedback from relevant persons.

SEEKING INFORMATION AND WHAT'S NEXT

Santos is continuing its Barossa Gas Project consultation efforts to further learn, understand and assess values and sensitivities of the environment that may be affected by our proposed activities, and potential environmental impacts and risks. There may be information Santos is not yet aware of but needs to properly understand to assess potential activity impacts and risks. Consultation may inform this. It may also inform what control measures are to be proposed to reduce environmental impacts and risks to as low as reasonably practicable and to an acceptable level.

Santos is consulting on both the Production Operations EP (Commonwealth waters) and OEMP (NT waters) at the same time.

Scan this QR Code for more information on Barossa Production Operations Activity:

YOUR INPUT IS IMPORTANT TO SANTOS:

In preparing an EP for submission to NOPSEMA, a titleholder must consult with each 'relevant person', including relevant Commonwealth, State and Northern Territory Departments or agencies and persons (or organisations) whose functions, interests or activities may be affected by the activity proposed to be carried out under an EP.

Relevant persons being consulted on EPs under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth) (OPGGS Environment Regulations) should note that they:

- are entitled to be given sufficient information to allow them to make an informed assessment of the possible consequences of the activity on their functions, interests or activities;
- are entitled to be allowed a reasonable period for the consultation; and
- may request particular information provided in consultation not be published.

If you request particular information not to be published, Santos will respect and abide by your request. Any information not to be published will be provided to NOPSEMA in a confidential report, separate from the published EP.

Your input is important to Santos:

- so that we can understand the environmental values in the OAs and the environment that may be affected, the environmental impacts and risks associated with the activity, to inform development of the Productions Operations EP (Commonwealth waters) and OEMP (NT waters);
- to inform how consultation processes may need to be adapted for different relevant persons; and
- to ensure that we provide information to relevant persons in an appropriate and accessible manner.

If you think you may be a relevant person for the purposes of one of Santos' proposed activities, please contact Santos on: **1800 267 600** or email **offshore.consultation@santos.com** to seek to be included in consultations and to provide feedback on how you would like to be consulted (if a relevant person).

This can also be done using the form available by scanning the QR Code below:

Visit **www.santos.com/barossa** for more information on the Barossa Gas Project.

Closeout email

This email or the content it contains was sent as appropriate to relevant entities.

Good afternoon,

We refer to our previous correspondence regarding consultation for environment plans for Santos' Barossa Project Operations activities in Commonwealth waters and Northern Territory waters.

Between February and May this year, Santos provided opportunities for your organisation to seek to participate in consultation and provide input regarding these activities, the environment that may be affected by the proposed activities, and the environmental impacts and risks associated with the proposed activities.

Santos would like to thank you for your response and any input provided to date. With the consultation period now complete we consider that consultation has now closed for the purpose of Santos finalising and submitting environment plans for these activities to government regulators for assessment.

Regards

Barossa Consultation Coordinator
Email: offshore.consultation@santos.com

Phone: 1800 267 600

Santos

Video/Animation

Barossa Production Operations

SantosLtd
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[(Link to video)]

Photos, posters and iPad-based server-documents

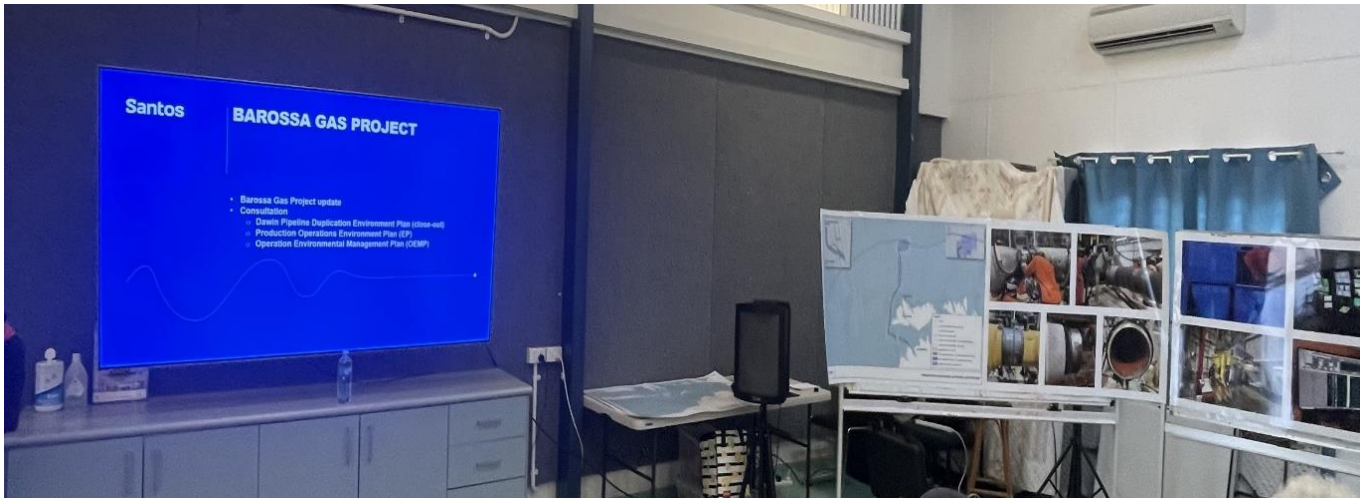
The consultation setup, visual tools (posters) and document tools (iPad server-based documents) made available to relevant persons attending consultation workshops are shown below.

Consultation Session Set Up: 21 May 2024, Pirlangimpi, Sports & Social Club

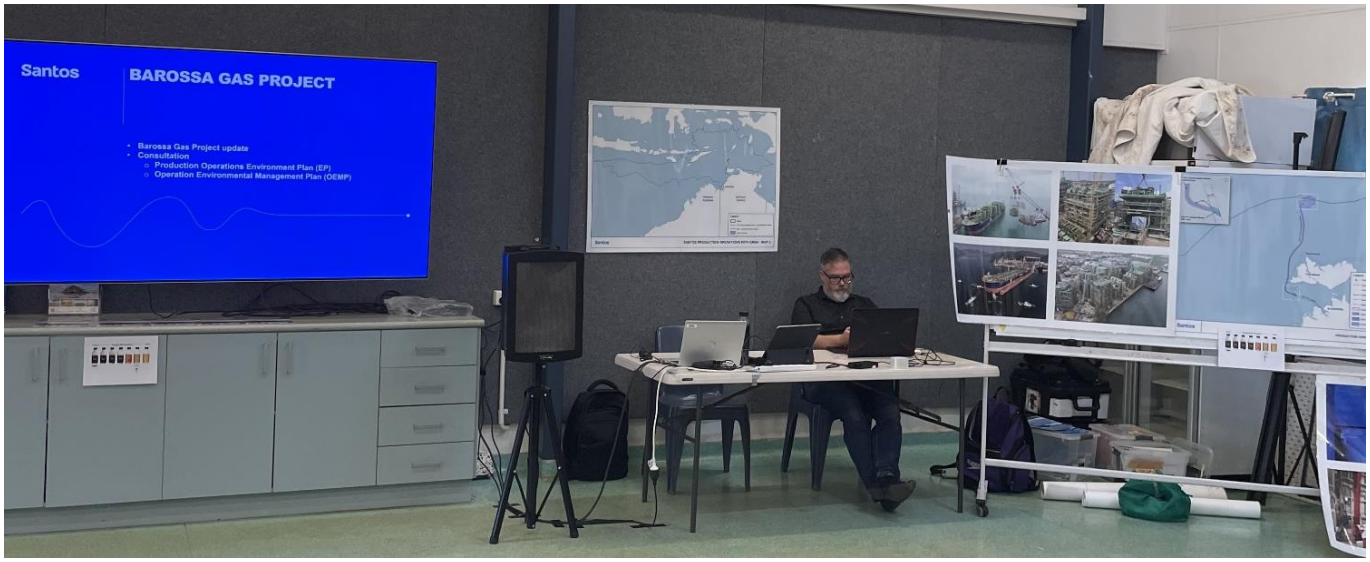
Consultation Session Set Up: 15 May 2024, Wurrumiyanga, Mantiyupwi Motel

Consultation Session Set Up: 15 May 2024, Wurrumiyanga, Mantiyupwi Motel

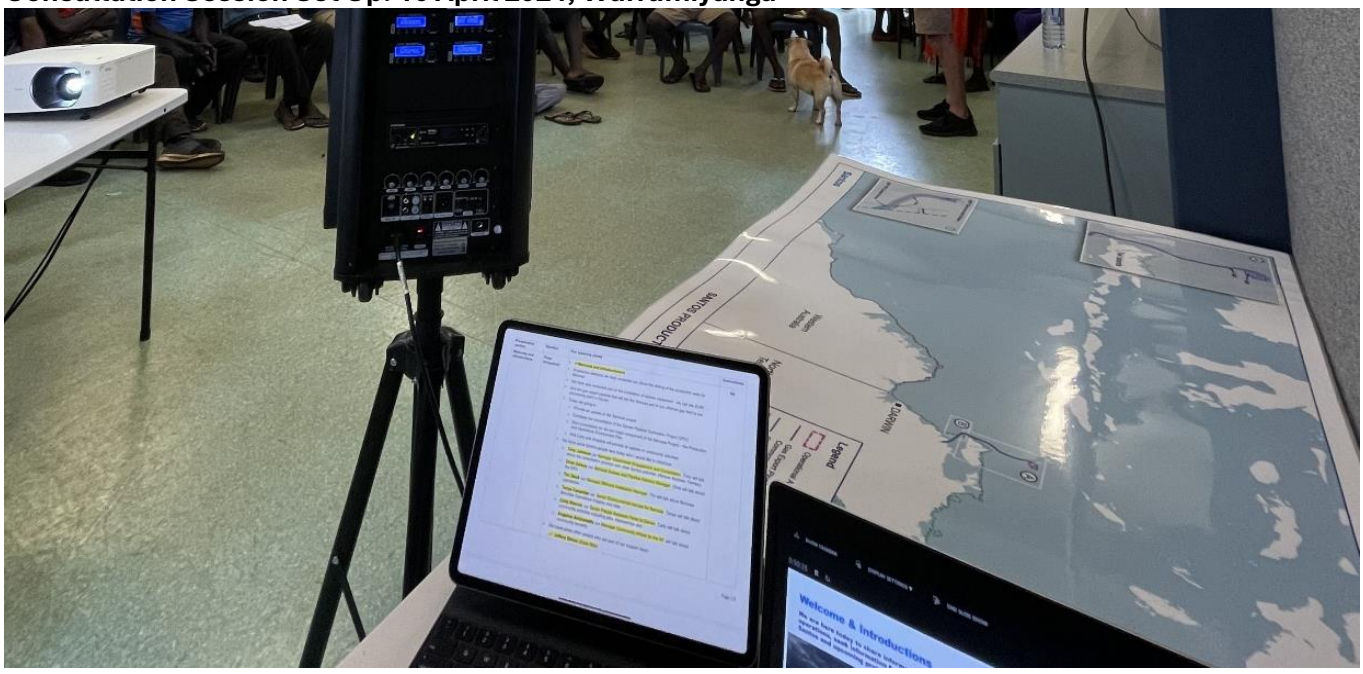
Consultation Session Set Up: 6 March 2024, Wurrumiyanga



Consultation Session Set Up: 7 March 2024, Wurrumiyanga



Consultation Session Set Up: 10 April 2024, Wurrumiyanga



Consultation Session Set Up: 10 April 2024, Wurrumiyanga

Consultation Session Set Up: 5 March 2024, Milikapiti, Sports & Recreation Centre

Consultation Session Set Up: 5 March 2024, Milikapiti, Sports & Recreation Centre

Consultation Session Set Up: 5 March 2024, Milikapiti, Sports & Recreation Centre

Wed 22 May: 10.30am – Wurankuwu Clan & Malawu Clan (came to one joint session), Wurrumiyanga, Mantiyupwi Motel**

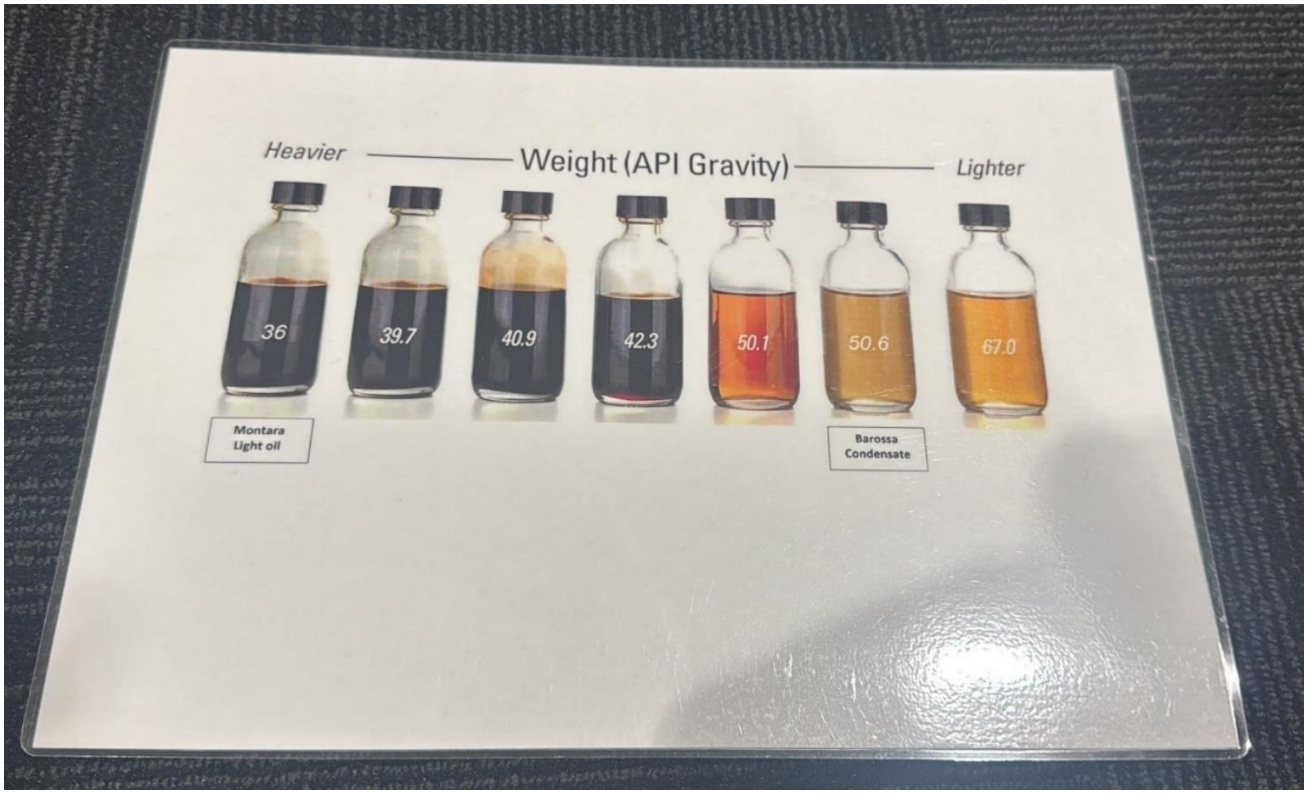
Consultation Visual Tool: Photo of the A0 sized Production Operations Laminated Poster utilised at each consultation session

Consultation Visual Tools: Photo of the A0 sized Barossa Overview Laminated Poster utilised at each consultation session & NOPSEMA Consultation Brochures

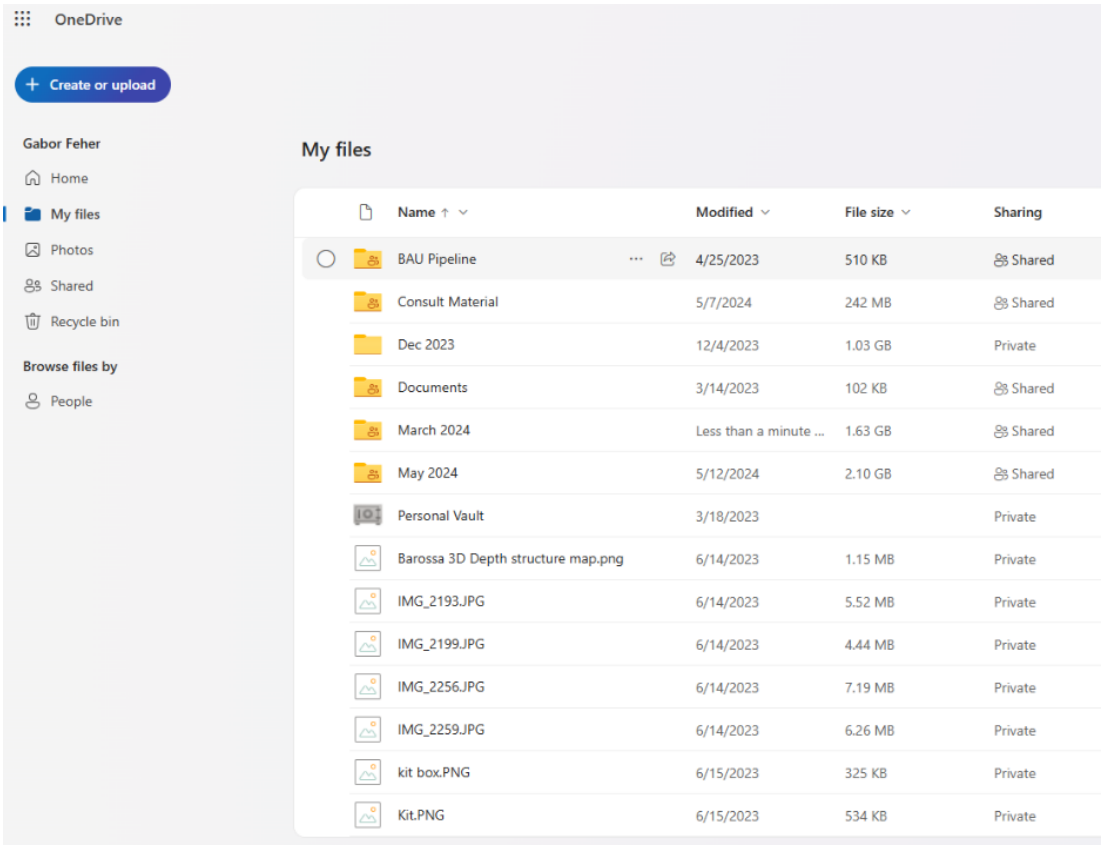
Consultation Visual Tool: Photo of the A0 sized Laminated Poster (Pipe Weld on pipelay vessel) utilised at each consultation session

Consultation Tool: Photo of the A0 sized Laminated Poster (Pipelay Control Room, Underwater Images, ROV) utilised at each consultation session

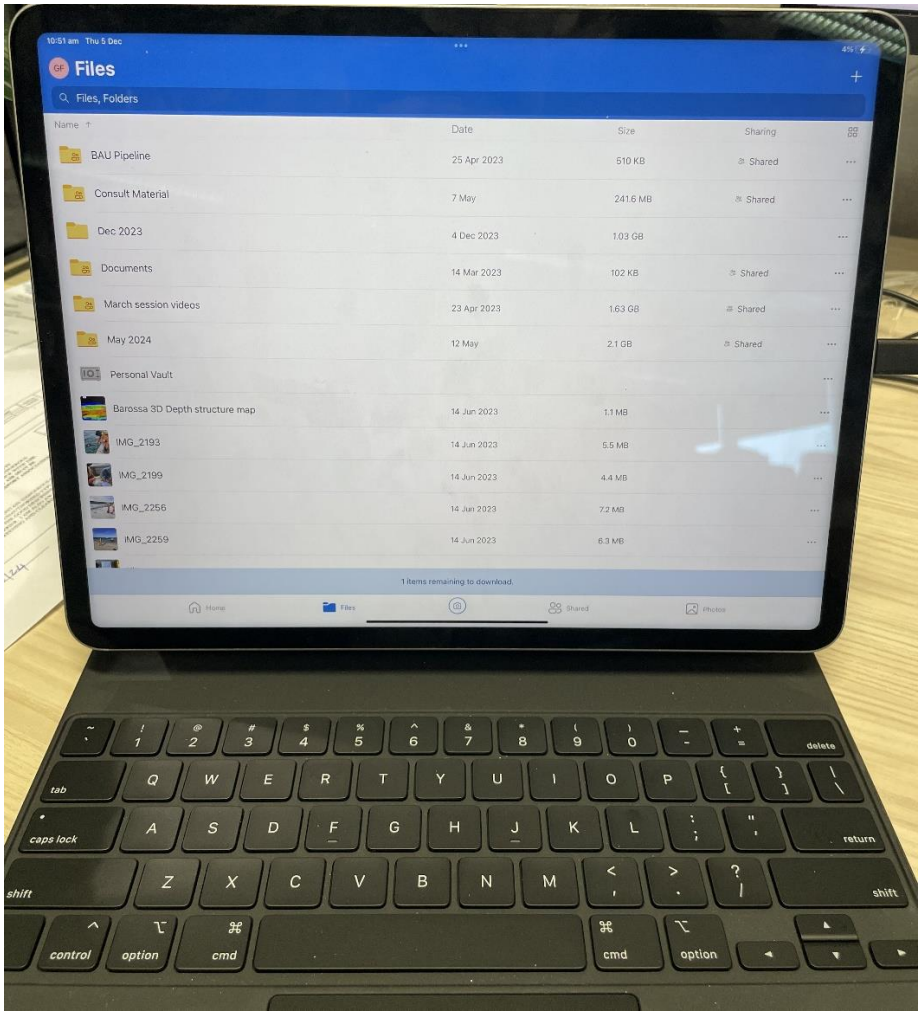
Consultation Tool: A0 sized FPSO Construction Laminated Poster utilised at each consultation session



Consultation Visual Tool: A4 sized Oil and Condensate Laminated Image



Consultation Tools: Server Based Documents Prepared for IPAD Uploads, 2023 & 2024



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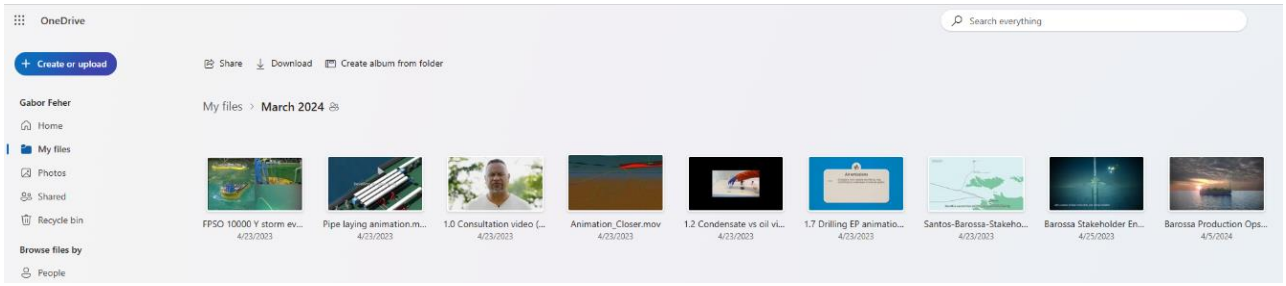

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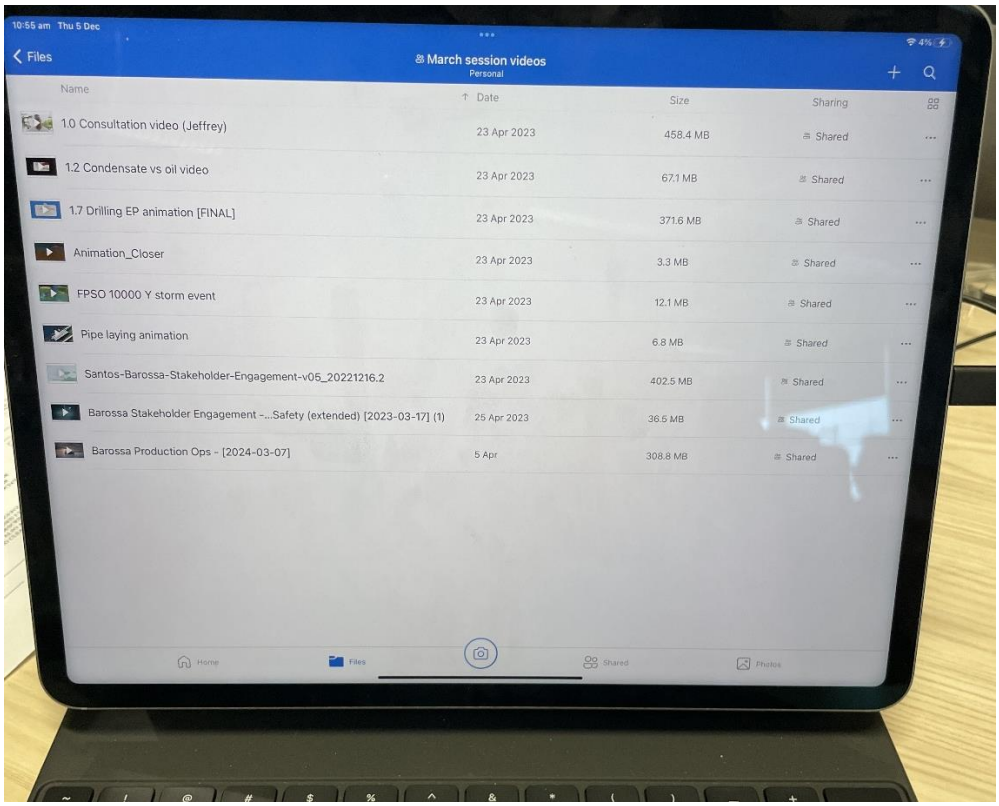

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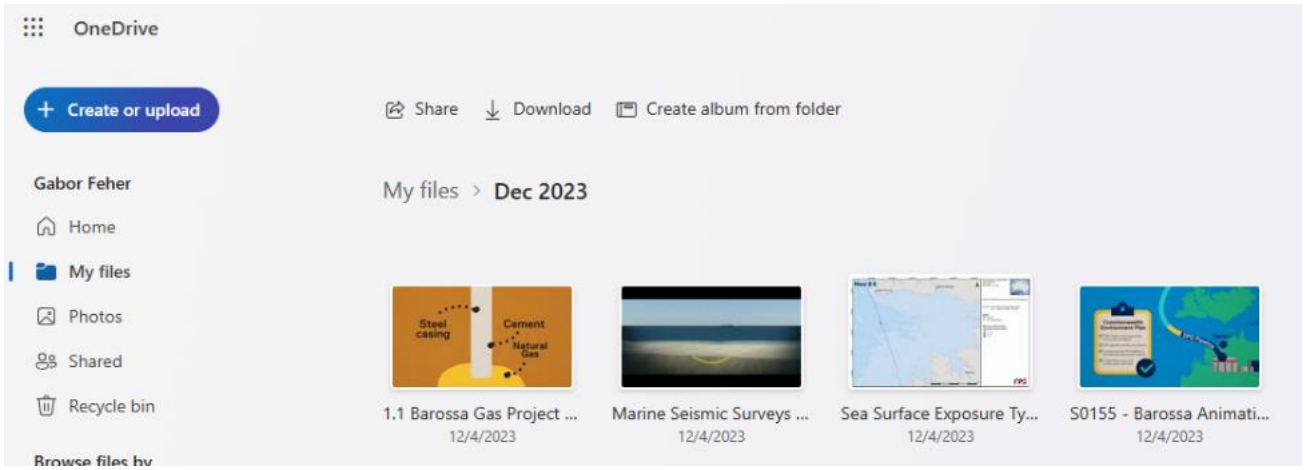

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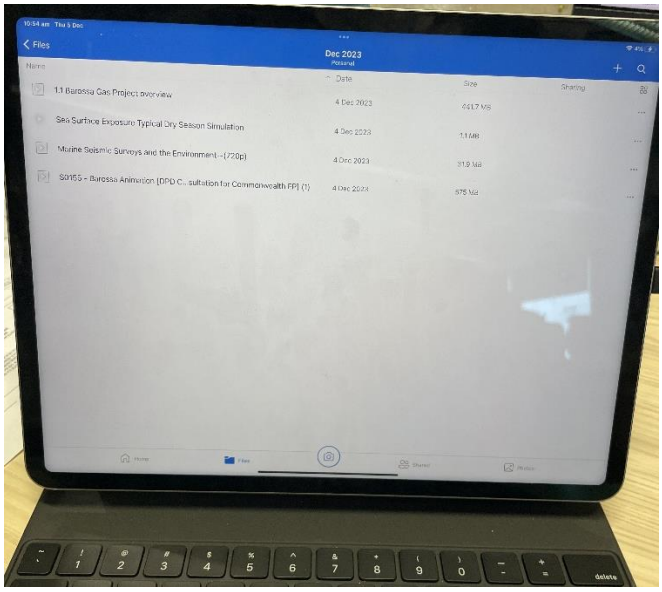

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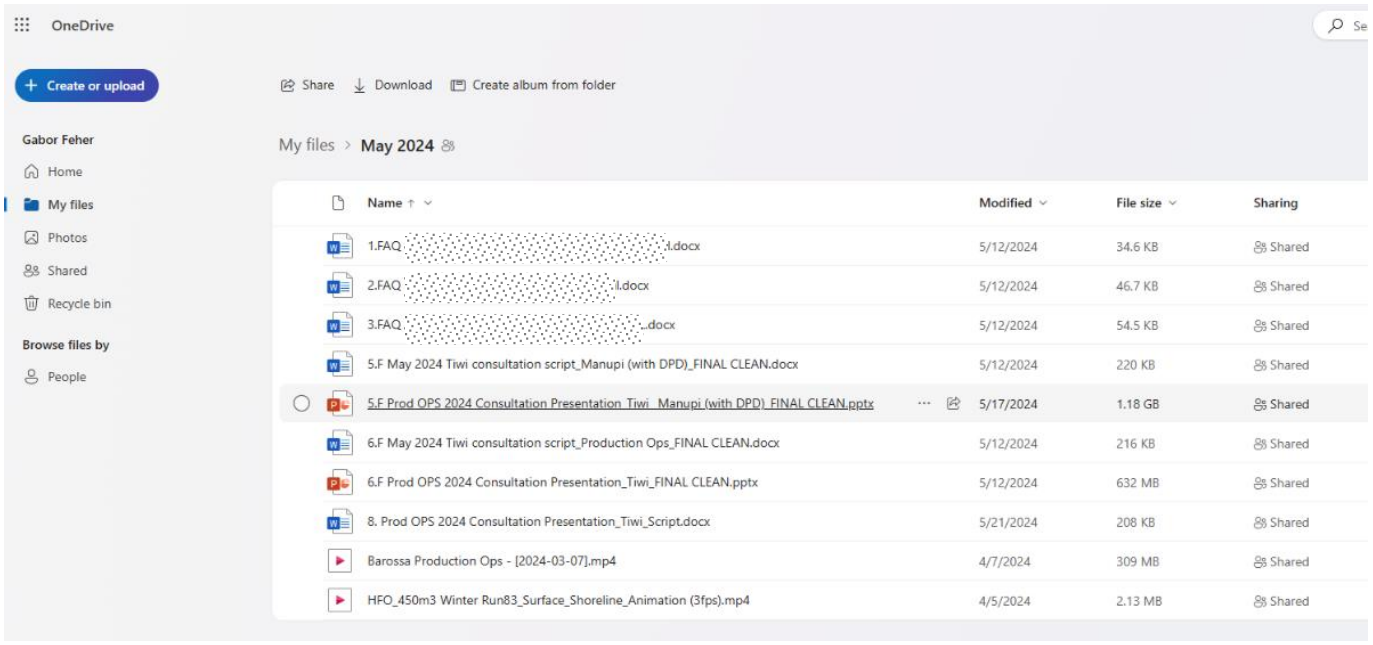
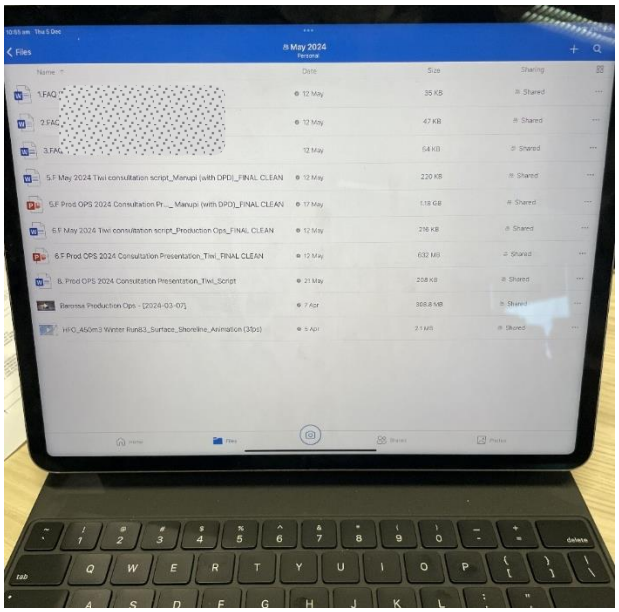


Consultation Tools: Server Based Documents Prepared for IPAD Uploads, May 2024



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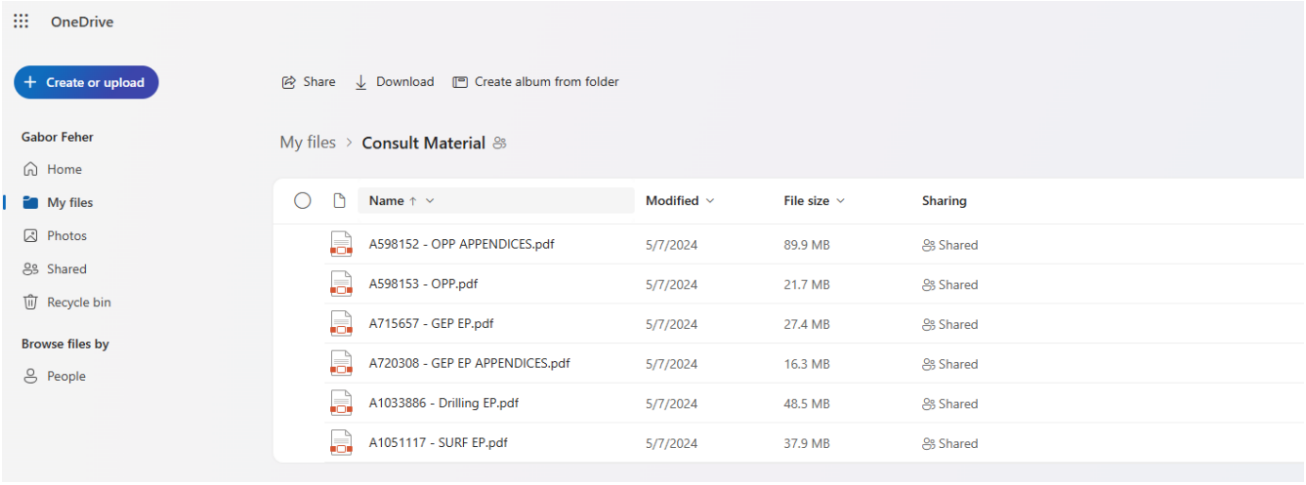

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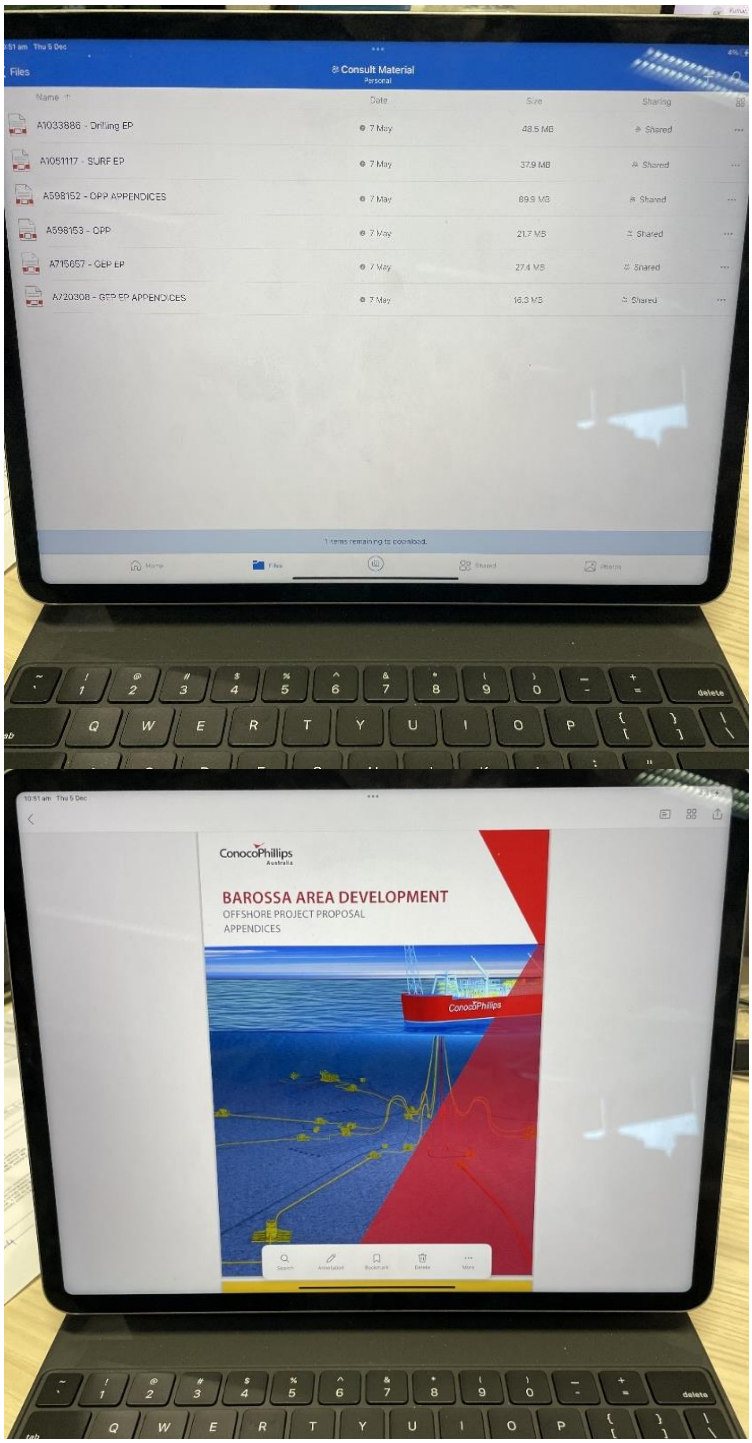
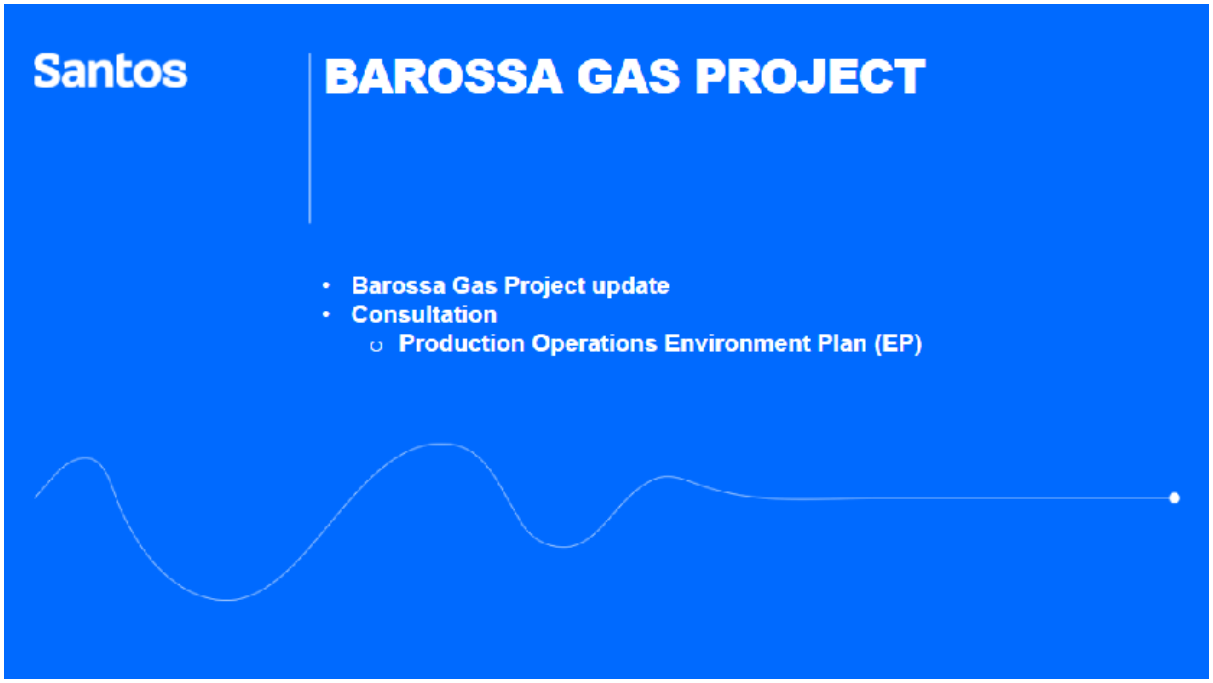


Photos of IPAD with May 2024 Documents Uploaded

PowerPoint presentation

The content of this presentation was presented to various relevant persons throughout the consultation period.



Santos

Acknowledgement of Country

I would like to begin by acknowledging the Traditional Custodians of the land and water on which work, and where we meet today.

We pay our respects to Elders past, present and emerging, and extend that respect to all Aboriginal and Torres Strait Islander peoples here today.

Santos

WELCOME AND INTRODUCTIONS

Welcome & Introductions

We are here today to share information about our company and operations, seek information from you and listen to your questions about Santos and upcoming projects.

Tony Johnson (TJ)- *Manager, Stakeholder Engagement & Consultation, Offshore*

Emma Haddon– *Senior Environmental & Consultation Advisor*

Good Advice Cultural Advisors

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SANTOS OPERATIONS & DARWIN LNG

SANTOS - South Australia, Northern Territory Oil Search

Santos is a global energy company committed to increasingly cleaner energy and fuels production, with operations across Australia, Papua New Guinea, Timor-Leste and North America (Alaska).

At Santos, our commitment is to be a global leader in the transition to cleaner energy and clean fuels, by helping the world decarbonise to reach net-zero emissions in an affordable and sustainable way.

For 70 years, Santos has been working in partnership with local communities, providing local jobs and business opportunities, safely developing its natural gas resources, and powering industries and households.

Santos is one of Australia's biggest domestic gas suppliers and a leading LNG supplier in the Asia Pacific region.

We are committed to supplying critical fuels in a more sustainable way through decarbonising projects.

Our business focus: Safe, reliable operations & Minimise our social and environmental impacts.

Darwin LNG Facility & Operations

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- Located in Darwin at Wickham Point, Darwin LNG (DLNG) is a gas liquefaction and storage facility that started production in 2006.
- Gas has been provided to the Darwin LNG from the Bayu-Undan gas field, located in between Australia and Timor Leste. Darwin LNG has shipped its 835th and final LNG cargo from the Bayu-Undan field.
- DLNG generates about $100 million a year in supply and service opportunities for Territory businesses.
- 100% Darwin residential Santos employee workforce and approx 180 local Darwin people work at the LNG Facility.
- DLNG established the NT's first LNG Process Operator Traineeships in 2010. 10% of those who have completed identified as an Aboriginal or Torres Strait Islander.

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BAROSSA GAS PROJECT OVERVIEW & UPDATE

Barossa Project Update

Santos

- The drill rig has finished drilling the second well to just above the reservoir and installed plugs.
- A Tubing Head Spool has been installed on the second well.
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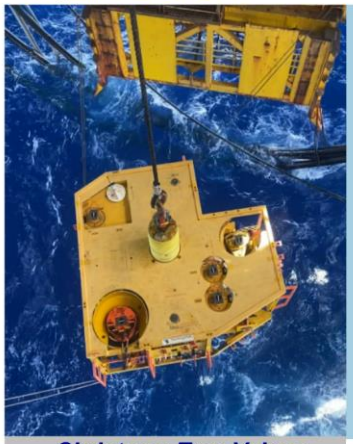
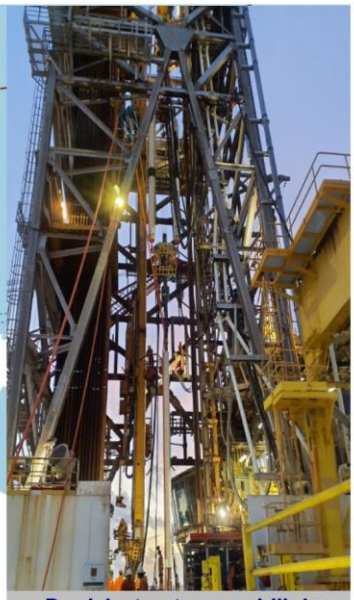
- The Christmas tree is series of big valves and it works like a tap to open and close the well.



Christmas Tree Valves



Derrick structure on drill rig

Barossa Project Update

Santos

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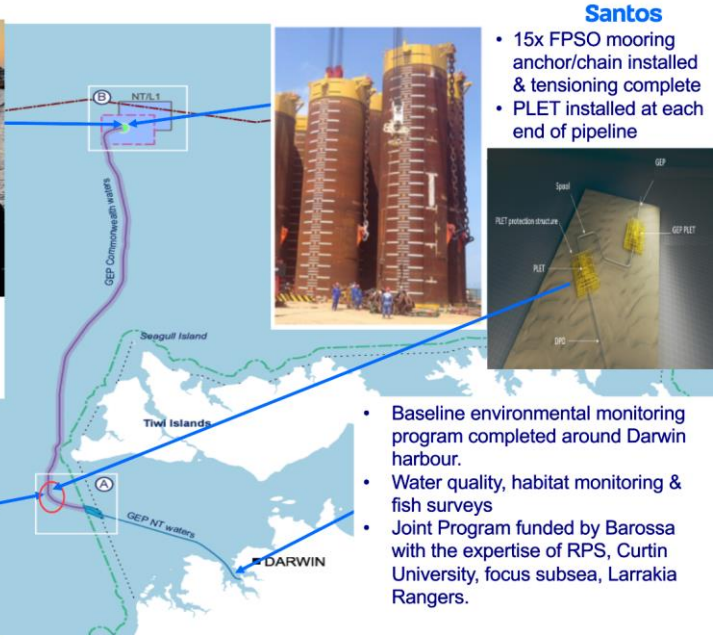

- 15x FPSO mooring anchor/chain installed & tensioning complete
- PLET installed at each end of pipeline

- Installation of the 262km Gas Export Pipeline is complete up to DPD PLET.
- Audacia (pipelay vessel) has departed Australia.
- Fortitude is conducting post-lay works on the pipeline and will soon commence pipeline testing.

- Baseline environmental monitoring program completed around Darwin harbour.
- Water quality, habitat monitoring & fish surveys
- Joint Program funded by Barossa with the expertise of RPS, Curtin University, focus subsea, Larrakia Rangers.

Barossa Project Update

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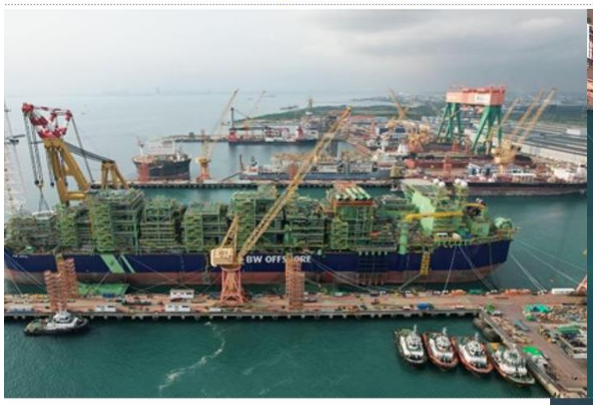

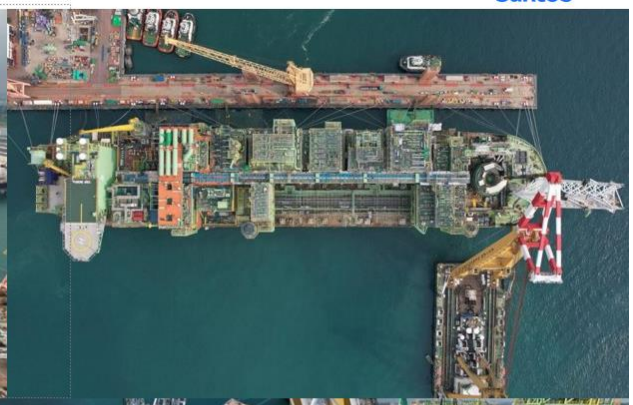

- Construction activities continue in Singapore Shipyard.
- Ongoing installation of modules and large process equipment on FPSO.
- ROV survey of hull for marine biofouling complete and a report will be prepared with that data.

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CONSULTATION SESSION

Consultation – reg 25, *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth)

(previously known as reg 11A, *Offshore Petroleum and Greenhouse Gas (Environment) Regulations 2009* (Cth))

Santos Consultation Introduction

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Privacy Statement

Santos Ltd and its related bodies corporate (together, we, our, us or Santos) collect personal information about you, such as your name and sensitive information about your indigenous heritage. We use this information to record your attendance at any meeting or other discussion with us, to provide you with information about our projects, to receive and respond to any information that you provide, to answer any questions you might have and for other purposes that we tell you about during your meeting or other discussion with us. Santos will handle any information that you provide in accordance with our Code of Conduct and our Confidentiality, IP and Privacy Procedure. You can ask us for a copy of this Privacy Notice or these other documents.

If you do not provide your personal information, we may not be able to identify you as the person who provided particular information or we may be unable to discuss any information you have provided with you further or respond to your questions. We may disclose your information to other companies within the Santos group, to third parties that help us run our business and to relevant government agencies and government departments.

Due to the global nature of our operations and business, your personal information may be accessed by or disclosed to Santos personnel outside Australia. We may also use overseas third parties to collect, transfer, store and handle your personal information. Some of the overseas countries that your personal information may be accessed from, disclosed or transmitted to or stored in include but are not limited to, Papua New Guinea and the United States of America.

You have a right to request a copy of any personal information that we hold about you, as well as a right to request that we correct any information that we hold about you that is inaccurate, out-of-date, incomplete, irrelevant or misleading. You can also make a complaint about how we have handled your personal information. Our Consultation Privacy Policies explain in more detail how you can exercise these rights, including how we will respond to your access or correction request or to any privacy complaint that you make. The Barossa Gas Project Consultation Privacy Policy is available on our website at www.santos.com/barossa/barossa-gas-project-consultation-privacy-policy, and the Northern Territory Consultation Privacy Policy is available on our website at https://www.santos.com/offshore-wa-and-nt-consultation-privacy-policy/. You can also contact us to request copies be provided to you.

You can contact us by:

- posting a letter addressed to us at 60 Flinders Street, Adelaide, South Australia, 5000;
- telephoning us on +61 8 8116 5000; or
- sending us an email at offshore.consultation@santos.com and compliance@santos.com.

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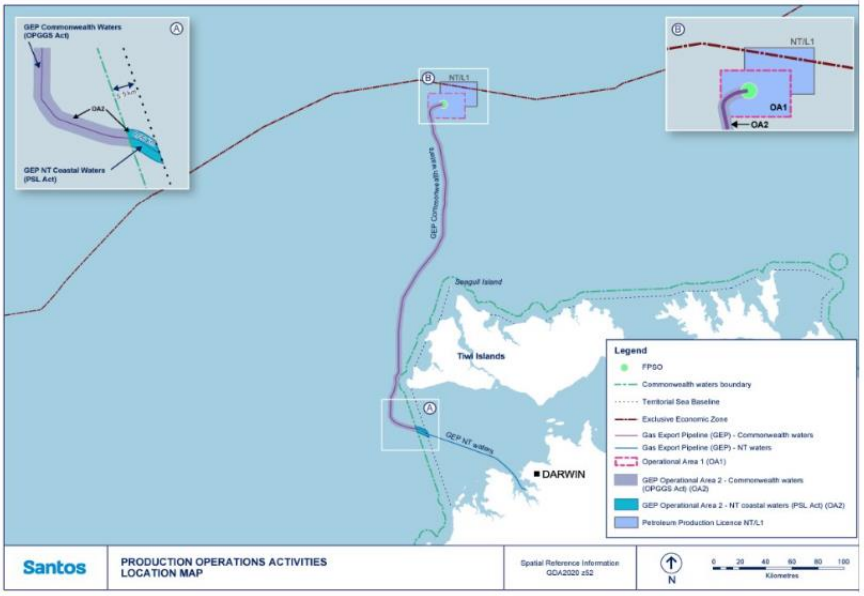
BAROSSA PRODUCTION OPERATIONS ACTIVITY OVERVIEW

Production Operations Activity - Summary

Santo

Key Activities	
Arrival FPSO	arrival & connection to mooring buoy
Hook-up & Commissioning FPSO systems & subsea equipment	Commissioning activities (testing) and prepare for start-up
Production Operations FPSO systems & subsea equipment	gas & condensate is processed on the FPSO
Offtake operations FPSO & tankers	condensate stored on the FPSO is removed 4-5 times a year by offtake tankers
Gas Export Pipeline Operations	dry gas is sent to DLNG via the GEP
Support Operations Vessels	transport food & materials
Support Operations Helicopters	transport people to/from FPSO
Support Operations-IMMR GEP & subsea equipment	planned underwater visual Inspection, Maintenance, Monitoring and Repair activities using remotely operated vehicles



Production Operations Activity - FPSO

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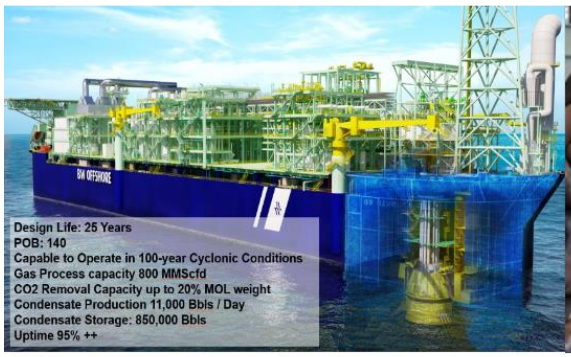

FPSO

- 359m long or approx. 2.5 MCG football fields
- 64 m wide ,
- Houses 140 people

Mooring Line Chains

- Chains attach to FPSO mooring buoy & anchor piles
- Total of 11.3 km in length
- Weigh 5500 tonnes or approx. 2200 land cruisers

Anchor piles

- sink into seabed & attach to mooring buoy
- 19m high x 7m round
- Weigh 140 tonne each

Production Operations Activity - FPSO

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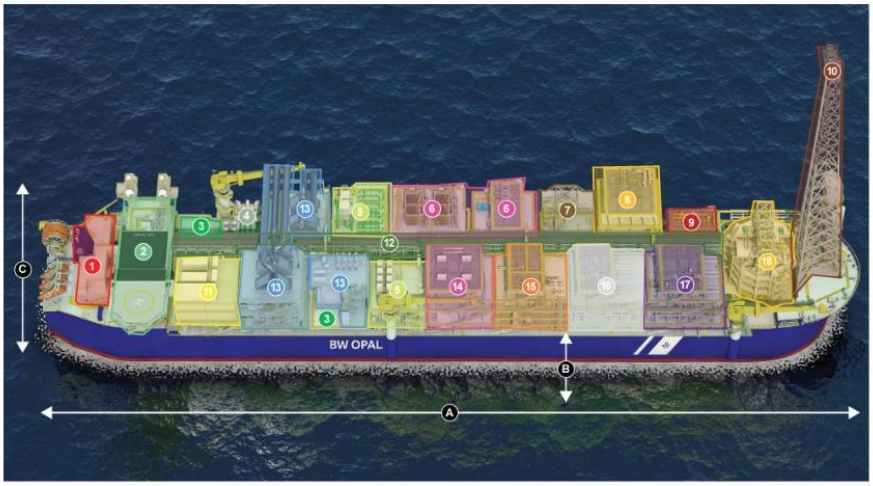

1. Engine Room
2. Living Quarters
3. Laydown Areas
4. Seawater Lift Caissons
5. Utilities
6. Gas Treatment A & B
7. Condensate & Produced Water Treatment
8. Production Separation Module
9. Flare Knock Out Drum
10. Flare
11. Electrical-House
12. Central Piperack
13. Power Generation A, B & C
14. Gas Treatment C
15. Flash Gas Compressor
16. Future LP Gas Compressor
17. Export Gas Compressor
18. Turret

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BAROSSA PRODUCTION OPERATIONS PLANNED ACTIVITIES IMPACTS & RISKS

Presented by Barossa Team

Production Operation Activity Impacts

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Planned Activities	Potential Impact	How we Manage (the rules we follow)
Light emissions	Behavioural impact to marine life (e.g., attraction)	We only use lights where needed for safe operations and to comply with relevant safety rules. We turn off lights when not required.
Noise emissions	Behavioural impact to marine life (e.g., avoidance)	The FPSO has been designed to reduce noise emissions. We follow procedures and look out for marine life (e.g. whales, dolphins, turtles) and we slow down and move away from them where possible if they are too close. Boats and equipment will be maintained to minimise noise.
Seabed disturbance (from inspections, maintenance, monitoring and repair)	Temporary loss of habitat	We will accurately and safely place infrastructure using dynamic positioning to minimise seabed disturbance. Records of all installed equipment will be kept so it can be removed during decommissioning.
Discharges (produced water, discharges from the FPSO, subsea equipment and boats)	Impact to water quality	We will manage discharges to acceptable levels and follow the standard rules for what boats can discharge. We will select chemicals that are environmentally acceptable, and we will limit their use to only what is needed. We will use a water treatment system for produced water discharges and the water will regularly be tested before release.
Air emissions	Impact to air quality	The FPSO has been designed to reduce air emissions. We ensure engines and other equipment are looked after and low emission fuel will be used.
Greenhouse gas emissions	Insignificant contribution to national and international greenhouse gas levels from direct and indirect emissions	The FPSO has been designed to reduce greenhouse gas emissions and we will have a Greenhouse Gas Management Plan to minimise greenhouse gas emissions over the life of operations. We will comply with the Australian Government Safeguard Mechanism and also legal and regulatory requirements for emissions reporting.
Physical presence (disturbance to other boats)	Exclude other users from activity area	We will communicate to other boats where we are and what we are doing. We mark the location of equipment on charts.

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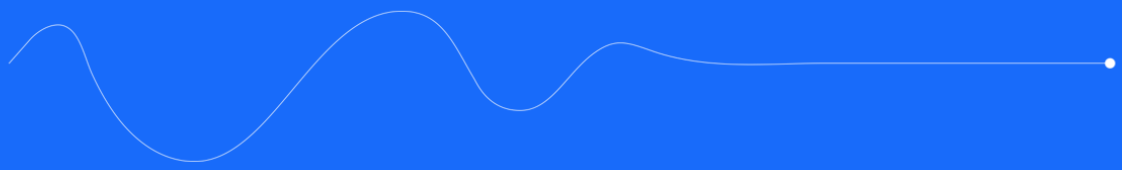
BAROSSA PRODUCTION OPERATIONS UNPLANNED EVENTS IMPACTS & RISKS



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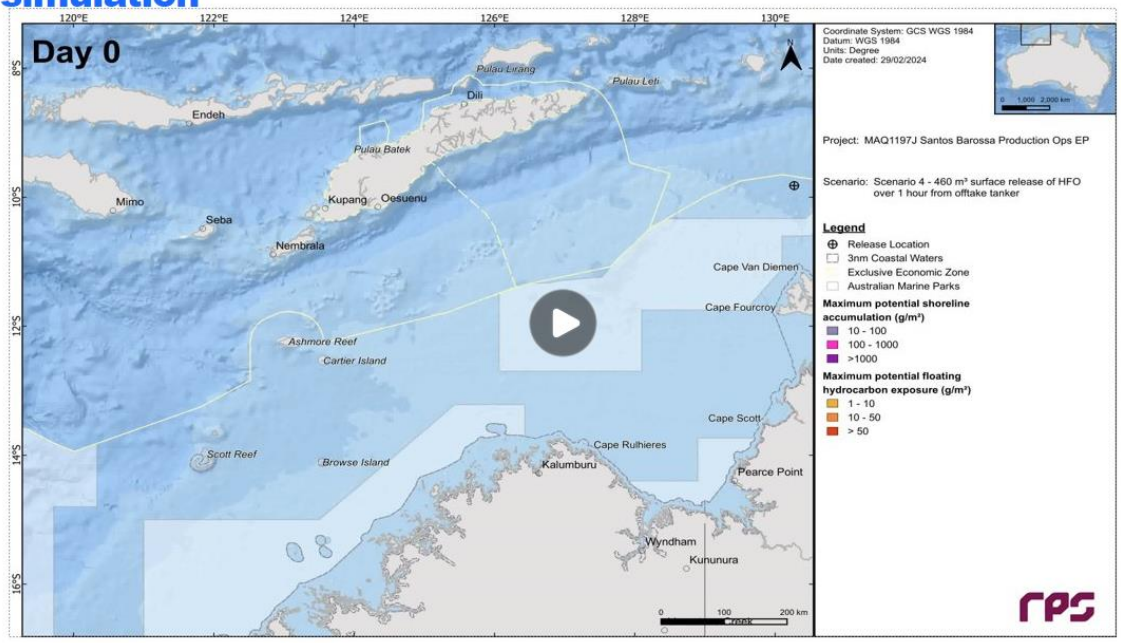
Production Operations Spill Animation – typical dry season simulation



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CLOSE OF CONSULTATION

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COMMUNITY UPDATE

Employment and Training

Follow Up Answers to Questions

Community Update

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Topic	Question
Employment & Training Opportunities	How many First Nations people are employed on the Barossa Gas Project?
	How many First Nations People are employed with Santos altogether?
	How do we find out about any new employment opportunities?
	How do we apply for jobs and traineeships?

Employment Outcomes

Pipelay Cultural Observers & Monitors:

- 5 Tiwi People engaged as Cultural Observers & Monitors on Allseas Pipelay and Survey Vessels.
- Review ROV Footage during surveys and provide support if any finds on seabed while the Barossa pipeline is being laid.

Drilling Rig Assistant Roles:

- 7 First Nations people from Larrakia and Tiwi are employed in entry level offshore roles on the Santos contracted drill rig for Barossa.

Santos Offshore Health, Safety & Environment Advisor Traineeships

- 2 x HSE Advisor Traineeships with Santos, in partnership with Programmed Skilled Workforce to obtain a Certificate IV in HSE (12-18 month program).
- Recruitment process in final stages, with successful candidates on track to commence before July 2024.

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BAROSSA ABORIGINAL FUTURE FUND

Community Benefits

Employment & Training Program Outcomes

Santos-Kaefer (funded by Darwin LNG)

- Support Indigenous peoples by equipping participants with skills and knowledge to prepare them for long-term employment opportunities.
- Onsite training in Darwin at Darwin LNG and Kaefer workshop in Darwin.
- Training areas include scaffolding, HSE Traineeship, University Degree (HR or Mech Engineering), Accounting/ Bookkeeping Traineeship, Trade Apprenticeship
- Successful candidates are employed by Kaefer.
- Applications for 2024 opportunities have now closed.
- If you or a family member would like to register interest for future opportunities, please contact Kaefer via:
- FNrecruitment@kaefer.com.au
- k.thorn@kaefer.com.au
- Kylie Thorn: 0474 159 206

Santos

Santos is committed to supporting the communities where we operate

NT Aboriginal Coastal Communities (including homelands & outstations)

The Barossa Aboriginal Future Fund (BAFF) will invest in areas that provide an enduring legacy for NT Aboriginal Coastal Communities by:

- Improving community infrastructure
- Improving services that improve health, education, housing, community resilience and economic outcomes
- Enabling communities to maintain cultural practices and carry out cultural obligations
- Enabling communities to care for their country
- Building capacity to establish pathways to skilled, well-paying, secure jobs and business development opportunities.

NT Aboriginal Coastal Communities the Barossa projects operates in includes Tiwi Islands, Darwin-Daly-Wagait, West Arnhem, East Arnhem and Victoria River District.

Santos Foundation - Supporting local PNG priorities

Healthcare, Community Development, Family & Sexual Violence, Youth Opportunities

Helping the next generation

"We want to see the children excel in early childhood learning so they can continue to elementary schools equipped with the fundamental tools they need."

Pale Mbipe of Hela Province, PNG

Unlocking barriers to healthcare

"We undertook repairs to the water supply, renovated the maternity ward, and repaired other buildings at the hospital. We will be able to diagnose and treat people very quickly now with these new services available in Koroba."

Dr James Kintwa,
CEO Hela Provincial Health Authority

Bel isi PNG case management and community leadership

"We host events and learning sessions throughout the year aimed at raising awareness and imparting tools to address family violence."

Leon Buskens,
Santos Country Chair PNG

BAROSSA ABORIGINAL FUTURE FUND

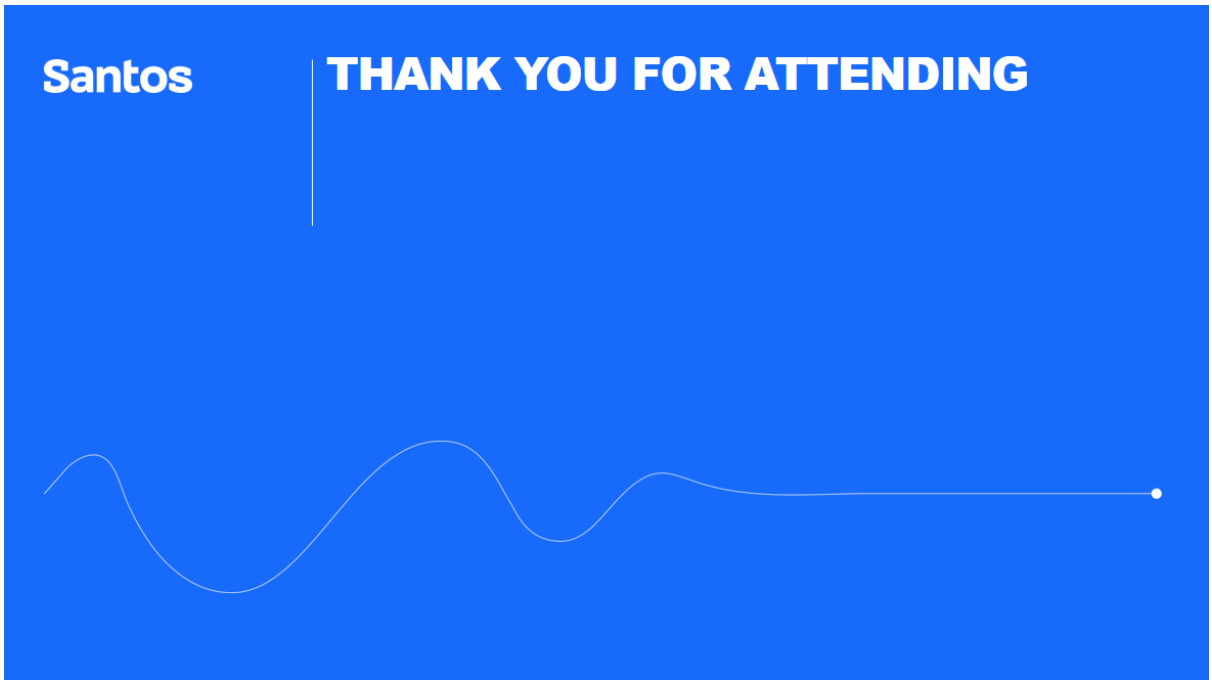
Santos wants to listen to NT Aboriginal Coastal Communities about the needs for their communities.

Santos is working with our Barossa Joint Venture Partners to establish legal structures with sound governance

The Santos NT Community Team will continue to visit Tiwi and other NT coastal regions even after consultation is complete.

If you want more information or want to share your ideas, you can visit the NT Community Team at the Santos shop in the Darwin Mall or contact us through:

Email: enquiriesNT@santos.com Phone: +61 8919 1900



PowerPoint presentation

These slides were shown as part of close out meetings with Tiwi clans.

Santos

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- ***Peter Kirkpatrick*** *– General Manager Darwin*
- ***Tanya Carpenter*** *– Senior Environmental Adviser*
- ***Angelina Anictomatis*** *–Manager Government Affairs and Community*
- ***Neil Pomfret*** *– First Nations Engagement Advisor – NT/WA*
- ***Support Team****–Emma, Khang, Stanley, Kode Blak, Melbourne Minute*

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BAROSSA GAS PROJECT OVERVIEW & UPDATE

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Santos

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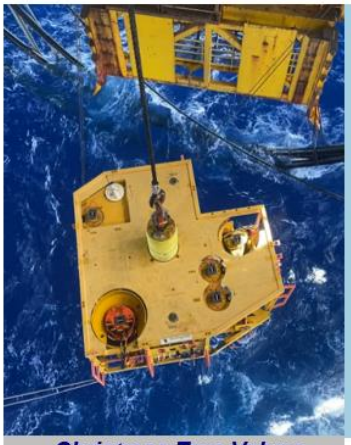

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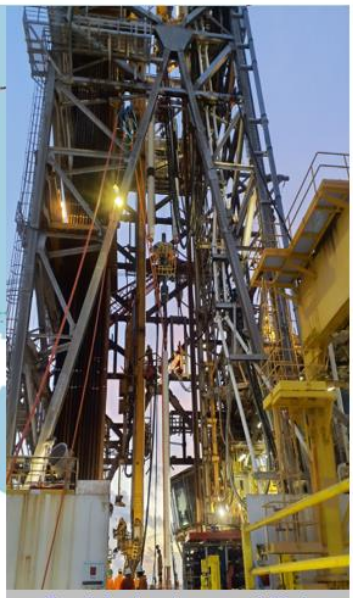

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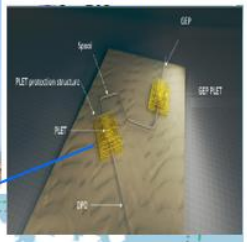


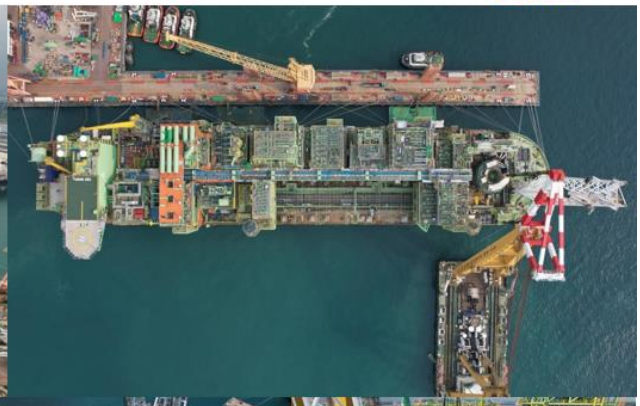
- Installation of the 262km Gas Export Pipeline is complete up to DPD PLET.
- Audacia (pipelay vessel) has departed Australia.
- Fortitude is conducting post-lay works on the pipeline and will soon commence pipeline testing.

- Baseline environmental monitoring program completed around Darwin harbour.
- Water quality, habitat monitoring & fish surveys
- Joint Program funded by Barossa with the expertise of RPS, Curtin University, focus subsea, Larrakia Rangers.

Barossa Project Update- Anchor Installation

Barossa Project Update

Santos

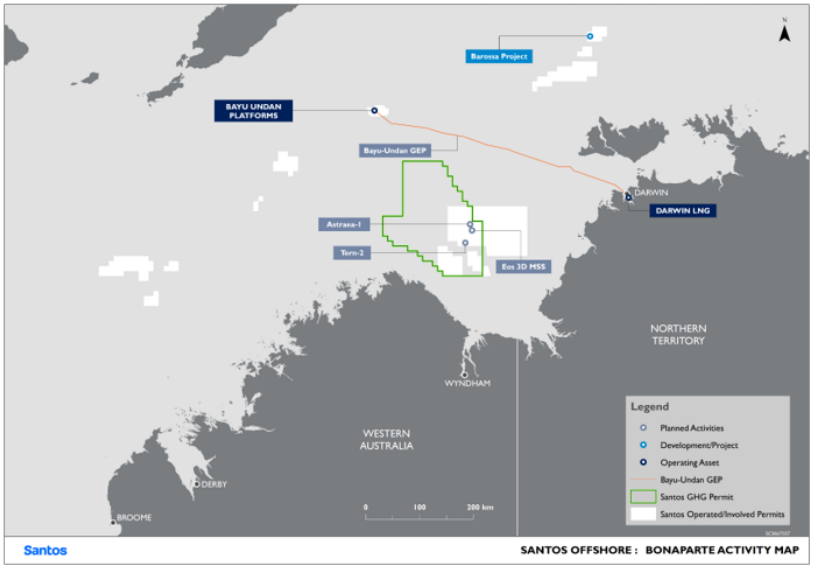


- Construction activities continue in Singapore Shipyard.
- Ongoing installation of modules and large process equipment on FPSO.
- ROV survey of hull for marine biofouling complete and a report will be prepared with that data.

Other Santos Activity Update 2024

Santos

Planned Activities	Status
Bayu-Undan Gas Export Pipeline Operations (preservation phase)	Consultation closed. EP under assessment by NOPSEMA.
Tern-2 Plug and Abandonment	Consultation closed. EP under assessment by NOPSEMA.
Eos 3D Marine Seismic Survey	Consultation closed. EP to be submitted to NOPSEMA in Q2 2024.
G-11-AP Carbon Capture and Storage Appraisal Well (Astraea-1)	Consultation closed. EP submission to NOPSEMA in Q3 2024.



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CONSULTATION SESSION

Consultation – reg 25, *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth)

(previously known as reg 11A, *Offshore Petroleum and Greenhouse Gas (Environment) Regulations 2009* (Cth))

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You can contact us by:

- posting a letter addressed to us at 60 Flinders Street, Adelaide, South Australia, 5000;
- telephoning us on +61 8 8116 5000; or
- sending us an email at offshore.consultation@santos.com and compliance@santos.com.

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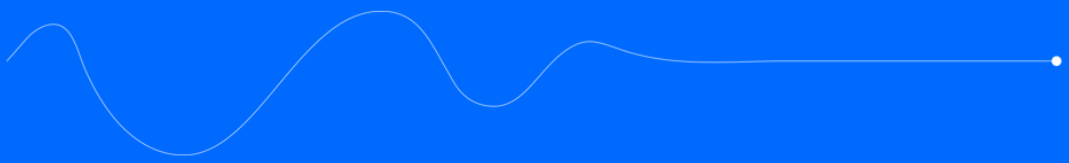
BAROSSA PRODUCTION OPERATIONS ACTIVITY OVERVIEW



Production Operations Activity - FPSO

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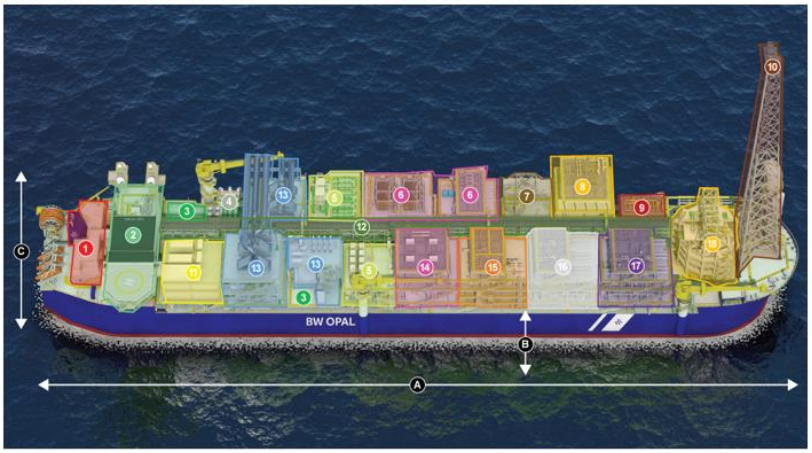

1. Engine Room
2. Living Quarters
3. Laydown Areas
4. Seawater Lift Caissons
5. Utilities
6. Gas Treatment A & B
7. Condensate & Produced Water Treatment
8. Production Separation Module
9. Flare Knock Out Drum
10. Flare
11. Electrical-House
12. Central Piperack
13. Power Generation A, B & C
14. Gas Treatment C
15. Flash Gas Compressor
16. Future LP Gas Compressor
17. Export Gas Compressor
18. Turret

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BAROSSA PRODUCTION OPERATIONS PLANNED ACTIVITIES IMPACTS & RISKS

Presented by Barossa Team

Production Operation Activity Impacts

Santos

Planned Activities	Potential Impact	How we Manage (the rules we follow)
Light emissions	Behavioural impact to marine life (e.g., attraction)	We only use lights where needed for safe operations and to comply with relevant safety rules. We turn off lights when not required.
Noise emissions	Behavioural impact to marine life (e.g., avoidance)	The FPSO has been designed to reduce noise emissions. We follow procedures and look out for marine life (e.g. whales, dolphins, turtles) and we slow down and move away from them where possible if they are too close. Boats and equipment will be maintained to minimise noise.
Seabed disturbance (from inspections, maintenance, monitoring and repair)	Temporary loss of habitat	We will accurately and safely place infrastructure using dynamic positioning to minimise seabed disturbance. Records of all installed equipment will be kept so it can be removed during decommissioning.
Discharges (produced water, discharges from the FPSO, subsea equipment and boats)	Impact to water quality	We will manage discharges to acceptable levels and follow the standard rules for what boats can discharge. We will select chemicals that are environmentally acceptable, and we will limit their use to only what is needed. We will use a water treatment system for produced water discharges and the water will regularly be tested before release.
Air emissions	Impact to air quality	The FPSO has been designed to reduce air emissions. We ensure engines and other equipment are looked after and low emission fuel will be used.
Greenhouse gas emissions	Insignificant contribution to national and international greenhouse gas levels from direct and indirect emissions	The FPSO has been designed to reduce greenhouse gas emissions and we will have a Greenhouse Gas Management Plan to minimise greenhouse gas emissions over the life of operations. We will comply with the Australian Government Safeguard Mechanism and also legal and regulatory requirements for emissions reporting.
Physical presence (disturbance to other boats)	Exclude other users from activity area	We will communicate to other boats where we are and what we are doing. We mark the location of equipment on charts.

Follow Up Answers to Questions

Planned Activities

Santos

Topic	Question
Greenhouse Gas Emissions	Is there a limit on how many times Santos can use the flare on the FPSO? What happens if Santos exceeds the total emissions for the year? Do they shut down?
Environmental Research in the Operational Areas	What baseline studies for the environmental impacts that have been completed? Can Santos provide the environmental baseline studies?
Helicopter Activity	Will helicopters fly over Tiwi

Helicopter Activity

Santos

- Helicopters will fly over Tiwi islands on average 3 times per week to transport people to the FPSO
- To manage any potential noise impacts, Santos intends to:
  - Limit noise impact by fly the Helicopter 1.8 km to 2.4km above Tiwi islands, existing aircraft fly lower than 0.6km. Noise levels at this height are unlikely to be heard any more/differently than other background air traffic.
  - Planned helicopter flight paths are over the eastern end of Melville Island, at its closest point in 22km from Seagull Island
- When helicopters begin flying over Tiwi's, if you do have concerns, you can raise them directly with Santos.

Follow Up Requests

Santos

PLANNED ACTIVITIES

Production Operation

1. Request for a map with the vessel movements and shipping routes
2. Request for a picture of the shipping chart that shows the 500-metre exclusion zone around the FPSO
3. Where is the operational area in relation to biologically important areas (threatened species)?
4. Provide evidence that the operational area is not in a whale migration pathway.

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BAROSSA PRODUCTION OPERATIONS UNPLANNED EVENTS IMPACTS & RISKS

Presented by Barossa Team

Production Operations Unplanned Risks

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Unplanned Events (Accidents)	Unplanned Impact	How we manage (the rules we follow)
Dropped objects	Impacts to water quality, disturbance to seabed and marine life	We follow strict procedures to stop objects dropping overboard and we pick up objects when it is safe to do so.
Disturbing marine animals	Disturbance (e.g. collisions) to marine animals	We look out for marine life (e.g., whales, dolphins, turtles) and we slow down and move away from them where possible if they are too close. We follow rules that outline how we need to interact with marine animals.
Invasive marine life (marine pests)	Impacts to other marine life and industry if pests establish	We ensure boats have low risk for carrying marine pests before they arrive. We have plans and equipment in place on boats to prevent invasive marine species. The Federal government has strict rules we need to follow. The FPSO will have a quarantine management plan.
Chemical spill	Water quality and marine life impacts	We select chemicals that are environmentally friendly where possible and store them carefully. We have procedures for using and cleaning up chemicals.
Dry gas release	Impacts to marine life, water/air quality, other marine users and cultural features	The pipeline is designed to withstand impacts from dropped objects. We follow strict rules for lifting equipment and have emergency response procedures. The infrastructure location is marked on nautical charts. We have operating procedures and a safety case to prevent a loss of gas.
Minor hydrocarbon releases	Impacts to marine life-and water quality	We have procedures in place to manage the handling and transfer of hydrocarbons.
Larger hydrocarbon releases (marine diesel oil, marine gas oil, condensate, heavy fuel oil, well fluids)	Impacts to water quality, habitats and marine life, other marine users and cultural features	We make sure all the boats are following the rules for preventing collisions. We let other boats know where we are and what we are doing. We follow strict procedures for refueling. We will have well operations management plans setting out the systems in place to ensure well safety. We have plans (OPEP) arrangements in place for responding to spills.

Follow Up Answers to Questions

Santos

Unplanned Risks (Accidents)

Topic	Question
Spill Response Training	Who manages the spill response training register?
	Will Santos be doing more spill response training in the Community?
	Is spill response training only for Tiwi people or will other Communities be trained too?
Compensation	If an oil spill were to occur and people were impacted, would there be compensation?

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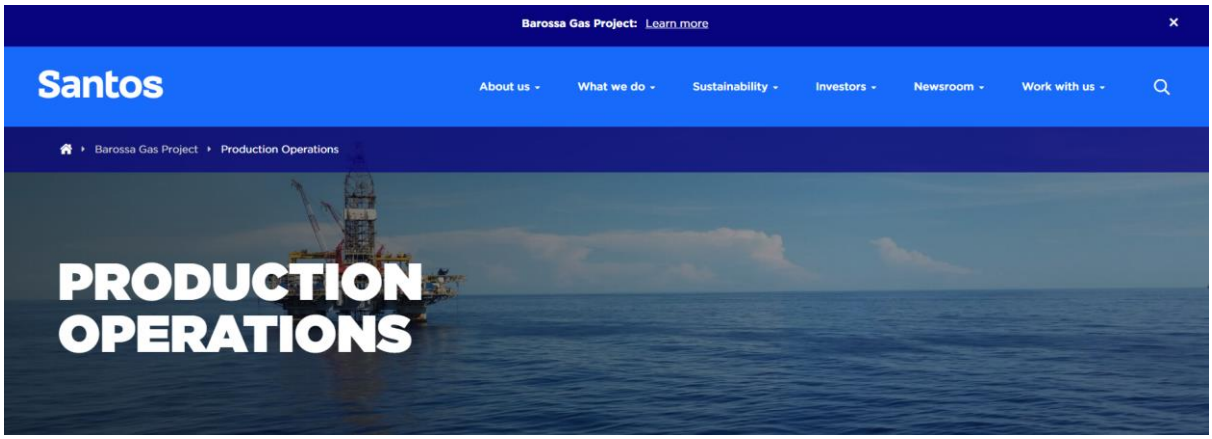
CLOSE OF CONSULTATION

Website



Activity Summary

The Santos-operated Barossa Gas Project is an offshore gas and condensate project with the purpose of providing a new source of gas for the existing Darwin liquified natural gas (DLNG) facility at Wickham Point in the NT. It is intended that natural gas and condensate would be extracted from the Barossa field, located in Commonwealth waters approximately 285 kilometres offshore north-northwest from Darwin. Initial processing would occur at the Floating Production Storage and Offloading (FPSO) facility, to separate the natural gas, water and condensate extracted from the Barossa field. The dry natural gas would be transported through the GEP for onshore processing at the DLNG facility. The condensate would be transferred from the FPSO facility to purpose-built tankers for international export.

As part of obtaining authorisation for this activity, Santos is undertaking consultation for the following regulatory approvals:

- The Production Operations Environment Plan (EP) relating to the arrival and operations of the FPSO, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285 km section of the GEP located in Commonwealth waters where offshore petroleum activities are regulated under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGS Act).
- The Operations Environmental Management Plan (OEMP) which includes the:
  - 8.26 km section of the GEP in NT coastal waters covered by the *Petroleum (Submerged Lands Act) 1981* (NT) (PSL Act); and
  - ~92 km section of the GEP inshore of NT waters covered by the *Energy Pipelines Act 1981* (NT) (Energy Pipelines Act).

The estimated life of the Barossa Development is 25 years, and the Production Operations EP and the OEMP will be reviewed every five years following initial regulator authorisation. Productions Operations Activity is planned to commence in 2025.

Figure 1: Graphical image of the FPSO

Approvals process

The Commonwealth Government's independent expert regulator for offshore oil and gas development, the National Offshore Petroleum Safety Management Authority (NOPSEMA), accepted the Barossa Offshore Project Proposal (OPP) in March 2018. The OPP is the government's project-level environmental approval for offshore projects, with construction and operations subject to acceptance of activity-level environment plans (EPs). An EP:

- must provide a detailed environmental impact and risk assessment of the proposed offshore activity and demonstrate how those impacts and risks will be reduced to a level that is as low as reasonably practicable and acceptable for the life of the activity; and
- must describe how Santos has identified and consulted with relevant persons whose interests, functions and activities may be affected by the activities to be carried out under the EP.

Santos will be consulting in accordance with section 25 of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth) (OPGGS Environment Regulations) as the Production Operations EP is developed.

For Production Operations activity in Northern Territory waters, the OEMP will be submitted to the NT Department of Industry Tourism and Trade (DITT).

Seeking information and what's next

Santos is consulting on both the Production Operations EP (Commonwealth waters) and OEMP (NT waters) at the same time.

Santos is continuing its Barossa Gas Project consultation efforts to further learn, understand and assess values and sensitivities of the environment that may be affected by our proposed activities, and potential environmental impacts and risks. There may be information Santos is not yet aware of but needs to properly understand to assess potential activity impacts and risks. Consultation may inform this. It may also inform what control measures are to be proposed to reduce environmental impacts and risks to as low as reasonably practicable and to an acceptable level.

In preparing an EP for submission to NOPSEMA, a titleholder must consult with each 'relevant person', including relevant Commonwealth, State and Northern Territory Departments or agencies and persons (or organisations) whose functions, interests or activities may be affected by the activity proposed to be carried out under an EP.

Relevant persons being consulted on under the OPGGS Environment Regulations should note that they:

- are entitled to be given sufficient information to allow them to make an informed assessment of the possible consequences of the activity on their functions, interests or activities;
- are entitled to be allowed a reasonable period for the consultation; and
- may request particular information provided in consultation not be published.

If you do ask this, Santos will respect that, and the information will not be published under the OPGGS Environment Regulations. Information we need to give to NOPSEMA to assess our plan will be provided in a separate report (rather than in the published EP).

Your input is important to Santos:

- so that we can understand the environmental values in the operational area and the EMBA, and the environmental impacts and risks associated with the activity;
- to inform how consultation processes may need to be adapted for different relevant persons;
- to ensure that we provide information to people in an appropriate and accessible manner; and
- to assist with Santos' preparation of the EP.

If you consider you may be a relevant person, please contact us as soon as possible via email at offshore.consultation@santos.com or call 1800 267 600 to allow Santos to initiate consultation with you in relation to the proposed activities and so you can tell us how you would like to be consulted. Consultation closes on **Tuesday 9 April 2024.**

Santos is committed to undertaking genuine and meaningful consultation. We want to provide information for people to make informed assessments of the possible consequences of the proposed activities on them. Your input is important to us, and input will be considered in the development of our EP.

Visit santos.com/barossa for more information on the Barossa Development.

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Santos Limited, Santos NA Barossa Pty Ltd and their related bodies corporate (collectively, we, our, us or Santos) collect personal information about you (which may include sensitive information about your Indigenous heritage or clan group) that you provide in this form and in any consultation with you. We use this information to engage with you, to receive and respond to any feedback that you provide, to include relevant information in any reports that we prepare, and for the purposes otherwise set out in our Barossa Gas Project Consultation Privacy Policy. Santos will handle your information in accordance with our Code of Conduct, our Confidentiality, IP and Privacy Procedure and Barossa Gas Project Consultation Privacy Policy. You can ask us for a copy of any of these documents by contacting us using the details set out below.

The laws that relate to consultation regarding the environment plans may require us to collect personal information about you if your feedback is to be included in any report we prepare (including so that a copy of that report can be provided to you if you request). If you do not provide your personal information, we may not be able to identify you as the person who provided particular feedback (including in any report relating to consultation) or discuss any feedback you have provided with you further.

The information you provide will be collected by or on behalf of us and may be disclosed to other companies in the Santos group, to third parties that help us run our business, or as required by law (including collection and disclosure of information to relevant government agencies and departments to which we are required to provide reports). Your feedback may also be reflected in our environment plans (subject to any non-publication requests, as described below). We may disclose your personal information to recipients that are located outside of Australia, including in Papua New Guinea and the United States of America.

Our Barossa Gas Project Consultation Privacy Policy and related documents described in this Privacy Notice provide further information about how we store and use, and how you may access and correct, your personal information, and how you can lodge a complaint regarding the handling of your personal information (including how we will respond to that complaint). If you would like to request a copy of any personal information that we hold about you or request that we correct any such information that is inaccurate or incomplete, you can contact us in the following ways:

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- sending us an email at offshore.consultation@santos.com.

You may request that any information you provide in this form, or during any consultation, not be published (including as part of any environment plan or related reports). You can make this request by selecting the option in the form below. If you select this option, the information will not be published and Santos may contact you to discuss your wishes.

Relevant person nomination form

Production Operations Environment Plan

By completing this form I consent to Santos using the information provided in this form for the purpose of consultation on the Production Operations Environment Plan in accordance with the Privacy Notice on this page and the Barossa Gas Project Privacy Policy.

Start press Enter ↵

Quarterly Update October 2024

Quarterly Update | October 2024

Santos

Stakeholder Consultation

Barossa Gas Project

In this edition

- DPD works continue in Darwin Harbour.
- Subsea infrastructure installation continues.
- FPSO on-track for sail-away in Q1 2025.
- Development wells produce good results.

Work progress highlights

The Barossa Gas Project is now more than 80 per cent complete with first gas expected in the third quarter of 2025.

Offshore works for the Darwin Pipeline Duplication (DPD) will continue within Darwin Harbour for the remainder of 2024.

In remote Commonwealth waters off the Northern Territory (NT), the second phase of subsea infrastructure installation will be undertaken during the next quarter, and we will continue to drill our production wells.

The Floating Production, Storage and Offloading (FPSO) vessel, currently in Singapore, is expected to head to Australia in the first quarter of 2025.

FPSO construction

Installation of all 16 topside modules on the Floating Production Storage and Offloading vessel (FPSO) has been completed in Singapore.

The vessel, one of the largest FPSOs ever built, is now into the commissioning phase during which detailed inspections and testing of systems are being undertaken to ensure they are operating safely and to design parameters.

Once onshore commissioning has been completed, the FPSO will be towed from Singapore to Australia using ocean-going tugs. Sail-away is on track for Q1 in 2025.

Following the FPSO's arrival in the Barossa Field, it will be connected to the mooring system. Equipment and systems will all be tested during this commissioning stage in readiness for start-up operations.

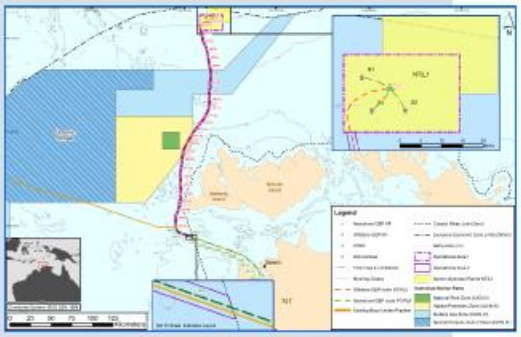
The FPSO, which will be permanently located in the Field, (subject to receipt of the necessary approvals) is 358m long and 64 meters wide and can accommodate up to 140 personnel.

Project Overview

The Barossa Gas Development, located approximately 285km offshore from Darwin in the Northern Territory, comprises a Floating Production Storage and Offloading (FPSO) facility, a subsea production system, supporting in-field subsea infrastructure and a gas export pipeline (GEP).

Once complete, the Barossa Gas Development will transport natural gas from the offshore Barossa field via the GEP to the existing Darwin liquefied natural gas (DLNG) facility.

The development is expected to commence delivering natural gas in 2025. Barossa gas is a critical energy source and will ensure affordable and reliable energy for Santos' customers for decades to come.



The Barossa Gas Development will create and sustain hundreds of jobs in the Northern Territory and will inject billions of dollars into the local economy, supporting the continued regional development of northern Australia.

Subsea Infrastructure Installation

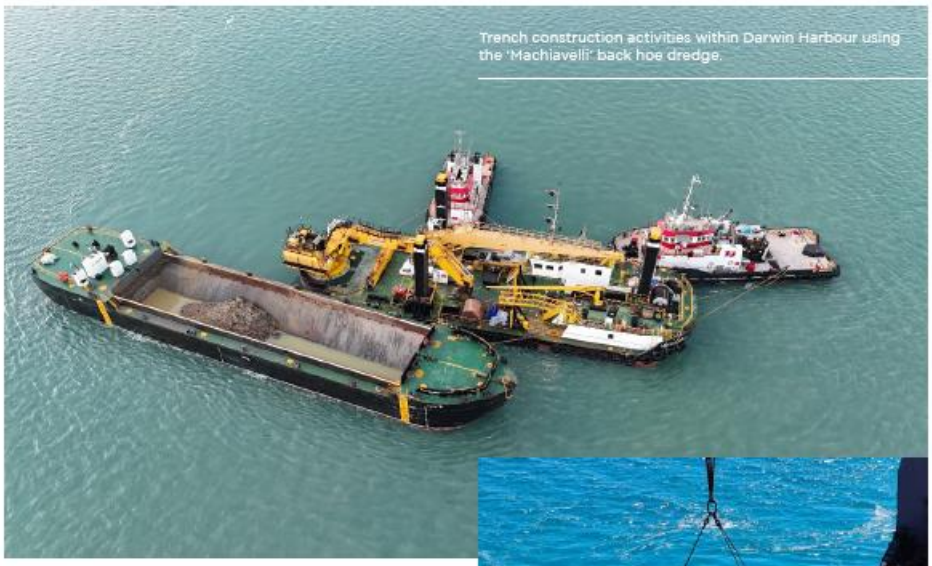
The second campaign for the installation of subsea infrastructure in the Barossa Field, located 285km offshore from Darwin, is due to commence in mid-November and continue until mid-March 2025, subject to weather conditions and operational performance.

During the first campaign, installation of the infield flowlines that connect the drill centres to the FPSO location was completed along with the installation of manifolds, risers and umbilicals. This phase also involved the installation of the suction anchor piles and hook-up of the Submerged Turret Production buoy for the FPSO mooring system. Flowline pre-commissioning activities for two drill centres were also completed.

Campaign 2 will involve the installation of production manifolds, spools, umbilicals, flying leads and jumpers, designed to support the connection of subsea production wells to the FPSO. Further pre-commissioning will be undertaken to test the various connections and systems.

The third campaign will take place in 2025 when the drilling phase is completed.

Once all installation and testing has been completed, a preservation phase will commence that will maintain the integrity of the infrastructure in readiness for future operations expected to start in 2025.



Trench construction activities within Darwin Harbour using the 'Machiavelli' back hoe dredge.

DPD Project

The DPD Project effectively involves 'duplicating' the existing Bayu-Undan to Darwin pipeline in NT internal waters, NT coastal waters and Commonwealth waters. Once in operation the new pipeline will only be used for transporting natural gas (not oil or condensate) from the Barossa gas field to the Darwin LNG (DLNG) facility.

All work has been completed to date in accordance with an accepted Environment Management Plan. Since the commencement of works in NT internal waters in May 2024, significant progress has been achieved.

Construction of the trench in Darwin Harbour, within which the pipeline will be laid, has been completed along with installation of concrete mattresses for pre-lay span supports, pipeline crossings and cable crossings.

Onshore at Wickham Point, where the existing DLNG facility is located, construction of the shore crossing for the pipeline is nearing completion.

During the next quarter, trench maintenance activities will be undertaken in locations where build-up of sedimentation has occurred.

Installation of the rock bedding layer and pull-in wire at the Wickham Point shore crossing is being undertaken in readiness for shallow water pipelay and associated survey activities to commence in October.

Installation of concrete mattresses for pre-lay span supports within Darwin Harbour.

The construction activities occur within a Project area, encompassing the pipeline route with an approximate 2 km buffer either side of the pipeline and the spoil disposal ground.

Other Darwin Harbour users are asked to exercise caution at all times and maintain a distance of at least 500 metres from any vessels undertaking the construction activities.

The activities are managed to ensure that environmental impacts and risks are avoided or mitigated to meet Santos and regulatory requirements.

The DPD Project in NT internal waters has received all primary approvals. The NT Government approved the DPD activity in NT jurisdiction under the *NT Environment Protection Act* following assessment by the NT Environment Protection Authority.

The DPD activity in NT and Commonwealth jurisdictions has also been assessed and approved under the *Commonwealth Environment Protection and Biodiversity Conservation Act (EPBC Act)*.

Valaris MS-1 MODU (view from support vessel).

Drilling and Completions

Drilling of the six development wells is continuing at the Barossa Field, 285km offshore from Darwin. The moored semisubmersible mobile offshore drilling unit (MODU) is currently positioned at the South 1 (S1) drill centre location, and is working on the fourth well.

All work has been completed to date in accordance with the accepted Environment Plan and without any environmental incidents.

The MODU is planned to move from the S1 to the South-2 (S2) drill centre location in October/November 2024 to complete the remaining work at that location.

Drilling activities occur within a 2.5-km radius of each well. During drilling, a 500-metre exclusion zone (known as a petroleum safety zone) is in place around the MODU. Vessels are prohibited from entering or being present in a petroleum safety zone without authorisation.

Work at the North-1 (N1) drill centre location is planned for subsequent quarters. The entire drilling campaign, including completions and installation of subsea vertical trees, is still expected to take approximately 24 months in total. All schedule estimates are subject to weather and operational performance.

The MODU continues to be supported by helicopters and up to four support vessels which transit between the development area and onshore supply base in Darwin as required.

Valaris MS-1 MODU helicopter deck.

GEP installation

With all testing and pre-commissioning activities completed, the installed 262-kilometre GEP is safely preserved on the seabed in readiness for future operations expected to start in 2025.

The GEP will connect the Barossa field to the DPD and together these pipelines will transport natural gas from the Barossa field to the Darwin LNG (DLNG) facility.

The 'Fortitude' construction support vessel performing pre-commissioning activities on the GEP.

Work Opportunities

We continue to have 11 First Nations people engaged in Santos funded roles/ training programs that work offshore in positions related to the Barossa Gas Project.

These comprise four Tiwi people engaged as Cultural Observers and Monitors on the GEP pipelay and support vessels and seven Larrakia and Tiwi people engaged in offshore roles on the Santos' contracted drilling rig.

Two Santos Offshore Health, Safety and Environment (HSE) Advisor Trainees have been recruited and will undertake a formal 12-18-month traineeship to obtain a Certificate IV in HSE.

One of the trainees, a Tiwi woman, has commenced work on the Santos contracted drill rig while the other trainee will start offshore in October 2024.

Another Tiwi man, one of six indigenous trainees in the MS-1 drill rig training program, has transitioned from offshore assistant to a core roustabout position.

First Nations people represent 55% of Santos' current trainees and apprentices in the NT.

Barossa Aboriginal Future Fund

Santos' Barossa Aboriginal Future Fund (BAFF) aims to invest in projects that will directly benefit NT Aboriginal Coastal Communities.

The Fund will invest in projects and programs that improve community infrastructure, health, education, housing, and economic outcomes and support employment pathways.

The Fund will also support First Nations people to maintain cultural practices, carry out cultural obligations and care for country.

The Barossa Joint Venture Partners initial contribution to the Fund is $10 million, with additional payments to be made into the Fund once Barossa starts producing and selling gas.

Santos is working with our Barossa Joint Venture Partners to finalise the revenue stream for the Fund and establish legal structures with sound governance.

Santos wants to listen to NT Coastal Aboriginal people about the needs for their communities.

If you want more information or want to share your ideas, you can visit the NT Community Team at the Santos shop in the Darwin Mall or contact us via email at **enquiriesNT@santos.com** or phone on **+61 8919 1900**.

Environmental Approvals and Consultation

DPD Project – NT waters

DPD activities in NT internal waters are being undertaken in compliance with the primary environmental approvals received from the NT and Commonwealth governments.

The NT Government approved the DPD Project, following the completion of assessment by the *NT Environment Protection Authority under the Environment Protection Act 2019 (NT).*

The DPD Project was also assessed and approved by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth).*

DPD Project – Commonwealth and NT coastal waters

Additional environmental approvals are under assessment by the Regulator for the DPD Project activity in each of Commonwealth and NT coastal waters. Santos has submitted the Environment Plan (EP) for DPD installation (~23km section of pipeline) in Commonwealth waters and a Construction Environmental Management Plan (CEMP) for DPD installation (~8km section) in NT coastal waters. Consultation for these plans has been completed.

The Commonwealth waters EP is currently under assessment by NOPSEMA and can be viewed **here** The CEMP has been submitted to the NT Department of Industry, Tourism and Trade (NT-DITT) for assessment and can be viewed at **Published environment plans | NT.GOV.AU**

Barossa Productions Operations – Commonwealth and NT waters

Santos has submitted the Barossa Production Operations EP in Commonwealth waters (~285km section) to NOPSEMA for assessment. The link to the EP is accessible on the NOPSEMA **website**.

The EP covers (among other things) the following activities:

- Arrival, hook-up and commissioning of the FPSO (section 2.5 of the EP);
- Initial start-up of production to a steady state (section 2.6 of the EP);
- Operation of the FPSO and subsea infrastructure and associated activities (section 2.7 of the EP); and
- Inspection, monitoring, maintenance and repair (IMMR) activities for subsea infrastructure and the Gas Export Pipeline (section 2.9 of the EP);

The EP also provides information on (among other things):

- the potential risks and impacts of these proposed activities; and
- the consultation undertaken by Santos on the proposed activities (section 4 of the EP).

If you have any queries about this EP, please contact us by phone or email (see details below).

Operations Environmental Management Plans (OEMPs) for Operational activities along the Barossa pipeline in NT coastal waters (~8km section) and NT internal waters (~92km section) will be submitted to the NT- DITT for assessment and approval.

Contact Us

We are committed to ongoing engagement about our activities. If you require further information or would like to speak to us, please do not hesitate to contact us.

Phone: **1800 267 600**
Email: **offshore.consultation@santos.com**
Website: **santos.com/barossa**

Quarterly Update January 2025

Quarterly Update | January 2025

Santos

Stakeholder Consultation

Barossa Gas Project

In this edition

- NT pipeline installation completed in Darwin Harbour
- SURF Campaign 2 more than 50 percent completed
- FPSO Living Quarters set to be operational
- Drilling of wells continues in Barossa Field

Work progress highlights

The Barossa Gas Project is now more than 88 per cent complete with first gas expected in the third quarter of 2025.

Offshore works for the Darwin Pipeline Duplication (DPD) are nearing completion in NT Waters, to be immediately followed by installation of the final sections of pipeline in Commonwealth and NT Coastal Waters.

In remote Commonwealth waters off the Northern Territory (NT), the second phase of subsea infrastructure installation is continuing along with drilling of the production wells.

The Floating Production, Storage and Offloading (FPSO) vessel, currently in Singapore, is being prepared in readiness for its journey to Australia expected in the first quarter of 2025.

FPSO construction

Commissioning of the various FPSO systems has continued to plan, including the Main Topsides Generators which have all been successfully fired.

Preparations are also being made for the habitation of the Living Quarters by the FPSO crew starting in January.

Once onshore commissioning has been completed, the FPSO will be towed from Singapore to Australia using ocean-going tugs. Sail-away is on track for Q1 in 2025.

Following the FPSO's arrival in the Barossa Field it will be connected to the mooring system. Equipment and systems will all be tested during this commissioning stage in readiness for start-up operations.

The FPSO, which will be permanently located in the Field, (subject to receipt of the necessary approvals) is 358m long and 64 meters wide and can accommodate up to 140 personnel.

Project Overview

The Barossa Gas Development, located approximately 285km offshore from Darwin in the Northern Territory, comprises a Floating Production Storage and Offloading (FPSO) facility, a subsea production system, supporting in-field subsea infrastructure and a gas export pipeline (GEP).

Once complete, the Barossa Gas Development will transport natural gas from the offshore Barossa field via the GEP to the existing Darwin liquefied natural gas (DLNG) facility.

The development is expected to commence delivering natural gas in 2025. Barossa gas is a critical energy source and will ensure affordable and reliable energy for Santos' customers for decades to come.

The Barossa Gas Development will create and sustain hundreds of jobs in the Northern Territory and will inject billions of dollars into the local economy, supporting the continued regional development of northern Australia.

Subsea Infrastructure Installation

The second campaign for the installation of subsea infrastructure in the Barossa Field, located 285km offshore from Darwin, commenced mid-November 2024 and will continue until end-March 2025, subject to weather conditions and operational performance.

Campaign 2 is approximately 50 percent complete with the S1 manifold and umbilicals having been installed, along with the spools, flying leads and jumpers at the S2 Drill Centre.

Pre-commissioning of the riser system and spools is due to commence in the near future, which will test the various connections and systems prior to production. All work has been completed to date in accordance with an accepted Environment Plan.

The third campaign will take place in Q2 / Q3 2025 when the drilling phase at the N1 Drill Centre is completed.

Once all installation and testing has been completed, a preservation phase will commence that will maintain the integrity of the infrastructure in readiness for future operations expected to start in 2025.

'Sandpiper' shallow water barge performing shorepull at DLNG

Installation of rock protection over the pipeline at the shore crossing

Darwin Pipeline Duplication

The DPD Project effectively involves 'duplicating' the existing Bayu-Undan to Darwin pipeline in NT internal waters, NT coastal waters and Commonwealth waters. Once in operation the new pipeline will only be used for transporting natural gas (not oil or condensate) from the Barossa gas field to the Darwin LNG (DLNG) facility.

All work has been completed to date in accordance with an accepted Environmental Management Plan. Since the commencement of works in NT internal waters in May 2024, significant progress has been achieved.

In December the shallow water barge 'Sandpiper' completed installing the first 30kms of the 92 kms section of pipeline in NT internal waters. The Sandpiper commenced with the shore crossing at DLNG and then installed the pipeline through Darwin harbour before handing over to the dynamically positioned pipelay vessel 'Audacia' to complete the section of the pipeline in deeper NT internal waters.

Installation of rock protection over the pipeline at the shore crossing at Wickham Point has been completed and installation of rock protection in deeper water within Darwin harbour continues.

Pipelay will then proceed into NT coastal waters (8 kms) and Commonwealth waters (23 kms) and is expected to be completed in early 2025. Pipeline survey and pre-commissioning will commence on the completion of pipelay activities.

The construction activities occur within a Project area, encompassing the pipeline route with an approximate 2 km buffer either side of the pipeline and the spoil disposal ground.

Other users of the marine environment are asked to exercise caution at all times and maintain a distance of at least 500 metres from any vessels undertaking the construction activities.

The activities are managed to ensure that environmental impacts and risks are avoided or mitigated to meet Santos and regulatory requirements.

The Audacia is now installing the pipeline in the deeper waters outside Darwin Harbour

Welding of pipeline sections aboard the Audacia

Drilling and Completions

Drilling of the six development wells is continuing at the Barossa Field, 285km offshore from Darwin. The moored semisubmersible mobile offshore drilling unit (MODU) is currently positioned at the North 1 (N1) drill centre location.

All work has been completed to date in accordance with the accepted Environment Plan and without any environmental incidents.

Work at the N1 drill centre location is planned to continue during the first half of 2025. The entire drilling campaign, including completions and installation of subsea vertical trees, is still expected to take approximately 24 months in total. All schedule estimates are subject to weather and operational performance.

Drilling activities occur within a 2.5-km radius of each well. During drilling, a 500-metre exclusion zone (known as a petroleum safety zone) is in place around the MODU. Vessels are prohibited from entering or being present in a petroleum safety zone without authorisation.

The Valaris MS-1 mobile offshore drilling unit

The MODU continues to be supported by helicopters and up to four support vessels which transit between the development area and onshore supply base in Darwin as required.

Work Opportunities

Several First Nations people continue to be engaged in Santos' funded roles/ training programs that work offshore in positions related to the Barossa Gas Project.

These comprise five Larrakia and Tiwi people engaged in offshore assistant roles on the Santos' contracted drilling rig, one Tiwi man engaged as a Cultural Monitor on SURF activities and a Larrakia man engaged as a Cultural Monitor on DPD activities.

In addition, two Santos Offshore Health, Safety and Environment (HSE) Advisor Trainees have been recruited and are now undertaking a formal 18-24 month traineeship to obtain a Certificate IV in HSE. Both are currently working offshore on the Santos' contracted drill rig under the leadership of Santos HSE team members.

Another Tiwi man, one of the trainees in the offshore assistant training program on the Santos contracted drill rig, has transitioned from offshore assistant to a core roustabout position, where he continues in his role.

First Nations people represent more than 55% of Santos' current trainees and apprentices in the NT.

Barossa Aboriginal Future Fund

Santos' Barossa Aboriginal Future Fund (BAFF) aims to invest in projects that will directly benefit NT Aboriginal Coastal Communities.

The Fund will invest in projects and programs that improve community infrastructure, health, education, housing, and economic outcomes and support employment pathways.

The Fund will also support First Nations people to maintain cultural practices, carry out cultural obligations and care for country.

The Barossa Joint Venture Partners initial contribution to the Fund is $10 million, with additional payments to be made into the Fund once Barossa starts producing and selling gas.

Santos is working with our Barossa Joint Venture Partners to finalise the revenue stream for the Fund and establish legal structures with sound governance.

Santos wants to listen to NT Coastal Aboriginal people about the needs for their communities.

If you want more information or want to share your ideas, you can visit the NT Community Team at the Santos shop in the Darwin Mall or contact us via email at enquiriesNT@santos.com or phone on +61 8919 1900.

Environmental Approvals and Consultation

DPD Project – NT waters

DPD activities in NT internal waters are being undertaken in compliance with the primary environmental approvals received from the NT and Commonwealth governments.

The NT Government approved the DPD Project, following the completion of assessment by the *NT Environment Protection Authority under the Environment Protection Act 2019 (NT)*.

The DPD Project was also assessed and approved by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*.

DPD Project – Commonwealth and NT coastal waters

DPD activities in NT Coastal Waters are being undertaken in compliance with the primary environmental approvals received from the Commonwealth and NT governments.

The Commonwealth Government approved the activities (~23km section) in Commonwealth Waters following assessment of an Environment Plan under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth)*.

As noted above, the DPD Project was also assessed and approved by DCCEEW under the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)*.

The NT Government approved the activities in NT Coastal Waters (~8km section) following assessment of the Offshore Construction Environmental Management Plan (CEMP) under the *Petroleum (Submerged Lands) Act 1981 (NT) and Environment Protection Act 2019 (NT)*.

The DPD EP can be viewed **here** while the CEMP is available **here**

Barossa Productions Operations – Commonwealth and NT waters

Santos submitted the Barossa Production Operations EP in Commonwealth waters (~285km section) to NOPSEMA in August 2024 for assessment. The link to the EP is accessible on the NOPSEMA website **here**

Following a request from NOPSEMA to provide further information, Santos re-submitted the EP with some amendments in December 2024 for further assessment.

The EP covers (among other things) the following activities:

- Arrival, hook-up and commissioning of the FPSO (section 2.5 of the EP);
- Initial start-up of production to a steady state (section 2.6 of the EP);
- Operation of the FPSO and subsea infrastructure and associated activities (section 2.7 of the EP); and
- Inspection, monitoring, maintenance and repair (IMMR) activities for subsea infrastructure and the Gas Export Pipeline (section 2.9 of the EP);

The EP also provides information on (among other things):

- the potential risks and impacts of these proposed activities; and
- the consultation undertaken by Santos on the proposed activities (section 4 of the EP).

If you have any queries about this EP, please contact us by phone or email (see details below).

Operations Environmental Management Plans (OEMPs) for Operational activities along the Barossa pipeline in NT coastal waters (~8km section) and NT internal waters (~92km section) will be submitted to the NT- DME for assessment and approval.

Contact Us

Consultation for all Barossa regulatory approvals has been completed.

We are committed to ongoing engagement about our activities. If you require further information or would like to speak to us, please do not hesitate to contact us.

Phone: **1800 267 600**
Email: **offshore.consultation@santos.com**
Website: **santos.com/barossa**

Appendix F2: Relevant Persons Advertising Material

Table 4-8 (of the EP) Targeted advertising campaign

Preliminary consultation

March 2024 Social Media post

RENCANA LINGKUNGAN OPERASI PRODUKSI

Proyek Gas Barossa yang dioperasikan Santos adalah proyek gas dan kondensat, yang melibatkan ekstraksi gas alam dari ladang gas Barossa, yang terletak di perairan Commonwealth Australia, sekitar 285-kilometer lepas pantai utara-barat laut Darwin. Gas alam kemudian akan disalurkan melalui pipa gas ke fasilitas gas alam cair (DLNG) Darwin yang ada. Kondensat akan diturunkan melalui kapal tanker untuk diangkut ke pelanggan di Asia.

Batas wilayah izin produksi kurang lebih 520 kilometer sebelah timur tenggara Dili dan kurang lebih 2.605 kilometer sebelah timur Jakarta, di Laut Arafura.

Sebagai bagian dari Proyek, Santos akan menyiapkan rencana lingkungan untuk proyek operasi produksi untuk diserahkan kepada Otoritas Pengelolaan Lingkungan dan Keselamatan Minyak Lepas Pantai Nasional Australia (NOSPEMA). Konsultasi dengan pihak-pihak terkait merupakan bagian penting dalam mempersiapkan rencana ini.

Santos berupaya mengidentifikasi dan berkonsultasi dengan orang-orang terkait yang fungsi, kepentingan, atau aktivitasnya mungkin terpengaruh oleh aktivitas yang diusulkan berdasarkan Rencana Lingkungan Operasi Produksi yang kami usulkan.

Jika anda menganggap bahwa anda mungkin orang yang relevan dan ingin diajak berkonsultasi mengenai rencana lingkungan ini, silakan hubungi kami paling lambat tanggal 15 Maret agar kami dapat berkonsultasi dengan anda. Konsultasi ditutup pada 9 April 2024.

Informasi lebih lanjut tersedia di santos.com/Barossa tentang siapa yang mungkin menjadi orang yang relevan, usulan kegiatan, lingkungan yang mungkin terkena dampak dari usulan kegiatan, potensi dampak dan risiko lingkungan, dan usulan tindakan pengendalian untuk mengurangi dampak dan risiko. ke tingkat yang serendah mungkin dan dapat dipraktikkan secara wajar.

Untuk informasi lebih lanjut:
Kunjungi santos.com/barossa
Telepon 1800 267 600
Email ke luar offshore.consultation@santos.com

PROJETU GAS BAROSA IHA AUSTRALIA

BUKA EMA RELEVANTE SIRA ATU HALO KONSULTASAUN

Santos

PLANU AMBIENTE BA OPERASAUN PRODUSAUN

Projetu Gas Barossa ne'ebé operadu husi Santos mak projetu gás no kondensadu ida, ne'ebé sei envolve hasai gás naturál husi kampu gás Barossa, ne'ebé lokaliza iha tasi Commonwealth Australia nian, maizumenus kilómetru 285 iha tasi laran parte norte noroeste husi Darwin. Tuirmai gás naturál sei lori liu husi kadoras gás ba instalasaun gás naturál ne'ebé iha Darwin (DLNG). Kondensadu sei deskarega liu husi tanke hodi transporta ba kliente sira iha Ásia.

Fronteira ba área lisensa produsaun nian maizumenus kilómetru 520 iha parte leste sudeste Dili no maizumenus kilómetru 2,605 iha parte leste Jakarta, iha Tasi Arafura.

Hanesan parte husi Projetu ne'e, Santos sei prepara planu ambientál ba operasaun produsaun Projetu refere hodi submete ba Autoridade Nasional Seguransa Petroleu no Jestaun Ambiental Australia (NOPSEMA) nian. Konsultasaun ho ema relevante sira sai parte importante ida hosi preparasaun planu hirak-ne'e.

Santos buka/identifika hela ema relevante sira atu konsulta ho sira ne'ebé nia funsaun, interese ka atividade sira bele afeta husi atividade sira ne'ebé propoin tuir ami-nia Planu Ambiente Operasaun Produsaun nian.

Se ita konsidera katak ita maka ema relevante no hakarak hetan konsulta ba planu ambiente ida-ne'e, favór ida kontaktu ami antes loron 15 fulan Marsu atu ami bele konsulta ho ita. Konsultasan sei taka iha 9 Abril 2024.

Informasaun klaru liu disponivel iha santos.com/Barossa kona-ba se mak bele sai ema relevante, atividade sira ne'ebé propoin, ambiente ne'ebé bele afeta husi atividade sira ne'ebé propoin, impaktu no risku ambientál potensiál sira, no medida kontrolu sira ne'ebé propoin atu buka atu hamenus impaktu no risku sira ba nivel ne'ebé ki'ik liu ho razoavel no aseitavel.

Atu hetan informasaun liután:
Vizita santos.com/barossa
Telefone 1800 267 600
Email offshore.consultation@santos.com

BAROSSA GAS PROJECT

SEEKING RELEVANT PERSONS FOR CONSULTATION

Santos

PRODUCTION OPERATIONS ENVIRONMENT PLAN

The Santos-operated Barossa Gas Project is a gas and condensate project, which would involve extracting natural gas from the Barossa gas field, located in Australian Commonwealth waters, approximately 285 kilometres offshore north-north west from Darwin. Natural gas would then be transported via gas pipeline to the existing Darwin liquified natural gas (DLNG) facility. Condensate will be offloaded via tanker for transport to customers in Asia. As part of the Project, Santos will be preparing an environment plan for the Project's production operations submission to the Australian National Offshore Petroleum Safety and Environmental Management Authority (NOSPEMA). Consultation with relevant persons is an important part of preparing these plans.

Santos is seeking to identify and consult with relevant persons whose functions, interests or activities may be affected by the activities proposed under our proposed Production Operations Environment Plan.

If you consider that you may be a relevant person and would like to be consulted for this environment plan, please contact us to provide your feedback by 9 April 2024.

More information is available at santos.com/Barossa about who may be a relevant person, the proposed activities, the environment that may be affected by the proposed activities, potential environmental impacts and risks, and proposed control measures to seek to reduce impacts and risks to as low as reasonably practicable and an acceptable level.

For more information:
Visit santos.com/barossa
Phone 1800 267 600
Email offshore.consultation@santos.com

Radio January- February - Darwin Hot 100

Script A - Preliminary Consultation 8 Feb- 11 March 2024

Santos is seeking to consult with people whose functions, interests or activities may be affected by the proposed Production Operations Activity for the Barossa Gas Project.
Including Santos's offshore production facility approximately 285 kilometres offshore from Darwin, and a Gas Export Pipeline.
If you consider you may be affected, please contact Santos by 11 March 2024.
For more visit santos.com/barossa,
Phone [1800 267 600] One Eight Hundred, Two Six Seven, Six Hundred
or email: offshore.consultation@santos.com.

Iconic resort weighs up sale

Review to explore options

Lisa Allen, Ben Wilmot

Back in 2013, the owners of the Ayers Rock Resort wrote down the book value of the resort by $62m. Picture: Tourism NT

The Indigenous-owned Voyages Indigenous Tourism Australia, operators of the Ayers Rock Resort at Yulara in the Red Centre, has started assessing future options for the world-renowned holding, which could see it sold to the private sector.

The resort, which encompasses six sprawling accommodation hubs in the shadow of the rock, including a five-star resort, three and four-star hotels and a campground, has been hampered by a lack of flights since the pandemic given Virgin is not set to recommence flights until mid-year.

According to a statement from the Indigenous Land and Sea Corporation (ILSC), which controls Voyages, the key objective is to fulfil its statutory obligations of returning land to First Nations peoples, and in doing so, create Indigenous benefit for traditional owners, and local, regional, and national First Nations peoples.

ILSC has appointed Gilbert + Tobin and Greenhill to assist with the assessment process, including understanding market interest in the Ayers Rock Resort operations.

With this objective in mind, the assessment is focused on exploring potential alternative ownership options for the operations at Ayers Rock Resort.

The ILSC purchased the asset from property company GPT Group in 2011 in one of the largest sales in the hotel sector in a deal worth around $300m.

Back in 2013, the owners of the Ayers Rock Resort wrote down the book value of the resort by $62m after admitting that it faced serious financial challenges and high-profile business figures departed the board.

Prior to Covid-19, about 300,000 people visited Uluru annually via 43 direct flights into Uluru from major capital cities. Annual pre-Covid revenue was between $170-200m, with the resorts enjoying hotel occupancies of more than 85 per cent.

Voyages chief executive Matt Cameron-Smith, who runs the company's hotels and one camping ground could not be reached for comment on Thursday night.

However, in a prepared statement Mr Cameron-Smith said it was business as usual for the Voyages team, which has been offering heavy discounts of late. "Our pipeline of bookings in 2024 and beyond is growing, and we are excited to build on our strong momentum at Ayers Rock Resort, particularly as domestic and international tourism continues to rebound toward pre Covid-19 levels," Mr Cameron-Smith said.

Although British and North American tourists have returned to Uluru at about 70 per cent of pre-Covid-19 levels Japanese visitors are yet to return.

Mossman Gorge Cultural Centre, also owned by Voyages, is not part of the review.

At this stage, there is no certainty as to what the ultimate outcome of the assessment will be, according to the statement from ILSC.

The assessment process involves ongoing consultation and engagement with the local First Nations peoples to understand their aspirations and in particular who should benefit from the land divestment process and how those benefits are to flow.

Visitors began climbing Uluru in the late 1930s and in the lead-up to the rock's closure on October 26, 2019, the Voyages-owned hotels and campgrounds were full to capacity, mainly occupied by Japanese tourists clamouring to climb Uluru in a final rush before it was closed due to the local Anangu people, who had long asked visitors not to climb the sacred site.

Thursday and they arrested the 29-year-old.

He was charged with one count of failing to comply with a requirement of monitoring conditions. This offence carries a maximum penalty of five years jail and a $93,900 fine.

The man is next expected to appear in court on March 22.

have occurred before the spectacular collapse of her Modco company last August.

Ms Lu, pictured left, did not appear at what was the first hearing of the charges, and neither did her lawyers.

But they did contact the

the firm had 29 homes unfinished on its books.

The couple later issued an apology, months after the company's collapse, through a spokesman.

"It is certainly reasonable to pursue an investigation on Ms

before her scheduled court appearance, Ms Lu posted video of footage from an apparent rooftop party in Perth, that featured UFC champion Jon "Bones" Jones pouring out shots from a $350-per-bottle of tequila.

SEEKING RELEVANT PERSONS

BAROSSA PRODUCTION OPERATIONS ACTIVITY

Santos

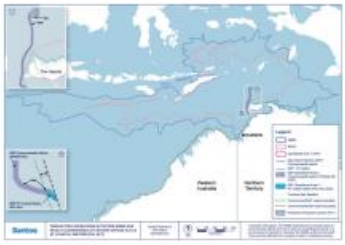
Santos is seeking to identify and consult with relevant persons whose functions, interests or activities may be affected by our proposed Barossa Production Operations Activity in Commonwealth and Northern Territory waters, north-northwest of Darwin

Santos is currently preparing:

- A Production Operations Environment Plan (EP) relating to the arrival and operations of the Floating Production Storage and Offloading facility (FPSO), operation of a subsea production system and supporting subsea infrastructure, and operation of a 285km section of the Gas Export Pipeline (GEP) located in Commonwealth waters where offshore petroleum activities are regulated under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).
- An Operations Environmental Management Plan (OEMP) which includes the:
  - 8.26 km section of the GEP in Northern Territory (NT) coastal waters covered by the *Petroleum (Submerged Lands Act) 1981* (NT); and
  - ~92km section of the GEP inshore of NT waters covered by the *Energy Pipelines Act 1981* (NT).

Summary of activity

The Santos-operated Barossa Gas Project is an offshore gas and condensate project with the purpose of providing a new source of gas to the existing Darwin liquified natural gas (DLNG) facility at Wickham Point in the NT. It is intended that natural gas and condensate would be extracted from the Barossa field, located in Commonwealth waters approximately 285km offshore north-northwest from Darwin. Initial processing would occur at the FPSO facility, to separate the natural gas, water and condensate extracted from the Barossa field. The dry natural gas would be transported through the GEP for onshore processing at the DLNG facility. The condensate would be transferred from the FPSO facility to purpose-built tankers for international export.



The estimated life of the Barossa Development is 25 years, and the Production Operations EP and the OEMP will be reviewed every five years. Productions Operations activity is expected to commence in 2025, subject to obtaining the required approvals.

Activity location

The Production Operations Activity is confined to two operational areas: Operational Area 1 (OA1) and Operational Area 2 (OA2).

OA1: The Barossa field. This is the area in which the FPSO, subsea production system, and supporting subsea infrastructure will be used to process gas and condensate extracted from the Barossa wells. The area is confined to Commonwealth waters, approximately 285 km north-north-west of Darwin (the closest major populated centre), approximately 210 km north-west of the mainland NT coastline, and approximately 130 km north of the Tiwi Islands at the closest point (Seagull Island).

OA2: The 285 km section of the GEP from OA1 to the Commonwealth waters/ NT waters boundary; and the 8.26 km section of the GEP situated in NT coastal waters between the Commonwealth waters/NT coastal waters boundary and the Territorial Sea Baseline).

The environment that may be affected by the proposed activity

Santos is assessing impacts and risks to the environment from these proposed activities, inclusive of ecosystems (including people and communities), natural and physical resources, the qualities and characteristics of locations, places and areas and the heritage value of places. This will include assessment of the social, economic and cultural features of the environment.

The map depicts OA1 and OA2, and the environment that may be affected (EMBA) by the proposed activities. The 'EMBA' represents the greatest geographical extent that could be affected by an unplanned 'worst case' oil spill scenario, before any measures to reduce the risks are considered.

Santos proposes to implement measures to reduce the impacts and risks of the activity. It is a requirement under relevant environmental legislation that these impacts and risks are reduced to as low as reasonably practicable (ALARP) and to an acceptable level.

Consultation

Under the Offshore Petroleum and Greenhouse Gas Storage Environment Regulations Santos is required to consult with people and organisations who have functions, interests or activities that may be affected by the proposed activities. Functions, interests or activities may include those arising in relation to spiritual or cultural connections to land and sea country in accordance with Indigenous tradition; tourism; recreational and commercial fishing; other commercial or recreational activities and local communities that might be affected by our proposed activity (these are examples and not an exhaustive list).

Seeking information and what's next

In preparing an EP and OEMP for submission to the regulators, a titleholder must consult with each 'relevant person', including relevant Commonwealth, State and Northern Territory Departments or agencies and persons (or organisations) whose functions, interests or activities may be affected by the activity proposed to be carried out under an EP.

Your input is important to Santos:

- so that we can understand the environmental values in the OAs and the environment that may be affected, the environmental impacts and risks associated with the activity, to inform development of the Productions Operations EP (Commonwealth waters) and OEMP (NT waters);
- to inform how consultation processes may need to be adapted for different relevant persons;
- to ensure that we provide information to people in an appropriate and accessible manner; and
- to assist with Santos' preparation of the EP.
- More information on the proposed activities is available on our website.

Contact us

If you consider you may be a relevant person, please contact us as soon as possible to allow Santos to initiate consultation with you in relation to the proposed activity so you can tell us how you would like to be consulted. Consultation closes on **Tuesday 9 April 2024.**

Santos is committed to undertaking genuine and meaningful consultation. We want to provide information for people to make informed assessments of the possible consequences of the proposed activity on them. Your input is important to us, and input will be considered in the development of the EP and OEMP.

Visit **santos.com/barossa/production-operations**, email **offshore.consultation@santos.com** or call **1800 267 600** for more information, to self-identify as relevant person or to provide feedback.

Researchers have identified an opportunity to reduce infections in people living with cystic fibrosis.

University of Queensland academics discovered a fault in the bacteria-killing function of immune cells in people with CF and a potential way to get around it.

CF is a chronic disease causes a build-up of mucus in the lungs and airways.

raise the incident publicly, in order to protect the identities of the third parties involved, but said it was typical of many incidents in Alice Springs during the 2023-24 summer season.

The incident occurred about 2pm on Sunday, January 21, and ratcheted up when he chased the five youths off the premises.

"They went over the fence again, one was armed with a big metal bar," Mr Yan said.

"I hunted them out again then they came around to the front of the property armed with sticks and rocks and began pelting them at us."

Mr Yan was able to avoid many of the missiles, including fist-sized rocks, but nonetheless was struck three times on the lower body.

"I ducked and weaved out of considered my injuries fairly minor," he said.

"I had a fairly big bruise on the inner-thigh of my right leg and it took a couple of weeks to go away and also a cut on the left calf. One of the other people were grazed by a rock.

"The kids were really very aggressive and confronting. The oldest was 14 and the youngest was 10 or under. I said I'd called the police and about the police. That was the kid wearing the ankle bracelet.

"That's what we're dealing with in the community. Kids with ankle bracelets are prepared to seriously assault somebody who gets in their way."

Mr Yan's comments come as federal Lingiari MP Marion Scrymgour said authorities need to stop "pussyfooting around" on juvenile crime.

the age of criminal responsibility was not working and that parents had to be held accountable for their children's actions.

Ms Scrymgour said her own home had been broken into while she slept last month and youth justice laws needed to be changed.

"There has to be a rethink of how we deal (with youth crime)," she said.

Ms Secretary and her partner Darren Nelson had returned to their Coconut Grove home from a trip to Yarralin in 1994, during which the court heard Ms Secretary's partner had driven dangerously, injected himself with amphetamines, and assaulted and threatened to kill her.

She was assaulted and threatened again at their Kulacourt heard a string of domestic violence incidents against Ms Secretary by Mr Nelson, and she was convicted of manslaughter based on provocation in December 1995.

During the retrial that followed, prominent Darwin criminal lawyer John Lawrence said Ms Secretary had been in a state of "chronic terror".

said the party was proud to preselect Ms Secretary and that it was well aware of the 30-year-old incident.

"We understand the challenges around what occurred and she has the real lived experience of a senior Aboriginal woman, and we wholeheartedly endorsed her as our candidate," Mr Stone said. "I think she's fantastic."

CLP Nightcliff candidate Helen Secretary was the accused in a court case where battered woman syndrome was first recognised as a defence to murder. Picture: Che Chorley

multiple fuel thefts, police say.

The youths were allegedly involved in a Jeep Compass, being stolen from a residence in Rapid Creek.

The four youths, aged 13 and 14, have been charged with multiple property offences and remain in custody.

Investigations are ongoing to locate the six additional alleged offenders.

After The Missing Australia podcast broke the story, the daughter of the sportsman – "I just know. I've got a feeling that it's my big brother.

"I'm hoping, even though it's unmarked grave was dug up from Darwin General Cemetery in November.

Currie rejecting the request on the grounds it was not necessary for an investigation.

Now that the baby's DNA profile has been collected it could be compared with records across Australia, meaning a future match could be made.

and federal Labor governments, which provided compensation to industry for loss of resource and retooling to use plantation timber.

Dr Brown said the Albanese government should intervene to

flict when we've had a lot of peace in our forests for a quite a while," Ms White said.

She said the forest industry had benefited from uncontested access to markets and bipartisan

was "an irresponsible gambit" that risked workers' livelihoods.

The Liberals are expected to on Friday promise to extend sawmillers' native forest log contracts beyond 2027.

reconstruction, with Property Council of WA boss Sandra Brewer having already secured the nomination for the seat of Cottesloe and media personality Basil Zempilas facing no internal com-

marns for abandoning them in the wake of 2021 The Clan Whats App saga, in which a cache of leaked messages showed how senior party figures including Mr Cormann and upper house MPs Nick

The meeting heard Ms Cormann would have been a "FIFO candidate" between Paris and Perth for the rest of this year, before returning full-time to WA in the new year. Ms Waugh, mean-

traikans their life savings.

He said the Sterling First collapse and Ms Marie's involvement in the Hillarys branch were a major financial scandal and an embarrassment for the party.

minute as a nominee by former councillor Jesse Jacobs, who is facing charges over stealing Mr Hall's promotional signs during the most recent mayoral campaign.

were finally able to identify Gus and organise his funeral.

In his victim impact statement, Jackson Pannam, from Slater and Gordon lawyers, said the family's plight had when the law doesn't take into account someone in Felix's position, it seems like changes

Mr Quigley noted a review of the Criminal Injuries Compensation scheme was tabled in out to the Kennedy family discuss what options may available to them."

SEEKING RELEVANT PERSONS

BAROSSA PRODUCTION OPERATIONS ACTIVITY

Santos

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- A Production Operations Environment Plan (EP) relating to the arrival and operations of the Floating Production Storage and Offloading facility (FPSO), operation of a subsea production system and supporting subsea infrastructure, and operation of a 285km section of the Gas Export Pipeline (GEP) located in Commonwealth waters where offshore petroleum activities are regulated under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).
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Summary of activity

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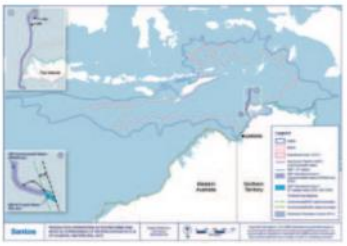

The estimated life of the Barossa Development is 25 years, and the Production Operations EP and the OEMP will be reviewed every five years. Production Operations activity is expected to commence in 2025, subject to obtaining the required approvals.

Activity location

The Production Operations Activity is confined to two operational areas: Operational Area 1 (OA1) and Operational Area 2 (OA2).

OA1: The Barossa field. This is the area in which the FPSO, subsea production system, and supporting subsea infrastructure will be used to process gas and condensate extracted from the Barossa wells. The area is confined to Commonwealth waters, approximately 285 km north-north-west of Darwin (the closest major populated centre), approximately 210 km north-west of the mainland NT coastline, and approximately 130 km north of the Tiwi Islands at the closest point (Seagull Island).

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The environment that may be affected by the proposed activity

Santos is assessing impacts and risks to the environment from these proposed activities, inclusive of ecosystems (including people and communities), natural and physical resources, the qualities and characteristics of locations, places and areas and the heritage value of places. This will include assessment of the social, economic and cultural features of the environment.

The map depicts OA1 and OA2, and the environment that may be affected (EMBA) by the proposed activities. The 'EMBA' represents the greatest geographical extent that could be affected by an unplanned 'worst case' oil spill scenario, before any measures to reduce the risks are considered.

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Consultation

Under the Offshore Petroleum and Greenhouse Gas Storage Environment Regulations Santos is required to consult with people and organisations who have functions, interests or activities that may be affected by the proposed activities. Functions, interests or activities may include those arising in relation to spiritual or cultural connections to land and sea country in accordance with Indigenous tradition; tourism; recreational and commercial fishing; other commercial or recreational activities and local communities that might be affected by our proposed activity (these are examples and not an exhaustive list).

Seeking information and what's next

In preparing an EP and OEMP for submission to the regulators, a titleholder must consult with each 'relevant person', including relevant Commonwealth, State and Northern Territory Departments or agencies and persons (or organisations) whose functions, interests or activities may be affected by the activity proposed to be carried out under an EP.

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travel plans this year — a trip that's even more attractive now with these discounted airfares and other incentives," she said.

unchecked can lead to over tourism in an area," Mr Hall said.

"What we want to see is proper

Mr Hall said new development of resorts, eco retreats, serviced apartments and regional accom-

people who need a place to call home," she said.

Housing Minister John Carey

Incentive Scheme and planning reforms visit the WA Government website's STRA Initiatives page.

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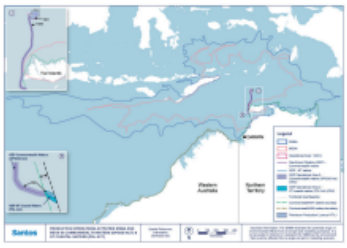

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acquisition would enable the group to work cruising into an integrated accommodation and hospitality offering in the Kimberley.

Australia, about 60 per cent of local government-operated regional airports operate at a loss due to ageing infrastructure, rising security and regulatory burdens and staffing costs.

across the board, and they can no longer afford to pick up the shortfall," she said.

"Australia's regional airports provide a critical role in border protection, medivac, defence and and our nation's health and security at risk."

It comes as the Australian Federation of Air Pilots went on strike this week with 230 pilots walking off the job and further action set

rely on tightly-run fly-in, fly-out schedules to get workers to site, forcing them to use other providers, reschedule travel or find spare capacity on other Qantas flights.

o enable the city to thrive."
The major projects that are

the 2500sq m complex is set to house a 50m, 25m and resort

$600,000 in total, by the end of the financial year, the

fall and other liquids that gather among waste.

The upgrade included the duplication of Lee Point Rd

Improvements
As part of a $7m program,

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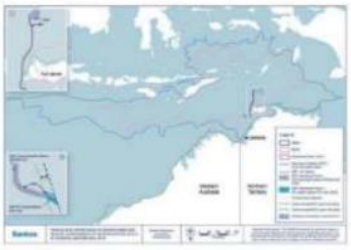

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NTNEOLZOLMA - V1

Consultation

Radio

March-April 2024 **Radio ad - Hit 101.3 Broome**

March-April 2024 **Radio ad - Darwin Mix 1049**

March-April 2024 **Radio ad - Darwin Hot 100**

March-April 2024 **Radio ad - Pilbara and Kimberley Aboriginal Media Radio**

Script B - Consultation 11 March to 9 April

Santos is now consulting with people who maybe affected by the proposed Production Operations Activity for the Barossa Gas Project.
This includes Santos's offshore production facility, approximately 285 kilometres offshore from Darwin, and a Gas Export Pipeline.
If you may be affected by these activities, please contact Santos as soon as possible.
Consultation closes on 9 April 2024
For more visit santos.com/barossa,
Phone [1800 267 600] One Eight Hundred, Two Six Seven, Six Hundred
or email offshore.consultation@santos.com.

Santos

THE BAROSSA GAS PROJECT

PRODUCTION OPERATIONS ACTIVITY CONSULTATION

Santos is now consulting with relevant persons for its proposed Production Operations activity and is currently preparing:

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Phone **1800 267 600**
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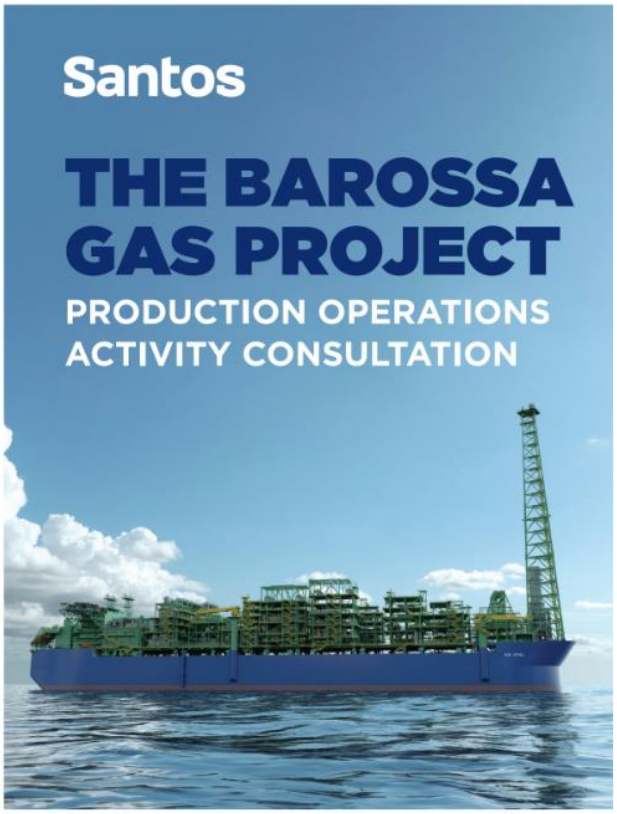
NTNE01201MA - V1

leagues at a bar in the nearby ed this. "Perenti categorically lice were responsible for the queries about missing items. 2020 and 2021.



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ing sensors in schools, which Ms Thorpe said was "only one solution and a costly one at that".

March 1. She said there were "transitional arrangements" in place until July 1 to allow time for vape sponsors and distributors to sell off their stock.

duced in parliament. There will be no penalties for people who possess limited quantities of vapes for personal use."

Katherine CBD.

Town Council CEO Ingrid Stonhill said a survey last

The hope is to retain past food vendors and attract new ones to a "bigger and

who wish to take part can submit their EOIs at katherine.nt.gov.au/forms.

Steve Edgington has resigned as the opposition's Domestic Violence spokesman. Picture: Pema Tamang Pakhrin

tered in May 2016 and jointly owned by Mr Edgington and Mr Newman until its deregistration in May last year.

"This afternoon I have notified the Leader of the Opposition that I have resigned from the role of shadow minister for that he is a fierce advocate for the prevention of domestic violence, and the rehabilitation of offenders, representing one

Newman said: "I had to plead guilty to expedite charges after several months, but you might find there's more to the story."

information, and said early evidence supported allegations that awards racist towards First NT Police assistance," Mr Riches said.

Citing a need for the "serious not be referred to NT Police for disciplinary action, and would not be publicly named.

On March 6 NT Police Commissioner Michael Murphy said the police's Professional "We've got a good team. I don't question their integrity or their ethics at all and with the the Northern Territory Police Force is deeply committed to maintaining the public's trust."

Table 4-10 (of the EP) Advertising Tiwi sessions

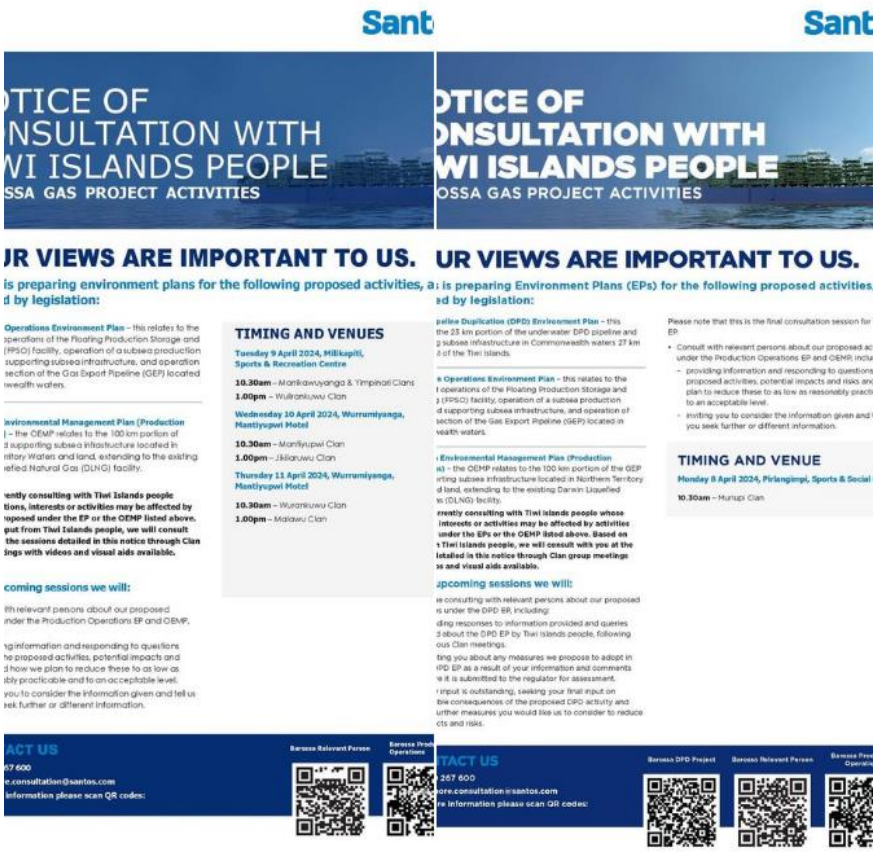
- **Social media notices**
- **Notice of Consultation - emailed to several independent stakeholders for sharing across their direct networks, in person, and for posting on Tiwi Island notices boards**

March 2024

April 2024

Santos Ltd
Just now ·

Details of our upcoming consultation sessions on the Tiwi Islands are available below. We look forward to chatting with you in April. For more information, visit www.santos.com/barossa



May 2024

Santos Ltd
Top Contributor · 27m ·

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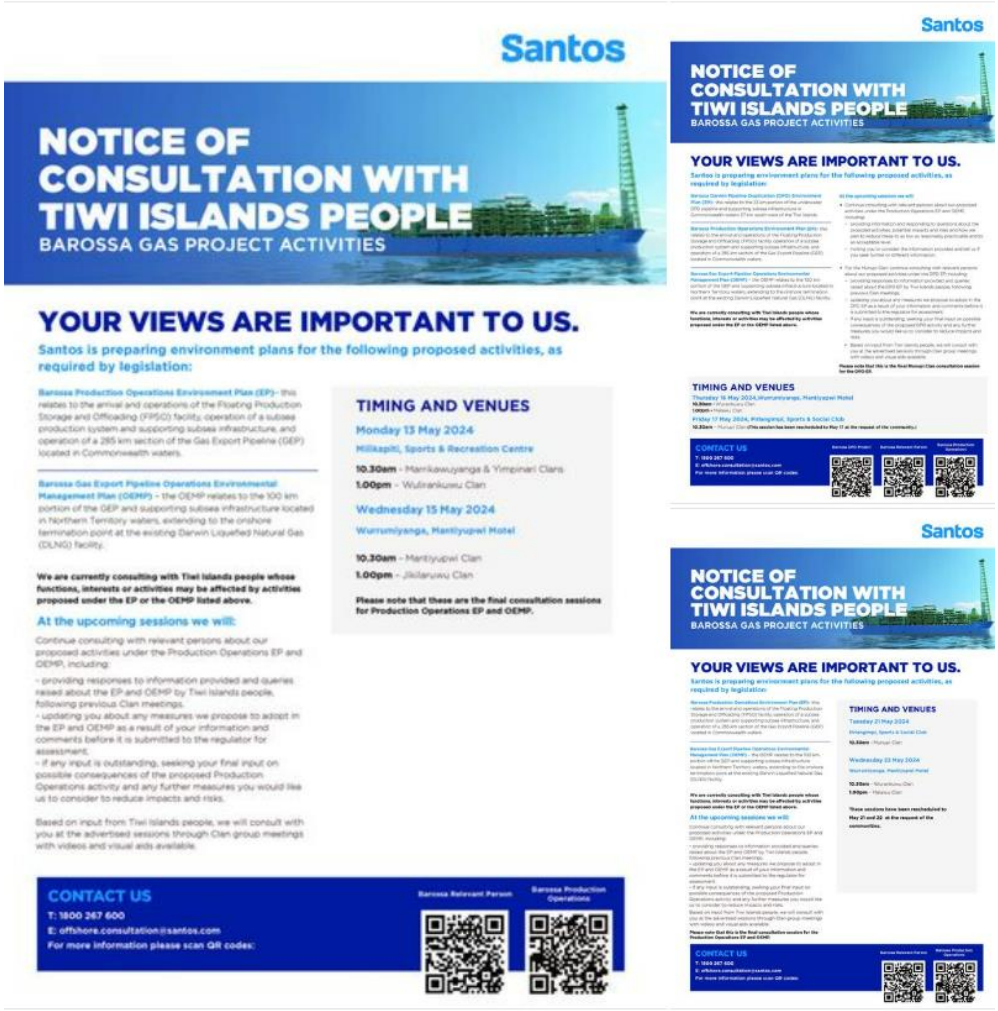

Like Comment Send

Santos Ltd
Top contributor · Just now ·

Reminder today: Santos Munupi Clan Meeting at Pirlangimpi Sports Club at 10:30am.

Like Comment Send

19 February 2024 Press Ad NT News

Santos

NOTICE OF CONSULTATION WITH TIWI ISLANDS PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

YOUR VIEWS ARE IMPORTANT TO US.

Santos is preparing Environment Plans (EPs) for the following proposed activities, as required by legislation:

Darwin Pipeline Duplication (DPD) Environment Plan – this relates to the 23 km portion of the underwater DPD pipeline and supporting subsea infrastructure in Commonwealth waters 27 km south-west of the Tiwi Islands.

Production Operations Environment Plan – this relates to the arrival and operations of the Floating Production Storage and Offloading (FPSO) facility, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285 km section of the Gas Export Pipeline (GEP) located in Commonwealth waters.

Operation Environmental Management Plan (Production Operations) – the OEMP relates to the 100 km portion of the GEP and supporting subsea infrastructure located in Northern Territory Waters and land, extending to the existing Darwin Liquefied Natural Gas (DLNG) facility.

We are currently consulting with Tiwi Islands people whose functions, interests or activities may be affected by activities proposed under the EPs or the OEMP listed above. Based on input from Tiwi Islands people, we will consult with you at the sessions detailed in this notice through Clan group meetings with videos and visual aids available.

At the upcoming sessions we will:

- Continue consulting with relevant persons about our proposed activities under the DPD EP, including:
  - providing responses to information provided and queries raised about the DPD EP by Tiwi Islands people, following previous Clan meetings.
  - updating you about any measures we propose to adopt in the DPD EP as a result of your information and comments before it is submitted to the regulator for assessment.
  - if any input is outstanding, seeking your final input on possible consequences of the proposed DPD activity and any further measures you would like us to consider to reduce impacts and risks.

Please note that this is the final consultation session for the DPD EP.

- Consult with relevant persons about our proposed activities under the Production Operations EP and OEMP, including:
  - providing information and responding to questions about the proposed activities, potential impacts and risks and how we plan to reduce these to as low as reasonably practicable and to an acceptable level.
  - inviting you to consider the information given and tell us if you seek further or different information.

TIMING AND VENUES

Tuesday 5 March 2024, Milikapiti, Sports & Recreation Centre

10.30am – Marrkawuyanga & Yimpinari Clans
1.00pm – Wulirankuwu Clan

Wednesday 6 March 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am – Mantiyupwi Clan
1.00pm – Jikilaruwu Clan

Thursday 7 March 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am – Wurankuwu Clan
1.00pm – Malawu Clan

Friday 8 March 2024, Pirlangimpi, Sports & Social Club

10.30am – Munupi Clan

CONTACT US

T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

Barossa DPD Project | Barossa Relevant Person | Barossa Production Operations

26 February 2024 Press Ad NT News

Santos

NOTICE OF CONSULTATION WITH TIWI ISLANDS PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

YOUR VIEWS ARE IMPORTANT TO US.

Santos is preparing Environment Plans (EPs) for the following proposed activities, as required by legislation:

Darwin Pipeline Duplication (DPD) Environment Plan - this relates to the 23 km portion of the underwater DPD pipeline and supporting subsea infrastructure in Commonwealth waters 27 km south-west of the Tiwi Islands.

Production Operations Environment Plan - this relates to the arrival and operations of the Floating Production Storage and Offloading (FPSO) facility, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285 km section of the Gas Export Pipeline (GEP) located in Commonwealth waters.

Operation Environmental Management Plan (Production Operations) - the OEMP relates to the 100 km portion of the GEP and supporting subsea infrastructure located in Northern Territory Waters and land, extending to the existing Darwin Liquefied Natural Gas (DLNG) facility.

We are currently consulting with Tiwi Islands people whose functions, interests or activities may be affected by activities proposed under the EPs or the OEMP listed above. Based on input from Tiwi Islands people, we will consult with you at the sessions detailed in this notice through Clan group meetings with videos and visual aids available.

At the upcoming sessions we will:

- Continue consulting with relevant persons about our proposed activities under the DPD EP, including:
  - providing responses to information provided and queries raised about the DPD EP by Tiwi Islands people, following previous Clan meetings.
  - updating you about any measures we propose to adopt in the DPD EP as a result of your information and comments before it is submitted to the regulator for assessment.
  - if any input is outstanding, seeking your final input on possible consequences of the proposed DPD activity and any further measures you would like us to consider to reduce impacts and risks.

Please note that this is the final consultation session for the DPD EP.

- Consult with relevant persons about our proposed activities under the Production Operations EP and OEMP, including:
  - providing information and responding to questions about the proposed activities, potential impacts and risks and how we plan to reduce these to as low as reasonably practicable and to an acceptable level.
  - inviting you to consider the information given and tell us if you seek further or different information.

TIMING AND VENUES

Tuesday 5 March 2024, Milikapiti, Sports & Recreation Centre

10.30am - Mantikawuyanga & Yirripinari Clans
1.00pm - Wulirankuwu Clan

Wednesday 6 March 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am - Mantiyupwi Clan
1.00pm - Jilakuwu Clan

Thursday 7 March 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am - Wurankuwu Clan
1.00pm - Malawa Clan

Friday 8 March 2024, Pirlangimpi, Sports & Social Club

10.30am - Munupi Clan

CONTACT US

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For more information please scan QR codes:

Barossa DPD Project | Barossa Relevant Person | Barossa Production Operations

4 March 2024 **Press ad – NT News**

Santos

NOTICE OF CONSULTATION WITH TIWI ISLANDS PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

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Production Operations Environment Plan - this relates to the arrival and operations of the Floating Production Storage and Offloading (FPSO) facility, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285 km section of the Gas Export Pipeline (GEP) located in Commonwealth waters.

Operation Environmental Management Plan (Production Operations) - the OEMP relates to the 100 km portion of the GEP and supporting subsea infrastructure located in Northern Territory Waters and land, extending to the existing Darwin Liquefied Natural Gas (DLNG) facility.

We are currently consulting with Tiwi Islands people whose functions, interests or activities may be affected by activities proposed under the EPs or the OEMP listed above. Based on input from Tiwi Islands people, we will consult with you at the sessions detailed in this notice through Clan group meetings with videos and visual aids available.

At the upcoming sessions we will:

- Continue consulting with relevant persons about our proposed activities under the DPD EP, including:
  - providing responses to information provided and queries raised about the DPD EP by Tiwi Islands people, following previous Clan meetings.
  - updating you about any measures we propose to adopt in the DPD EP as a result of your information and comments before it is submitted to the regulator for assessment.
  - if any input is outstanding, seeking your final input on possible consequences of the proposed DPD activity and any further measures you would like us to consider to reduce impacts and risks.

Please note that this is the final consultation session for the DPD EP.

- Consult with relevant persons about our proposed activities under the Production Operations EP and OEMP, including:
  - providing information and responding to questions about the proposed activities, potential impacts and risks and how we plan to reduce these to as low as reasonably practicable and to an acceptable level.
  - inviting you to consider the information given and tell us if you seek further or different information.

TIMING AND VENUES

Tuesday 5 March 2024, Milikapiti, Sports & Recreation Centre

10.30am - Mamkawuyanga & Yirrijinari Clans
1.00pm - Wulirankuwu Clan

Wednesday 6 March 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am - Mantiyupwi Clan
1.00pm - Jikilaruwu Clan

Thursday 7 March 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am - Wurankuwu Clan
1.00pm - Malawu Clan

Friday 8 March 2024, Pirlangimpi, Sports & Social Club

10.30am - Munupi Clan

CONTACT US

T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

Barossa DPD Project | Barossa Relevant Person | Barossa Production Operations

NORTHERN TERRITORY GOVERNMENT | Department of INDUSTRY, TOURISM AND TRADE

EXPRESSIONS OF INTEREST

CHAIRPERSON FOR McARTHUR RIVER MINE INDEPENDENT EXPERT MINE CLOSURE PANEL

The Minister for Mining is seeking expressions of interest from technical experts to be appointed as Chairperson for the independent panel of experts for McArthur River Mine focusing on Mine Closure.

A suitably credentialed individual will be appointed to deliver an independent technical review of action taken to achieve closure of the McArthur River Mine in line with approved plans.

The independent expert will have access to McArthur River Mine operations and performance information focusing on the three-year period following approval of the Overburden Management Project in November 2020.

The Chairperson will play an important role in demonstrating accountability of the mine operator to the wider community.

Prior to applying, please refer to the Terms of Reference and selection criteria at **industry.nt.gov.au/mrm-panels**

Written nominations should be emailed to Andria Handley, Director Mining Operations Policy and Support, **andria.handley@nt.gov.au**

Nominations close at midnight on Sunday 21 April 2024.

V1 - NTNE01Z01MA

Santos

COMMUNITY CONSULTATION DROP-IN SESSIONS

BAROSSA GAS PROJECT ACTIVITY

YOUR VIEWS ARE IMPORTANT TO US.

Santos is preparing environment plans, as required by legislation, regarding activities for the Barossa Gas Project - a project that involves extracting natural gas from the Barossa field in Commonwealth waters approximately 285 kilometres offshore north-north west of Darwin and transporting it to the existing Darwin liquefied natural gas (DLNG) plant.

We are currently consulting with relevant persons whose functions, interests, or activities may be affected by the Production Operations Activity as we prepare a Production Operations Environment Plan and an Operations Environmental Management Plan. Detailed information about these proposed activities is available at **Santos.com/barossa** or by scanning the QR code below. Santos will hold community consultation drop-in sessions for relevant persons to obtain information about these proposed activities, provide feedback and ask any questions.

VENUE:
Santos Shopfront
T14/15, 41 The Mall, Darwin

DATES:
26TH March, Tuesday
27TH March, Wednesday
28TH March, Thursday

TIME:
10.30am - 2.30pm

CONTACT US

T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

BAROSSA RELEVANT PERSON

BAROSSA PRODUCTION OPERATIONS

26 March 2024 Press ad – NT News

Santos

NOTICE OF CONSULTATION WITH TIWI ISLANDS PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

YOUR VIEWS ARE IMPORTANT TO US.

Santos is preparing Environment Plans (EPs) for the following proposed activities, as required by legislation:

Barossa Production Operations Environment Plan (EP) – this relates to the arrival and operations of the Floating Production Storage and Offloading (FPSO) facility, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285 km section of the Gas Export Pipeline (GEP) located in Commonwealth waters.

Barossa Gas Export Pipeline Operations Environmental Management Plan (OEMP) – the OEMP relates to the 100 km portion of the GEP and supporting subsea infrastructure located in Northern Territory waters, extending to the onshore termination point at the Darwin Liquefied Natural Gas (DLNG) facility.

We are currently consulting with Tiwi Islands people whose functions, interests or activities may be affected by activities proposed under the EP or the OEMP listed above. Based on input from Tiwi Islands people, we will consult with you at the advertised sessions through Clan group meetings with videos and visual aids available.

At the upcoming sessions we will:

- Consult with relevant persons about our proposed activities under the Production Operations EP and OEMP, including:
  - providing information and responding to questions about the proposed activities, potential impacts and risks and how we plan to reduce these to as low as reasonably practicable and to an acceptable level.
  - inviting you to consider the information provided and tell us if you seek further or different information.

TIMING AND VENUES

Monday 8 April 2024, Pirlangimpi, Sports & Social Club

10.30am – Munupi Clan

Please note that in addition to consultation on the Production Operations EP and OEMP, Santos will also be consulting with the Munupi Clan on the Darwin Pipeline Duplication Project EP including:

- providing responses to information provided and queries raised about the DPD EP by Tiwi Islands people, following previous Clan meetings.
- updating you about any measures we propose to adopt in the DPD EP as a result of your information and comments before it is submitted to the regulator for assessment.
- if any input is outstanding, seeking your final input on possible consequences of the proposed DPD activity and any further measures you would like us to consider to reduce impacts and risks.

Tuesday 9 April 2024, Milikapiti, Sports & Recreation Centre

10.30am – Mamiluwuyanga & Yirrginari Clans

1.00pm – Wulirrikuwu Clan

Wednesday 10 April 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am – Mantiyupwi Clan

1.00pm – Jikilaruwu Clan

Thursday 11 April 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am – Wurrirrikuwu Clan

1.00pm – Malawu Clan

CONTACT US

T: 1800 267 600

E: offshore.consultation@santos.com

For more information please scan QR codes:

Barossa DPD Project | Barossa Relevant Person | Barossa Production Operations

2 April 2024 Press ad – NT News

Santos

NOTICE OF CONSULTATION WITH TIWI ISLANDS PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

YOUR VIEWS ARE IMPORTANT TO US.

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Barossa Production Operations Environment Plan (EP) – this relates to the arrival and operations of the Floating Production Storage and Offloading (FPSO) facility; operation of a subsea production system and supporting subsea infrastructure, and operation of a 285 km section of the Gas Export Pipeline (GEP) located in Commonwealth waters.

Barossa Gas Export Pipeline Operations Environmental Management Plan (OEMP) – the OEMP relates to the 100 km portion of the GEP and supporting subsea infrastructure located in Northern Territory waters, extending to the onshore termination point at the Darwin Liquefied Natural Gas (DLNG) facility.

We are currently consulting with Tiwi Islands people whose functions, interests or activities may be affected by activities proposed under the EP or the OEMP listed above. Based on input from Tiwi Islands people, we will consult with you at the advertised sessions through Clan group meetings with videos and visual aids available.

At the upcoming sessions we will:

- Consult with relevant persons about our proposed activities under the Production Operations EP and OEMP, including:
  - providing information and responding to questions about the proposed activities, potential impacts and risks and how we plan to reduce these to as low as reasonably practicable and to an acceptable level.
  - inviting you to consider the information provided and tell us if you seek further or different information.

TIMING AND VENUES

Monday 8 April 2024, Pirlangimpi, Sports & Social Club

10.30am – Munupi Clan

Please note that in addition to consultation on the Production Operations EP and OEMP, Santos will also be consulting with the Munupi Clan on the Darwin Pipeline Duplication Project EP including:

- providing responses to information provided and queries raised about the DPD EP by Tiwi Islands people, following previous Clan meetings.
- updating you about any measures we propose to adopt in the DPD EP as a result of your information and comments before it is submitted to the regulator for assessment.
- if any input is outstanding, seeking your final input on possible consequences of the proposed DPD activity and any further measures you would like us to consider to reduce impacts and risks.

Tuesday 9 April 2024, Milikapiti, Sports & Recreation Centre

10.30am – Mamiikawuyanga & Yimpinari Clans

1.00pm – Wulirankuwu Clan

Wednesday 10 April 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am – Mantiyupwi Clan

1.00pm – Jikiarupwu Clan

Thursday 11 April 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am – Wurankuwu Clan

1.00pm – Malowu Clan

CONTACT US

T: 1800 267 600

E: offshore.consultation@santos.com

For more information please scan QR codes:

Barossa DPD Project | Barossa Relevant Person | Barossa Production Operations

6 April 2024 Press ad – NT News

Santos

NOTICE OF CONSULTATION WITH TIWI ISLANDS PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

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Barossa Gas Export Pipeline Operations Environmental Management Plan (OEMP) – the OEMP relates to the 100 km portion of the GEP and supporting subsea infrastructure located in Northern Territory waters, extending to the onshore termination point at the Darwin Liquefied Natural Gas (DLNG) facility.

We are currently consulting with Tiwi Islands people whose functions, interests or activities may be affected by activities proposed under the EP or the OEMP listed above. Based on input from Tiwi Islands people, we will consult with you at the advertised sessions through Clan group meetings with videos and visual aids available.

At the upcoming sessions we will:

- Consult with relevant persons about our proposed activities under the Production Operations EP and OEMP, including:
  - providing information and responding to questions about the proposed activities, potential impacts and risks and how we plan to reduce these to as low as reasonably practicable and to an acceptable level.
  - inviting you to consider the information provided and tell us if you seek further or different information.

TIMING AND VENUES

Monday 8 April 2024, Pirlangimpi, Sports & Social Club

10.30am – Munupi Clan

Please note that in addition to consultation on the Production Operations EP and OEMP, Santos will also be consulting with the Munupi Clan on the Darwin Pipeline Duplication Project EP including:

- providing responses to information provided and queries raised about the DPD EP by Tiwi Islands people, following previous Clan meetings.
- updating you about any measures we propose to adopt in the DPD EP as a result of your information and comments before it is submitted to the regulator for assessment.
- if any input is outstanding, seeking your final input on possible consequences of the proposed DPD activity and any further measures you would like us to consider to reduce impacts and risks.

Tuesday 9 April 2024, Milikapiti, Sports & Recreation Centre

10.30am – Mantikawuyanga & Yirrpinari Clans

1.00pm – Wulirrikuwu Clan

Wednesday 10 April 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am – Mantiyupwi Clan

1.00pm – Jikilaruwu Clan

Thursday 11 April 2024, Wurrumiyanga, Mantiyupwi Motel

10.30am – Wurrirrkuwu Clan

1.00pm – Malawu Clan

CONTACT US

T: 1800 267 600

E: offshore.consultation@santos.com

For more information please scan QR codes:

Barossa DPD Project

Barossa Relevant Person

Barossa Production Operations

8 May 2024 Press ad NT News

Santos

NOTICE OF CONSULTATION WITH TIWI ISLANDS PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

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Barossa Gas Export Pipeline Operations Environmental Management Plan (OEMP) – the OEMP relates to the 100 km portion of the GEP and supporting subsea infrastructure located in Northern Territory waters, extending to the onshore termination point at the existing Darwin Liquefied Natural Gas (DLNG) facility.

Barossa Darwin Pipeline Duplication (DPD) Environment Plan (EP) – this relates to the 23 km portion of the underwater DPD pipeline and supporting subsea infrastructure in Commonwealth waters 27 km south-west of the Tiwi Islands.

We are currently consulting with Tiwi Islands people whose functions, interests or activities may be affected by activities proposed under the EPs or the OEMP listed above.

At all of the upcoming sessions we will:

Continue consulting with relevant persons about our proposed activities under the Production Operations EP and OEMP, including:

- providing responses to information provided and queries raised about the EP and OEMP by Tiwi Islands people, following previous Clan meetings.
- updating you about any measures we propose to adopt in the EP and OEMP as a result of your information and comments before it is submitted to the regulator for assessment.
- if any input is outstanding, seeking your final input on possible consequences of the proposed Production Operations activity and any further measures you would like us to consider to reduce impacts and risks.

For the Munupi Clan on 17 May 2024: we will also continue consulting with relevant persons about our proposed activities under the DPD EP, including:

- providing responses to information provided and queries raised about the DPD EP by Tiwi Islands people, following previous Clan meetings.
- updating you about any measures we propose to adopt in the DPD EP as a result of your information and comments before it is submitted to the regulator for assessment.
- if any input is outstanding, seeking your final input on possible consequences of the proposed DPD activity and any further measures you would like us to consider to reduce impacts and risks.

Based on input from Tiwi Islands people, we will consult with you at the advertised sessions through Clan group meetings with videos and visual aids available.

TIMING AND VENUES

Monday 13 May 2024 - Milikapiti, Sports & Recreation Centre

10.30am - Marrkawuyanga & Yimpinari Clans
1.00pm - Wulirankuwu Clan

Wednesday 15 May 2024 - Wurrumiyanga, Mantiyupwi Motel

10.30am - Mantiyupwi Clan
1.00pm - Jikilaruwu Clan
Please note that these are the final consultation sessions for the Production Operations EP and OEMP.

Thursday 16 May 2024 - Wurrumiyanga, Mantiyupwi Motel

10.30am - Wurankuwu Clan
1.00pm - Malawu Clan

Friday 17 May 2024 - Pirlangimpi, Sports & Social Club

10.30am - Munupi Clan (This session has been rescheduled to May 17 at the request of the community. Note that this is the final Munupi Clan consultation session for the DPD EP.)

Tuesday 21 May 2024 - Pirlangimpi, Sports & Social Club

10.30am - Munupi Clan

Wednesday 22 May 2024 - Wurrumiyanga, Mantiyupwi Motel

10.30am - Wurankuwu Clan
1.00pm - Malawu Clan
These sessions have been rescheduled to May 21 and 22 at the request of the communities. Please note that these are the final consultation sessions for the Production Operations EP and OEMP.

CONTACT US

T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

Barossa DPD Project **Barossa Relevant Person** **Barossa Production Operations**

15 May 2024 Press ad NT News

Santos

NOTICE OF CONSULTATION WITH TIWI ISLANDS PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

YOUR VIEWS ARE IMPORTANT TO US.

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Barossa Darwin Pipeline Duplication (DPD) Environment Plan (EP) – this relates to the 23 km portion of the underwater DPD pipeline and supporting subsea infrastructure in Commonwealth waters 27 km south-west of the Tiwi Islands.

We are currently consulting with Tiwi Islands people whose functions, interests or activities may be affected by activities proposed under the EPs or the OEMP listed above.

At all of the upcoming sessions we will:

Continue consulting with relevant persons about our proposed activities under the Production Operations EP and OEMP, including:

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- if any input is outstanding, seeking your final input on possible consequences of the proposed Production Operations activity and any further measures you would like us to consider to reduce impacts and risks.

For the Munupi Clan on 17 May 2024: we will also continue consulting with relevant persons about our proposed activities under the DPD EP, including:

- providing responses to information provided and queries raised about the DPD EP by Tiwi Islands people, following previous Clan meetings.
- updating you about any measures we propose to adopt in the DPD EP as a result of your information and comments before it is submitted to the regulator for assessment.
- if any input is outstanding, seeking your final input on possible consequences of the proposed DPD activity and any further measures you would like us to consider to reduce impacts and risks.

Based on input from Tiwi Islands people, we will consult with you at the advertised sessions through Clan group meetings with videos and visual aids available.

TIMING AND VENUES

Monday 13 May 2024 - Milikapiti, Sports & Recreation Centre

10.30am - Marrkawuyanga & Yimpinari Clans
1.00pm - Wulirankuwu Clan

Wednesday 15 May 2024 - Wurrumiyanga, Mantiyupwi Motel

10.30am - Mantiyupwi Clan
1.00pm - Jikilaruwu Clan
Please note that these are the final consultation sessions for the Production Operations EP and OEMP.

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10.30am - Wurankuwu Clan
1.00pm - Malawu Clan

Friday 17 May 2024 - Pirlangimpi, Sports & Social Club

10.30am - Munupi Clan (This session has been rescheduled to May 17 at the request of the community. Note that this is the final Munupi Clan consultation session for the DPD EP.)

Tuesday 21 May 2024 - Pirlangimpi, Sports & Social Club

10.30am - Munupi Clan

Wednesday 22 May 2024 - Wurrumiyanga, Mantiyupwi Motel

10.30am - Wurankuwu Clan
1.00pm - Malawu Clan
These sessions have been rescheduled to May 21 and 22 at the request of the communities. Please note that these are the final consultation sessions for the Production Operations EP and OEMP.

CONTACT US

T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

Barossa DPD Project **Barossa Relevant Person** **Barossa Production Operations**

20 May 2024 Press ad NT News

Santos

NOTICE OF CONSULTATION WITH TIWI ISLANDS PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

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Barossa Darwin Pipeline Duplication (DPD) Environment Plan (EP) – this relates to the 23 km portion of the underwater DPD pipeline and supporting subsea infrastructure in Commonwealth waters 27 km south-west of the Tiwi Islands.

We are currently consulting with Tiwi Islands people whose functions, interests or activities may be affected by activities proposed under the EPs or the OEMP listed above.

At all of the upcoming sessions we will:

Continue consulting with relevant persons about our proposed activities under the Production Operations EP and OEMP, including:

- providing responses to information provided and queries raised about the EP and OEMP by Tiwi Islands people, following previous Clan meetings.
- updating you about any measures we propose to adopt in the EP and OEMP as a result of your information and comments before it is submitted to the regulator for assessment.
- if any input is outstanding, seeking your final input on possible consequences of the proposed Production Operations activity and any further measures you would like us to consider to reduce impacts and risks.

For the Munupi Clan on 17 May 2024, we will also continue consulting with relevant persons about our proposed activities under the DPD EP, including:

- providing responses to information provided and queries raised about the DPD EP by Tiwi Islands people, following previous Clan meetings.
- updating you about any measures we propose to adopt in the DPD EP as a result of your information and comments before it is submitted to the regulator for assessment.
- if any input is outstanding, seeking your final input on possible consequences of the proposed DPD activity and any further measures you would like us to consider to reduce impacts and risks.

Based on input from Tiwi Islands people, we will consult with you at the advertised sessions through Clan group meetings with videos and visual aids available.

TIMING AND VENUES

Monday 13 May 2024 – Milikapiti, Sports & Recreation Centre

10.30am – Marrikawuyanga & Yimpinari Clans
1.00pm – Wulirankuwu Clan

Wednesday 15 May 2024 – Wurrumiyanga, Mantiyupwi Motel

10.30am – Mantiyupwi Clan
1.00pm – Jikilaruwu Clan
Please note that these are the final consultation sessions for the Production Operations EP and OEMP.

Thursday 16 May 2024 – Wurrumiyanga, Mantiyupwi Motel

10.30am – Wurankuwu Clan
1.00pm – Malawu Clan

Friday 17 May 2024 – Pirlangimpi, Sports & Social Club

10.30am – Munupi Clan (This session has been rescheduled to May 17 at the request of the community. Note that this is the final Munupi Clan consultation session for the DPD EP.)

Tuesday 21 May 2024 – Pirlangimpi, Sports & Social Club

10.30am – Munupi Clan

Wednesday 22 May 2024 – Wurrumiyanga, Mantiyupwi Motel

10.30am – Wurankuwu Clan
1.00pm – Malawu Clan
These sessions have been rescheduled to May 21 and 22 at the request of the communities. Please note that these are the final consultation sessions for the Production Operations EP and OEMP.

CONTACT US

T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

Barossa DPD Project | Barossa Relevant Person | Barossa Production Operations


Monday May 20, 2024 | NT

Watch

Questions over ship lift project

Camden Smith

Less than a fortnight after the NT government announced US company Pearlson would deliver key infrastructure on the Darwin ship lift development, a leading probity watchdog has delivered a stinging report on the project's governance.

In her May report, auditor general Julie Crisp said that "key decisions" made surrounding the $515m Darwin ship lift project were not subject to governance oversight.

This included a land deal that, in exchange for four land parcels from Paspaley, saw the government transfer 15.8ha of land and sea to the company and lease a further land parcel at nominal value in order to construct a private marine facility to be owned by the company.

The report, tabled in parliament last week, identified that evidence to support key decisions made by the Department of Chief Minister and Cabinet

AVOI

Table 4-10 (of the EP) Advertising Larrakia sessions

23 March 2024 **Press ad – NT News**

Violence spokesman. Picture: Pema Tamang Pakhrin

tration in May last year.

the role of shadow minister for

of offenders, representing one

find there's more to the story."

NORTHERN TERRITORY GOVERNMENT | Department of INDUSTRY, TOURISM AND TRADE

EXPRESSIONS OF INTEREST

CHAIRPERSON FOR McARTHUR RIVER MINE INDEPENDENT EXPERT MINE CLOSURE PANEL

The Minister for Mining is seeking expressions of interest from technical experts to be appointed as Chairperson for the independent panel of experts for McArthur River Mine focusing on Mine Closure.

A suitably credentialed individual will be appointed to deliver an independent technical review of action taken to achieve closure of the McArthur River Mine in line with approved plans.

The independent expert will have access to McArthur River Mine operations and performance information focusing on the three-year period following approval of the Overburden Management Project in November 2020.

The Chairperson will play an important role in demonstrating accountability of the mine operator to the wider community.

Prior to applying, please refer to the Terms of Reference and selection criteria at **industry.nt.gov.au/mrm-panels**

Written nominations should be emailed to Andria Handley, Director Mining Operations Policy and Support, **andria.handley@nt.gov.au**

Nominations close at midnight on Sunday 21 April 2024.

V1 - NTN01201MA

Santos

COMMUNITY CONSULTATION DROP-IN SESSIONS

BAROSSA GAS PROJECT ACTIVITY

YOUR VIEWS ARE IMPORTANT TO US.

Santos is preparing environment plans, as required by legislation, regarding activities for the Barossa Gas Project - a project that involves extracting natural gas from the Barossa field in Commonwealth waters approximately 285 kilometres offshore north-north west of Darwin and transporting it to the existing Darwin liquefied natural gas (DLNG) plant.

We are currently consulting with relevant persons whose functions, interests, or activities may be affected by the Production Operations Activity as we prepare a Production Operations Environment Plan and an Operations Environmental Management Plan. Detailed information about these proposed activities is available at **Santos.com/barossa** or by scanning the QR code below. Santos will hold community consultation drop-in sessions for relevant persons to obtain information about these proposed activities, provide feedback and ask any questions.

VENUE:
Santos Shopfront
T14/15, 41 The Mall, Darwin

DATES:
26TH March, Tuesday
27TH March, Wednesday
28TH March, Thursday

TIME:
10.30am - 2.30pm

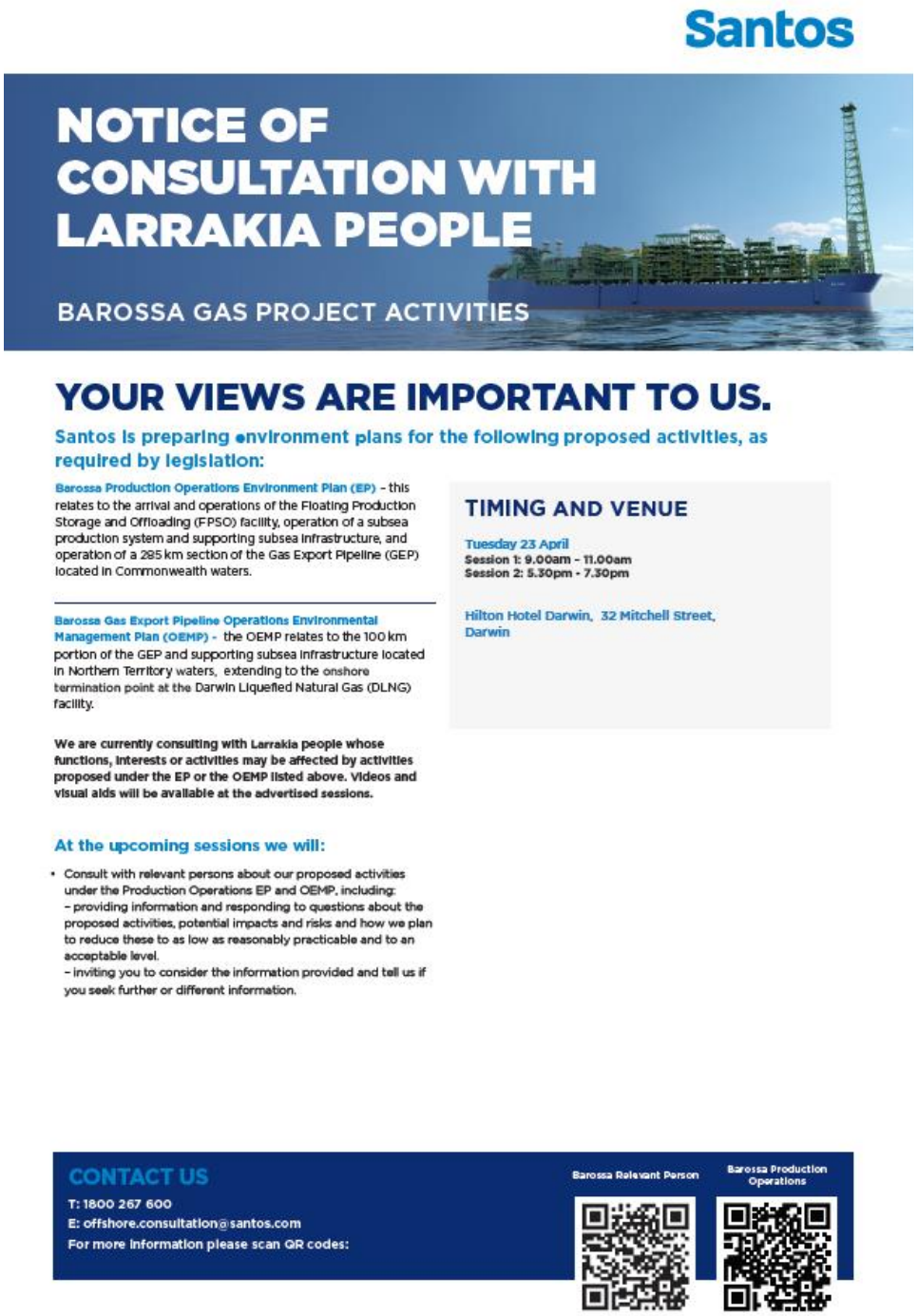
CONTACT US
T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

BAROSSA RELEVANT PERSON

BAROSSA PRODUCTION OPERATIONS

April Notice of Consultation

- **Emails to representative organisations for sharing across their direct networks.**
- **Emails and phone calls notifying individual Larrakia family representatives**
- **Promotion via Santos' Darwin shop front Targeted for Larrakia people**



Santos

NOTICE OF CONSULTATION WITH LARRAKIA PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

YOUR VIEWS ARE IMPORTANT TO US.

Santos is preparing environment plans for the following proposed activities, as required by legislation:

Barossa Production Operations Environment Plan (EP) - this relates to the arrival and operations of the Floating Production Storage and Offloading (FPSO) facility, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285 km section of the Gas Export Pipeline (GEP) located in Commonwealth waters.

Barossa Gas Export Pipeline Operations Environmental Management Plan (OEMP) - the OEMP relates to the 100 km portion of the GEP and supporting subsea infrastructure located in Northern Territory waters, extending to the onshore termination point at the Darwin Liquefied Natural Gas (DLNG) facility.

We are currently consulting with Larrakia people whose functions, interests or activities may be affected by activities proposed under the EP or the OEMP listed above. Videos and visual aids will be available at the advertised sessions.

TIMING AND VENUE

Tuesday 23 April
Session 1: 9.00am - 11.00am
Session 2: 5.30pm - 7.30pm

Hilton Hotel Darwin, 32 Mitchell Street, Darwin

At the upcoming sessions we will:

- Consult with relevant persons about our proposed activities under the Production Operations EP and OEMP, including:
  - providing information and responding to questions about the proposed activities, potential impacts and risks and how we plan to reduce these to as low as reasonably practicable and to an acceptable level.
  - inviting you to consider the information provided and tell us if you seek further or different information.

CONTACT US

T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

Barossa Relevant Person

Barossa Production Operations

-

Larrakia Nation social media advertising including Facebook and LinkedIn

YOUR VIEWS ARE IMPORTANT TO US.

Santos is preparing Environment Plans for the following proposed activities, as required by legislation:

Barossa Production Operations Environment Plan (EP)

Barossa Gas Export Pipeline Operations Environmental Management Plan (OEMP)

TIMING AND VENUE

Tuesday 23 April

Session 1: 9.00am – 11.00am
Session 2: 5.30pm - 7.30pm

Hilton Hotel Darwin, 32 Mitchell Street, Darwin

Santos

CONTACT US

T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

Barossa Relevant Person

Barossa Production Operations

June Notice of Consultation

- **Emailed to representative organisations for sharing across their direct networks.**
- **Promotion via Santos' Darwin shop front.**
- **Emails and phone calls notifying individual Larrakia family representatives**

Santos

YOUR VIEWS ARE IMPORTANT TO US.

Santos is preparing environment plans for the following proposed activities, as required by legislation:

Barossa Production Operations Environment Plan (EP) – this relates to the arrival and operations of the Floating Production Storage and Offloading (FPSO) facility, operation of a subsea production system and supporting subsea infrastructure, and operation of a 285 km section of the Gas Export Pipeline (GEP) located in Commonwealth waters.

Barossa Gas Export Pipeline Operations Environmental Management Plan (OEMP) – the OEMP relates to the 100 km portion of the GEP and supporting subsea infrastructure located in Northern Territory waters, extending to the onshore termination point at the Darwin Liquefied Natural Gas (DLNG) facility.

Barossa Darwin Pipeline Duplication Project Environment Plan (EP) – this relates to the installation and pre-commissioning of the approximately 23 km long section of the Darwin Pipeline Duplication (DPD) and supporting subsea infrastructure, located in Commonwealth waters - 95km north-west of Darwin.

Barossa Darwin Pipeline Duplication Project Offshore Construction Environmental Management Plan (EMP) – this relates to the installation of approximately 8.26 km of the DPD pipeline in an area of Northern Territory (NT) coastal waters between the Commonwealth/NT coastal waters boundary and the Territorial Sea Baseline - 80km north-west of Darwin.

We are currently consulting with Larrakia people whose functions, interests or activities may be affected by activities proposed under the EPs, OEMP, and EMP listed above. Videos and visual aids will be available at the advertised session.

At the upcoming sessions we will:

Continue consultation with Larrakia people about our proposed activities under the EPs, OEMP and EMP including:

- providing responses to information requests and queries previously raised about proposed activities to be managed under the EPs, OEMP and EMP.
- updating you about any measures we propose to adopt in the EPs, OEMP, and EMP as a result of your information and comments before they are submitted to the regulator for assessment.
- if any input is outstanding, seeking your final input on possible consequences of the proposed activities under the EPs, OEMP, and EMP and any further measures you would like us to consider to reduce impacts and risks.

TIMING AND VENUES

Wednesday 12 June
Malak Community Centre
13 Malak Crescent, Malak

Session 1 – 9.30am - 11.30am
Session 2 – 5.00pm - 7.00pm

CONTACT US
T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

Barossa DPD Project | Barossa Relevant Person | Barossa Production Operations

1 June 2024 Press ad – NT News

Santos

NOTICE OF CONSULTATION WITH LARRAKIA PEOPLE

BAROSSA GAS PROJECT ACTIVITIES

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E: offshore.consultation@santos.com
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Barossa DPD Project | Barossa Relevant Person | Barossa Production Operations

Saturday June 1, 2024 NT News

FRA
WHI

"There's so much to be annoyed about. I have a whole list of pet hates"

I have a new pet hate. Oh, I know, judging by your letters, you read this column and you think, what a reasonable and level-headed woman I am. And sometimes I am those things.

But the rest of time, I am just as much of a seething mass of bitter resentment, simmering anger and passive aggression as the rest of you.

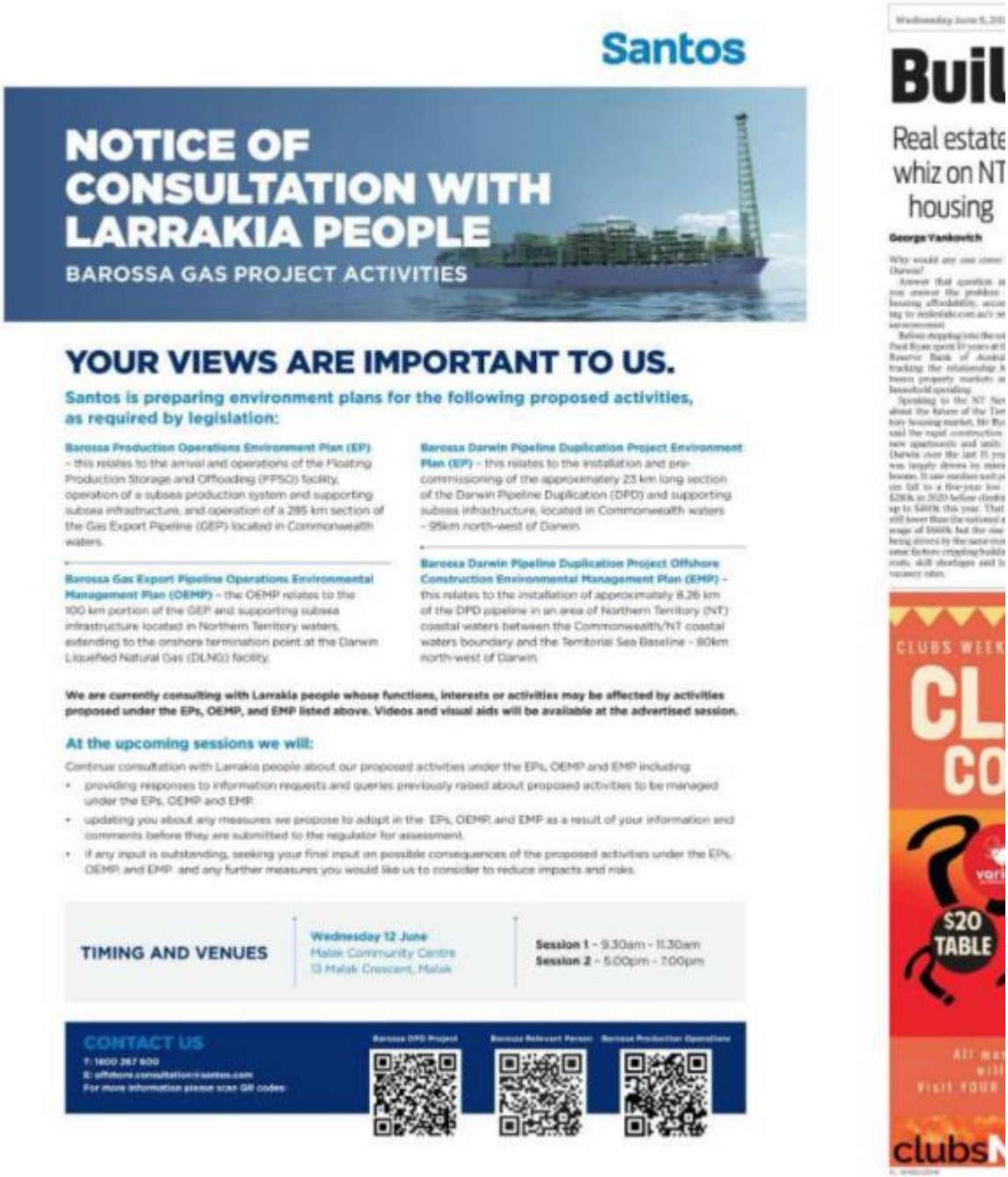
I mean, we can't help it, can we? There's just so much to be annoyed about.

I have a whole list of pet hates, including people who say, "Don't take this personally ..." at the start of a sentence, signalling that I'm about to take it very, very personally; people who write apologetic posts on social media like, "Something crazy just happened to me ... don't ask!" so we all have to ask; people who say "anyhoo" instead of "anything", and people who are Donald Trump.

I am also very capable of being annoying – just ask my husband, children, friends and co-workers, but mostly my husband.

I am, for example, a fairly regular sender of emails that say, "Hi! I hope you're well! Just wondering if you got my last email? You haven't replied, so I'm just making sure it hasn't gone missing!"

5 June 2024 Press ad – NT News



Santos

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TIMING AND VENUES

Wednesday 12 June
Malak Community Centre
13 Malak Crescent, Malak

Session 1 - 9.30am - 11.30am
Session 2 - 5.00pm - 7.00pm

CONTACT US
T: 1800 267 800
E: offshore.consultation@santos.com
For more information please scan QR codes:

Barossa EPO Project | Barossa Relevant Person | Barossa Production Operations

8 June 2024 Press ad – NT News

NOTICE OF CONSULTATION WITH LARRAKIA PEOPLE

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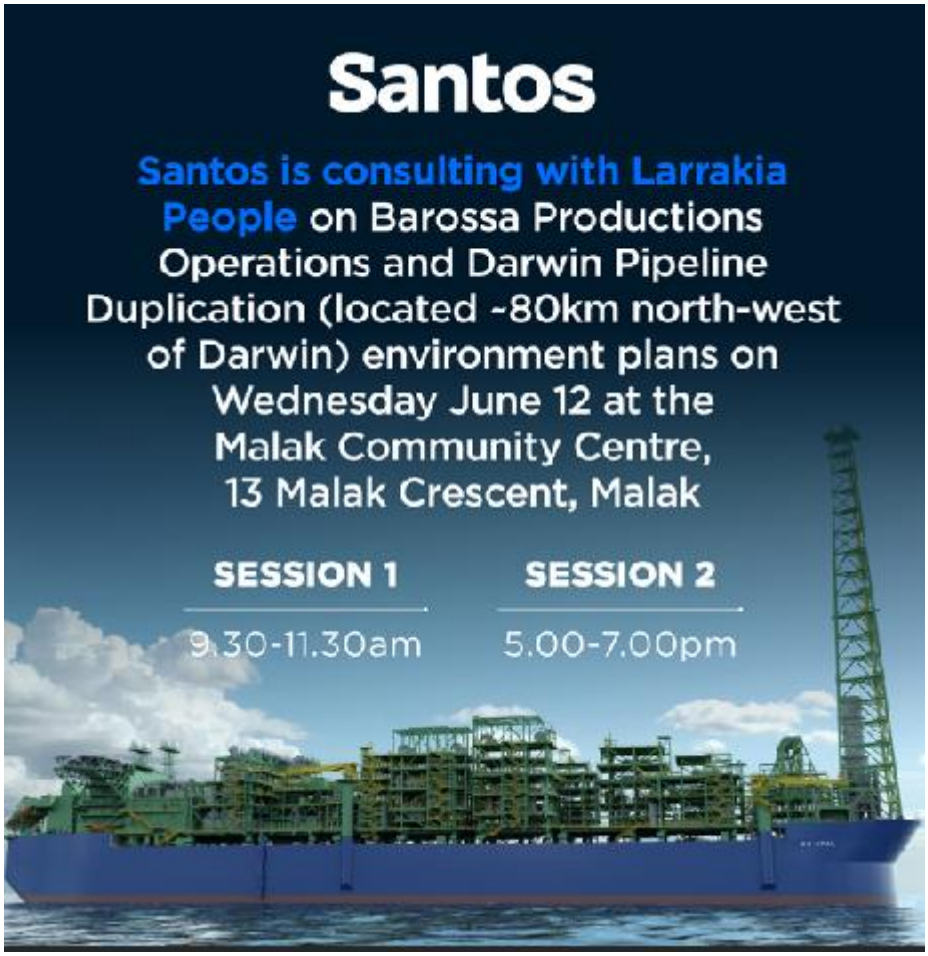
CONTACT US

T: 1800 267 600
E: offshore.consultation@santos.com
For more information please scan QR codes:

Barossa DPD Project | Barossa Relevant Person | Barossa Production Operations

June Social media advertising including Facebook and LinkedIn


Santos
Santos is consulting with Larrakia People on Barossa Productions Operations and Darwin Pipeline Duplication (located ~80km north-west of Darwin) environment plans on Wednesday June 12 at the Malak Community Centre, 13 Malak Crescent, Malak
SESSION 1
9.30-11.30am
SESSION 2
5.00-7.00pm

Appendix E Santos' Environment Consequence Descriptors

Excerpt from Santos *Environmental Hazard Identification and Assessment Guideline*, Revision 5 (issued October 2020).

	Consequence level	I	II	III	IV	V	VI
	Acceptability	Acceptable	Acceptable	Unacceptable	Unacceptable	Unacceptable	Unacceptable
	Severity description	**Negligible** **No impact or negligible impact**	**Minor** **Detectable but insignificant change to local population, industry or ecosystem factors. Localised effect**	**Moderate** **Significant impact to local population, industry or ecosystem factors**	**Major** **Major long-term effect on local population, industry or ecosystem factors**	**Severe** **Complete loss of local population, industry or ecosystem factors AND/OR extensive regional impacts with slow recovery**	**Critical** **Irreversible impact to regional population, industry or ecosystem factors**
Environmental Receptors	Fauna In particular, EPBC Act listed threatened/migratory fauna or *WA Biodiversity Conservation Act 2016* specially protected fauna	Short-term behavioural impacts only to small proportion of local population and not during critical lifecycle activity. No decrease in local population size. No reduction in area of occupancy of species. No loss/disruption of habitat critical to survival of a species. No disruption to the breeding cycle of any individual. No introduction of disease likely to cause a detectable population decline.	Detectable but insignificant decrease in local population size. Insignificant reduction in area of occupancy of species. Insignificant loss/disruption of habitat critical to survival of a species. Insignificant disruption to the breeding cycle of local population.	Significant decrease in local population size but no threat to overall population viability. Significant behavioural disruption to local population. Significant disruption to the breeding cycle of a local population. Significant reduction in area of occupancy of species. Significant loss of habitat critical to survival of a species. Modify, destroy, remove, isolate or decrease availability of quality of habitat to the extent that a significant decline in local population is likely. Introduce disease likely to cause a significant population decline.	Long-term decrease in local population size and threat to local population viability. Major disruption to the breeding cycle of local population. Major reduction in area of occupancy of species. Fragmentation of existing population. Major loss of habitat critical to survival of a species. Modify, destroy, remove, isolate or decrease availability of quality of habitat to the extent that a long-term decline in local population is likely. Introduce disease likely to cause a long-term population decline.	Complete loss of local population. Complete loss of habitat critical to survival of local population. Widespread (regional) decline in population size or habitat critical to regional population.	Complete loss of regional population. Complete loss of habitat critical to survival of regional population.
	Physical Environment/Habitat Includes: air quality; water quality; benthic habitat (biotic/abiotic), particularly habitats that are rare or unique; habitat that represents a Key Ecological Feature[55]; habitat within a protected area; habitats that include benthic primary producers[56] and/or epi-fauna[57]	No or negligible reduction in physical environment/habitat area/function.	Detectable but localised and insignificant loss of area/function of physical environment/habitat. Rapid recovery evident within approximately two years (two season recovery).	Significant loss of area and/or function of local physical environment/habitat. Recovery over medium term (2–10 years).	Major, large-scale loss of area and/or function of physical environment/local habitat. Slow recovery over decades.	Extensive destruction of local physical environment/habitat with no recovery. Long-term (decades) and widespread loss of area or function of primary producers on a regional scale.	Complete destruction of regional physical environment/habitat with no recovery. Complete loss of area or function of primary producers on a regional scale.
	Threatened ecological communities (EPBC Act listed ecological communities)	No decline in threatened ecological community population size, diversity or function. No reduction in area of threatened ecological community. No introduction of disease likely to cause decline in threatened ecological community population size, diversity or function.	Detectable but insignificant decline in threatened ecological community population size, diversity or function; Insignificant reduction in area of threatened ecological community.	Significant decline in threatened ecological community population size, diversity or function. Significant reduction in area of threatened ecological community. Introduction of disease likely to cause significant decline in threatened ecological community population size, diversity or function.	Major, long-term decline in threatened ecological community population size, diversity or function. Major reduction in area of threatened ecological community. Fragmentation of threatened ecological community. Introduce disease likely to cause long-term decline in threatened ecological community population size, diversity or function.	Extensive, long-term decline in threatened ecological community population size, diversity or function. Complete loss of threatened ecological community.	Complete loss of threatened ecological community with no recovery.

[55] *As defined by the Department of Agriculture, Water and Environment*

[56] *Benthic photosynthetic organisms such as seagrass, algae, hard corals and mangroves*

[57] Fauna attached to the substrate including sponges, soft corals and crinoids.

Consequence level		I	II	III	IV	V	VI
Acceptability		Acceptable	Acceptable	Unacceptable	Unacceptable	Unacceptable	Unacceptable
Severity description		**Negligible** **No impact or negligible impact**	**Minor** **Detectable but insignificant change to local population, industry or ecosystem factors. Localised effect**	**Moderate** **Significant impact to local population, industry or ecosystem factors**	**Major** **Major long-term effect on local population, industry or ecosystem factors**	**Severe** **Complete loss of local population, industry or ecosystem factors AND/OR extensive regional impacts with slow recovery**	**Critical** **Irreversible impact to regional population, industry or ecosystem factors**
	Protected Areas Includes: World Heritage Properties; Ramsar wetlands; Commonwealth/National Heritage Areas; Land/Marine Conservation Reserves.	No or negligible impact on protected area values. No decline in species population within protected area. No or negligible alteration, modification, obscuring or diminishing of protected area values.*	Detectable but insignificant impact on one of more of protected area's values. Detectable but insignificant decline in species population within protected area. Detectable but insignificant alteration, modification, obscuring or diminishing of protected area values.*	Significant impact on one of more of protected area's values. Significant decrease in population within protected area. Significant alteration, modification, obscuring or diminishing of protected area values.	Major long-term effect on one of more of protected area's values; Long-term decrease in species population contained within protected area and threat to that population's viability. Major alteration, modification, obscuring or diminishing of protected area values.	Extensive loss of one or more of protected area's values. Extensive loss of species population contained within protected area.	Complete loss of one or more of protected area's values with no recovery. Complete loss of species population contained within protected area with no recovery.
	Socio-economic receptors Includes: fisheries (commercial and recreational); tourism; oil and gas; defence; commercial shipping.	No or negligible loss of value of the local industry. No or negligible reduction in key natural features or populations supporting the activity.	Detectable but insignificant short-term loss of value of the local industry. Detectable but insignificant reduction in key natural features or population supporting the local activity.	Significant loss of value of the local industry. Significant medium-term reduction of key natural features or populations supporting the local activity.	Major long-term loss of value of the local industry and threat to viability. Major reduction of key natural features or populations supporting the local activity.	Shutdown of local industry or widespread major damage to regional industry. Extensive loss of key natural features or populations supporting the local industry.	Permanent shutdown of local or regional industry. Permanent loss of key natural features or populations supporting the local or regional industry.

Appendix F Spill Modelling Results (maximum values across all seasons and water depths)

APPENDIX F – SPILL MODELLING RESULTS SUMMARY (MAXIMUM VALUES ACROSS ALL SEASONS AND WATER DEPTHS)

300 m^3 surface release of MDO from a vessel over 1 hour, as a result of external impact: Surface, dissolved and entrained impact oil spill modelling results (maximum values across all seasons and water depths)

Environmental Value Area	Probability of exposure (percent)					Minimum time before exposure on the sea surface (hours)					Maximum dissolved hydrocarbon exposure (ppb)	Maximum entrained hydrocarbon exposure (ppb)
	Moderate exposure values			High exposure values		Moderate exposure values			High exposure values			
	Surface hydrocarbons (≥10 g/m^2)	Dissolved hydrocarbons (≥50 ppb)	Entrained hydrocarbons (≥100 ppb)	Surface hydrocarbons (≥50 g/m^2)	Dissolved hydrocarbons (≥400 ppb)	Surface hydrocarbons (≥10 g/m^2)	Dissolved hydrocarbons (≥50 ppb)	Entrained hydrocarbons (≥100 ppb)	Surface hydrocarbons (≥50 g/m^2)	Dissolved hydrocarbons (≥400 ppb)		
Afghan Shoal	NC	-	5.33	NC	-	NC	-	48	NC	-	-	14
Beagle Gulf-Darwin Coast	-	-	NC	-	-	-	-	NC	-	-	-	3
Cobourg Peninsula-Nhulunbuy	-	-	NC	-	-	-	-	NC	-	-	-	<1
Djukbinj NP	-	-	NC	-	-	-	-	NC	-	-	-	2
Flat Top Bank	-	-	NC	-	-	-	-	NC	-	-	-	3
Hancox Shoal	-	-	NC	-	-	-	-	NC	-	-	-	3
Harris Reef	-	-	NC	-	-	-	-	NC	-	-	-	3
JBG East Coast	-	-	NC	-	-	-	-	NC	-	-	-	<1
Joseph Bonaparte Gulf AMP	-	-	NC	-	-	-	-	NC	-	-	-	<1
Lowry Shoal	-	-	NC	-	-	-	-	NC	-	-	-	3
Marsh Shoal	-	-	NC	-	-	-	-	NC	-	-	-	3
Moresby Shoals	-	-	NC	-	-	-	-	NC	-	-	-	3
Newby Shoal	-	-	NC	-	-	-	-	NC	-	-	-	<1
Shepparton Shoal	0.67	-	14.00	NC	-	15	-	15	NC	-	-	52
Skottowe Shoal	-	-	NC	-	-	-	-	NC	-	-	-	3
The Boxers Area	-	-	0.33	-	-	-	-	177	-	-	-	2
Tiwi Islands	-	-	0.67	-	-	-	-	66	-	-	-	5
Van Dieman Gulf Coast	-	-	NC	-	-	-	-	NC	-	-	-	<1
Van Diemen Gulf Shoals	-	-	NC	-	-	-	-	NC	-	-	-	2
Vernon Islands CR	-	-	NC	-	-	-	-	NC	-	-	-	4

NC: No contact to receptor predicted for specified threshold.

*: This receptor is not an Environmental Value Area defined by Santos.

<: If exposure is predicted for a receptor at the low threshold but not at the moderate and/or high threshold, then the probability presented is <0.33%.

300 m^3 surface release of MDO from a vessel over 1 hour, as a result of external impact: Shoreline impact oil spill modelling results (maximum values across all seasons)

Environmental Value Area	Probability of exposure (%)		Minimum time before exposure on the sea surface (days)		Maximum length of shoreline impacted (km)		Maximum accumulated concentration along shoreline (g/m^2)	Maximum accumulated volume along shoreline (m^3) at ≥ $100g/m^2$
	Moderate exposure values	High exposure values	Moderate exposure values	High exposure values	Moderate exposure values	High exposure values		
	Shoreline oil accumulation (≥ $100g/m^2$)	Shoreline oil accumulation (≥ $1000g/m^2$)	Shoreline oil concentration (≥ $100g/m^2$)	Shoreline oil concentration (≥ $1000g/m^2$)	Shoreline oil concentration (≥ 100g/m2)	Shoreline oil concentration (≥ $1000g/m^2$)		
Tiwi Islands	NC	NC	NC	NC	NC	NC	17	NC
Vernon Islands CR	NC	NC	NC	NC	NC	NC	19	NC

NC: No contact to receptor predicted for specified threshold.

*: This receptor is not an Environmental Value Area defined by Santos.

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Appendix G Santos Climate Change Policy

Climate

Policy

Our Commitment

Santos believes that access to reliable and affordable energy is critical to meeting sustainable development goals and improving living standards and economic prosperity in developed and developing nations. Santos recognises the scientific consensus of climate change assessed by the Intergovernmental Panel on Climate Change. We support the objective of the Paris Agreement to limit global temperature rise to less than 2 degrees Celsius and pursue efforts to limit the temperature rise to 1.5 degrees Celsius.

To achieve the goals of the Paris Agreement, we work with governments, customers and suppliers to minimise emissions from our operations and products whilst ensuring continued access to reliable and affordable energy to meet demand.

At Santos, we commit to continuing to take action to minimise the environmental impacts of our operations wherever practicable, including:

- Reducing our greenhouse gas emissions intensity whilst continuing to deliver critical, reliable and affordable fuels to meet demand.
- As a producer of energy, we are committed to achieving net-zero Scope 1 greenhouse gas emissions by 2040 and net-zero Scope 2 greenhouse gas emissions by 2050.
- Utilising carbon capture and storage, developing and trialling new emissions technologies and low carbon fuels as domestic and global markets evolve.
- Working with our customers to reduce their greenhouse gas emissions and sell the products we generate only to customers from countries that have a net-zero commitment or are signatories to the Paris Agreement.
- Providing our shareholders with an advisory vote, known as a 'Say on Climate', at regular intervals.

Our Actions

The actions to achieve Our Commitment are detailed in our annual Sustainability and Climate Report and Climate Transition Action Plan, which details our decarbonisation projects and pathway to net-zero.

Governance

The Safety and Sustainability Committee is responsible for reviewing the effectiveness of this policy.

This policy will be reviewed at appropriate intervals and revised when necessary to keep it current.

Kevin Gallagher

Managing Director and CEO

Date Approved:	12 February 2025	Version:	3.1