Code of Practice: Environment

Onshore Petroleum Activities

NORTHERN TERRITORY GOVERNMENT

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Acronyms	Full form
AEP	Annual Exceedance Probability
ALARP	As low as reasonably practicable
CO_2	Carbon dioxide
CQA	Construction Quality Assurance
DSA	Design Storage Allowance
ECP	Emergency Contingency Plan
EMP	Environment Management Plan
EP Act	*Environment Protection Act 2019* (NT)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
FAEMP	Facilities Air Emissions Monitoring Plan
GHG	Greenhouse Gas
GMMP	Groundwater Monitoring and Management Plan
MRL	Mandatory Reporting Level
NGER Act	*National Greenhouse and Energy Reporting Act 2007*
NT	Northern Territory

NT EPA	Northern Territory Environment Protection Authority
PAWWMP	Process-Affected Water and Wastewater Management Plan
RDMDP	Residual Drilling Material Disposal Plan
SMP	Spill Management Plan
SUPP	Supplementary Management Plan
TPWC Act	*Territory Parks and Wildlife Conservation Act 1976* (Northern Territory)
WOMP	Well Operations Management Plan

Contents

1. Foreword

The *Petroleum Act 1984* (Petroleum Act), the Petroleum Regulations 2020 and the Petroleum (Environment) Regulations 2016 (Environment Regulations) (collectively the Petroleum Legislation) regulate the exploration and production of onshore petroleum in the Northern Territory (NT).

This Code of Practice: Environment (Code) has been approved and gazetted by the Minister for Lands, Planning and Environment (Minister) in accordance with section 117AZV of the Petroleum Act.

This Code must be considered and addressed in any Environment Management Plan (EMP) submitted to the Minister for assessment and approval.[1] The Environment Regulations provide for an ongoing obligation for interest holders to comply with the Code.[2] The Code is applicable to all regulated activities conducted in relation to both conventional and unconventional petroleum exploration, appraisal, development and production.

Save for those exceptions set out in section 1.9, this Code replaces the now revoked Code of Practice: Onshore Petroleum Activities in the Northern Territory that was approved on 19 February 2025 (Previous Code).

1.1. Approach taken in this Code

This Code employs an outcome focused, risk-based approach to environmental regulation of the onshore petroleum industry. The core component of managing the potential environmental impacts of petroleum activities is the assessment of environmental impacts and environmental risks. A conceptual model mapping causal networks was developed to provide a comprehensive view of petroleum activities and the pathways to affect environmental factors. The conceptual model identified over 6,000 potential impact pathways which were ranked to identify key risks and impacts.[3]

The Code provides a standardised framework for managing key environmental impacts and risks from common petroleum activities by:

(a) specifying mandatory environmental outcomes that must be achieved to meet the objective of the Environment Regulations (see section 4),

(b) identifying common petroleum regulated activities, their environmental aspects and the resulting key environmental impacts and risk sources (see sections 6.1.1– 6.1.11 respectively), and

(c) mandating control measures and environmental performance standards to mitigate key environmental impacts and risk sources so that environmental outcomes are achieved (see section 6.2).

By embedding these requirements within the Code, a consistent and standardised approach to risk assessment is established across EMPs. This reduces variability in how risks are defined and managed. Section 3 provides more detail on how to use this Code.

[1] Schedule 1, Clause 10 Environment Regulations.
[2] Regulation 4 Environment Regulations.
[3] The identification of these risks and applicable mandatory controls considered the HFI recommendations, results of the Geological and Bioregional Assessments (GBA) program, other baseline, research and data collection (Gas Industry Social & Environment Research Alliance (GISERA), Strategic Regional Environmental and Baseline Assessment (SREBA)), review of existing EMPs including a review of risks identified and environmental performance standards implemented, NT EPA guidance material and Queensland's streamlined model conditions for petroleum activities.

Regulated activities or mandatory control measures not expressly dealt with in this Code are not prohibited per se, rather they may be an alternative regulated activity or alternative control measure incorporated into an interest holder's EMP. Any application by interest holders to use alternative regulated activities or alternative control measures must comply with the process set by this Code (Section 7) and be assessed by the regulator to confirm the relevant environmental outcome will be met.

1.2. Persons responsible for onshore petroleum regulation in the NT

The Administrative Arrangements Order establishes and allocates Ministerial responsibility for the administration of legislation, areas and activities of government, and agencies in the NT.[4]

Ministerial responsibility for Petroleum is, as set out in detail below, split between the Minister and the Minister for Mining and Energy.

1.2.1. Environment Minister – Department of Lands, Planning and Environment

The Minister and the Department of Lands, Planning and Environment (the Department) have responsibility for provisions in the Petroleum Act that apply to environmental regulation of exploration, appraisal and production of petroleum.

The Minister is empowered to assess an EMP and approve, require resubmission, or refuse to approve, the EMP under the Environment Regulations.[5] The Minister must consider the approval criteria in regulation 9 and apply the principles of ecologically sustainable development.[6]

The Petroleum Regulation Unit within the Environment Regulation Division in the Department supports the Minister by making recommendations on the assessment, approval, monitoring, inspection and investigation of environmental aspects of petroleum activities.

1.2.2. Minister for Mining and Energy – Department of Mining and Energy

The Minister for Mining and Energy has been allocated the administration of the Petroleum Act with the exception of provisions relating to environmental regulation of exploration and production of petroleum, environmental offences and royalties.[7]

The Minister for Mining and Energy is responsible for the regulation and management of energy operations in the NT, including well integrity. The Petroleum Operations Unit of the Energy Development Branch, Department of Mining and Energy administers a separate code of practice relating to the management of well integrity that directly informs the requirements for a Well Operations Management Plan (WOMP).[8] The establishment of separate codes under relevant provisions of the Petroleum Legislation provides clearer division of responsibility between the Minister and the Minister for Mining and Energy, and their supporting agencies.

1.2.3. Collaborative regulation

While the WOMP and this Code are mutually exclusive approval processes, regulated by two separate Ministers and their supporting agencies, collectively they work to support safe and responsible petroleum

[4] As at the date of drafting of this Code, the applicable Administrative Arrangements Order was the Administrative Arrangements Order commencing 1 June 2026.
[5] Regulation 9 and 11 Environment Regulations.
[6] Section 6A Petroleum Act, regulation 5A Environment Regulations.
[7] Administrative Arrangements Order 2026, p 8.
[8] Code of Practice: Well Integrity (Department of Mining and Energy, 2025)

activities in the NT. The Petroleum Act requires that the two Ministers must consult with each other before establishing, varying or revoking a code of practice.

1.3. Legislative requirements for environmental protection

The Petroleum Legislation requires that an interest holder who proposes to carry out a regulated activity must first submit to the Minister for approval an EMP relating to the activity, which is in a form, if any, approved by the Minister. In deciding whether to approve an EMP, the Minister must consider the approval criteria set out in the Environment Regulations and apply the principles of ecologically sustainable development.[9] This includes an Authority Certificate in relation to the land on which the activity will be carried out,[10] and that the plan must demonstrate that the activity will be carried out in a manner by which the environmental impacts and environmental risks of the activity will be reduced to a level that is as low as reasonably practicable (ALARP) and acceptable.

Where a regulated activity has the potential to result in significant environmental impacts or environmental risks, the *Environment Protection Act 2019* (NT) (EP Act) requires the interest holder to refer the proposal to the Northern Territory Environment Protection Authority (NT EPA) for consideration and determination of whether environmental impact assessment is required, and if so, the method of assessment. The NT EPA's guidance referring a proposal to the NT EPA provides information on when, how and where to submit a referral.

Compliance with this Code and approval of an EMP does not remove an interest holder's obligation to comply with all applicable NT and Commonwealth legislation.

1.4. Complying with this Code

An EMP must comply with this Code.[11] Once an EMP is approved, compliance and monitoring of the regulated activity will be conducted against the relevant EMP, as well as the requirements of this Code.

Section 117AZW of the Petroleum Act establishes that if a person allegedly contravenes a provision of the Petroleum Act, including the requirement for compliance with an EMP, this Code is admissible in the proceeding as evidence of whether or not a requirement under the Petroleum Act was complied with.

1.5. Guidelines

The Minister may issue guidelines on environmental regulation, including the content of an EMP and Supplementary Management Plans (SUPP).[12] Ministerial guidelines relating to the preparation of an EMP are part of the approval criteria for EMPs.[13] Interest holders must comply with any Ministerial guidelines published pursuant to section 117C of the Petroleum Act, within timeframes specified in the guidelines.

Guidelines published by the Department may include Ministerial guidelines issued under section 117C of the Petroleum Act and other guidance documents published by the Department. References in this Code to a guideline published by the Department include Ministerial guidelines.

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[9] Regulation 5A and 9 Environment Regulations.
[10] Authority Certificates are the primary statutory mechanism for the identification and protection of sacred sites and are issued by the Aboriginal Areas Protection Authority. Obligations relating to Authority Certificates are established under the *Northern Territory Sacred Sites Act 1989* (NT) and operate independently of the petroleum regulatory framework.
[11] Schedule 1 clause 10, and Reg 4 Environment Regulations.
[12] Section 117C Petroleum Act.
[13] Regulation 9 Environment Regulations.

1.6. Complying with the EMP

Once an EMP has been approved, the interest holder must comply with all aspects of the approved plan. It is an offence for a person to carry out a regulated activity in contravention of the EMP.

The interest holder must revise a current plan:

(a) if there has been a new environmental impact or environmental risk not provided for in the current plan for the activity, or

(b) if there is an increase, not provided for in the current plan for the activity, in an existing environmental impact or environmental risk, or

(c) every five years, or

(d) on notice from the Minister.[14]

Additionally, if there is a change in the existing environment that is described in a current plan and the change will not require a revision of the plan, the interest holder must give the Minister notice of that change.[15] An interest holder must not modify the regulated activity to which the plan relates without first notifying the Minister.[16]

The CEO may issue a compliance direction to an interest holder for the purpose of securing compliance with an EMP.[17] The Minister may issue a direction to a permittee or licensee concerning any matter in relation to the Code.[18]

1.7. Supplementary Management Plans

A SUPP is a subject-specific operational management plan that does not form part of the EMP but is a requirement under this Code. A compliant SUPP may be a mandatory control measure for particular environmental impacts and environmental risk sources. If a SUPP is required, it must be provided to the Department before a regulated activity to which it applies is commenced.[19]

SUPPs are a new addition to the petroleum regulation framework. Division 6A of the Environment Regulations and section 9 of this Code set out the requirements for SUPPs. SUPPs provide flexibility to interest holders so that, where appropriate, one SUPP can apply across multiple EMPs and sites, and a SUPP may be revised to reflect operational requirements. For example, an interest holder can develop one Weed Management Plan to apply across all operations, rather than having separate Weed Management Plans for each of their EMPs.

SUPPs facilitate landscape and regional scale outcomes and streamline the environmental assessment process, creating regulatory efficiencies and aiding compliance monitoring.

1.8. Making this Code and revision

The Minister may vary this Code from time to time. The current published version will be maintained on the Department's website.

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[14] See regulations 17, 18, 19 Environment Regulations.
[15] Regulation 23 Environment Regulations.
[16] Regulation 22 Environment Regulations.
[17] Section 89N Petroleum Act.
[18] Section 71 Petroleum Act.
[19] Regulation 28A Environment Regulations.

It is intended that a review of this Code be commenced within two years of gazettal and following that, every two years or as required.

Subject to the Government of the day, any revision to the Code will be developed over time and will similarly include transitional arrangement provisions making it clear from when the newly updated Code applies and to what applications. Revisions will continue to balance managing risk, protecting the community and growing a robust industry.

1.9. Transitional arrangements for EMPs

1.9.1. EMP approved under Previous Code

An EMP approved under the Previous Code will remain in force until such time that the EMP requires revision, has ceased to be in force or is revoked.[20]

1.9.2. EMP accepted for assessment prior to commencement of this Code

An EMP under assessment prior to the commencement of this Code will be assessed in accordance with the Previous Code.[21]

1.9.3. Period immediately following the commencement of this Code

An interest holder submitting an EMP for assessment within 12 months of the commencement of this Code may when making the application for approval elect to have the EMP assessed under the Previous Code and applying the Environment Regulations as in force immediately before commencement of the Petroleum Legislation Amendment Regulations 2026 (NT).[22]

This is to recognise the time and resources it takes for interest holders to develop an EMP for submission, and that at the time of commencement of this Code EMPs may have been under development for assessment under the Previous Code.

[20] Regulation 50 Environment Regulations.
[21] Regulation 51 Environment Regulations.
[22] Regulation 52 Environment Regulations.

2. Definitions

In this Code, unless the contrary intention appears:

aquifer has the same meaning as is defined in section 4(1) of the *Water Act 1992* (NT) and is fit for, or potentially fit for, a prescribed beneficial use as defined in section 4(3) of the *Water Act 1992* (NT). The NT Government authority that determines whether an aquifer has a potential beneficial use is the Water Resources Division of the Department.

atmospheric emissions means any gaseous, vapour or particulate substance, including pollutants, contaminants, greenhouse gases, volatile organic compounds, odour, smoke, dust or other air emission, that is released, discharged, emitted or otherwise escapes to air from, or as a result of, a regulated activity, including through combustion, venting, flaring, fugitive hydrocarbon releases, leaks, evaporation, dust generation or other point or diffuse emission sources.

Authority Certificate means a certificate issued under section 22(1) of the *Northern Territory Aboriginal Sacred Sites Act 1989*.

beneficial uses see section 4(3) of the *Water Act 1992* (NT).

clearing of native vegetation has the meaning given to it in Schedule 2 clause 2.1 of the Northern Territory Planning Scheme 2020, except clearing of native vegetation authorised by the Pastoral Land Board under Part 7A of the *Pastoral Land Act 1992* (NT).

Contaminated Land Auditor means an accredited site auditor specialising in contaminated land assessment who is registered under section 68 of the *Waste Management and Pollution Control Act 1998* (NT) and:

(a) has relevant qualifications and experience including, but not limited to, a bachelor's degree in science or engineering and a minimum of three years' experience in undertaking soil contamination assessments,
(b) is not a current employee of the interest holder or otherwise engaged by the interest holder or by any of its subsidiaries, and in the last two years was not a former employee of the interest holder,
(c) does not have a financial interest or any involvement which would lead to a conflict of interest with the interest holder, and
(d) is independent of any company engaged to undertake drilling services and/or leaching testing.

control measure means a system, an item of equipment, a person or a procedure, that is used as a basis for managing environmental impacts and environmental risks of an activity.

cuttings means small pieces of rock generated by the cutting action of the drill bit during drilling.

Department means the Department of Lands, Planning and Environment.

design storage allowance or ***DSA*** means an available volume for storage in a storage structure or sump to accommodate seasonal rainfall, estimated in accordance with the requirements of this Code.

environment, see section 6 of the *Environment Protection Act 2019* (NT).

Environment Regulations means the Petroleum (Environment) Regulations 2016 (NT).

environmental aspect means an element of a regulated activity that interacts or can interact with the environment.

environmental factors, see section 2 of the NT EPA Environmental factors and objectives Environmental impact assessment, General technical guidance, 17 March 2025.

environmental harm, see section 5 of the Petroleum Act.

environmental impact, see regulation 3 of the Environment Regulations.

Environment Management Plan or ***EMP***, see section 5 of the Petroleum Act.

environmental outcome, see regulation 3 of the Environment Regulations.

environmental performance standard, see regulation 3 of the Environment Regulations.

environmental risk, see regulation 3 of the Environment Regulations.

environmental risk source means an element of a regulated activity which alone or in combination has the potential to give rise to environmental risk.

essential petroleum activities means activities that are essential to bringing the resource to the surface that are low impact activities and well pads of less than 3 hectares of disturbance, and involve one or more of the following:

(a) conducting geophysical, geotechnical, geological, topographic and cadastral surveys (including seismic, sample test, geotechnical pits, core holes),
(b) installing or maintaining associated infrastructure located on a well pad necessary for the construction and operation of wells, including:
    i. water pumps and generators,
    ii. flare pits,
    iii. temporary chemical / fuel storages,
    iv. sumps for residual drilling material and drilling fluids,
    v. tanks to contain source water (groundwater, recycled flowback) and process-affected water,
    vi. pipe laydown areas,
    vii. soil and vegetation stockpile areas,
    viii. wellhead,
    ix. separator, or
    x. temporary administration sites and warehouses.
(c) installing or maintaining linear infrastructure that is:
    i. necessary for the undertaking of petroleum activities and that are located within well pads and pipeline right of ways without increasing the disturbance area of petroleum activities,
    ii. supporting access tracks, or
    iii. gathering / flow pipelines from a well head to the initial compression facility.

Note: The constraint categories including where essential petroleum activities can occur is detailed in Annex A of this Code. Further guidance on site values that will be used to determine the constraint category will be developed and published by the Department.

extreme storm storage allowance means a storm storage allowance in a storage structure or sump to accommodate an extreme rainfall event, estimated in accordance with the requirements of this Code.

fire regime means the long-term pattern of fire in a landscape, defined by the frequency, intensity, severity, seasonality, extent, type and spatial distribution of fire events, and the interval between fire events, whether resulting from natural causes, planned burning, cultural burning, or accidental or unplanned ignition.

flowback fluid, see regulation 37A(6) of the Environment Regulations.

geomembrane means an ultra-low permeability polymeric sheet material.

hazardous chemicals means a substance, mixture or article that:

(a) is a hazardous chemical as defined in regulation 5 of the Work Health and Safety (National Uniform Legislation) Regulations 2011, or
(b) has potential to cause material environmental harm or pollution.

hydraulic fracturing, see section 5 of the Petroleum Act.

independent qualified person means an independent person who is:

(a) a registered environmental auditor, or
(b) a registered environmental practitioner, or
(c) a person with a degree and at least three years' experience relevant to the subject matter or a person with at least five years' experience relevant to the subject matter.

For this definition, independent means:

i. is not a current employee of the interest holder or otherwise engaged by the interest holder or by any of its subsidiaries, and in the last two years was not a former employee of the interest holder, save for re-certification of a revision to a SUPP,
ii. does not have a financial interest or any involvement which would lead to a conflict of interest with the interest holder, and
iii. is independent of the person or organisation or any of its subsidiaries that prepared or authored the EMP and any SUPP.

interest holder, see section 5 of the Petroleum Act.

key risk source means a risk source that has been identified as requiring attention through specific requirements (controls and performance standards) in section 6 of this Code.

land clearing has the same meaning as clearing of native vegetation but includes non-native species.

low impact activities, see regulation 3 of the Petroleum Regulations 2020.

linear infrastructure means infrastructure required to provide access, connect services, or transport fluids as part of petroleum activities on a petroleum tenure. This may include powerlines, buried services, gathering lines, access tracks and roads, and fences.

mandatory control measure means a control measure described in section 6.2 of this Code that must be implemented where the relevant environmental aspect and risk source are part of the regulated activities of the EMP.

mandatory reporting level or ***MRL*** means the level at which a storage structure or sump has a remaining volume equivalent to the extreme storm storage allowance.

material environmental harm, see section 8 of the *Environment Protection Act 2019* (NT).

Matters of National Environmental Significance means those matters identified in, and protected under, Part 3 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

measurement criteria, see regulation 3 of the Environment Regulations.

NGER legislation means the *National Greenhouse and Energy Reporting Act 2007* (Cth) and any subordinate instruments made under that Act.

non-aqueous drilling fluid means a drilling fluid in which the continuous phase is primarily a non-aqueous base fluid, such as oil, synthetic fluid, or other hydrocarbon-based medium.

petroleum, see section 5 of the Petroleum Act.

petroleum interest, see section 5 of the Petroleum Act.

Petroleum Legislation means collectively the *Petroleum Act 1984* (Petroleum Act), the Petroleum Regulations 2020 and the Petroleum (Environment) Regulations 2016 (Environment Regulations).

places or objects of heritage significance means a place or object declared under Chapter 2 of the *Heritage Act 2011* (NT).

potential weed, see section 7 of the *Weeds Management Act 2001* (NT).

produced water, see regulation 37B(6) of the Environment Regulations.

process-affected water means water that:

(a) has been used or produced by the regulated activities, or
(b) has come into contact with hazardous materials as part of regulated activities, whether intentionally or otherwise,

and, in either case:

i. is intended for re-use or recycling as part of the regulated activities in accordance with the Process-affected Water and Wastewater Management Plan,
ii. is not stormwater as defined in this Code,
iii. is not potable water or utility water for general-purpose water use, and
iv. is not sewage effluent.

recordable incident, see regulation 3 of the Environment Regulations.

***regulated* activity**, see regulation 5 of the Environment Regulations.

regulated activity area means the area within or beyond the access authority area, exploration permit area or licence area that is directly or indirectly impacted by the regulated activities.

regulated activity site means the geographic area that encompasses the spatial extent of activities under an EMP.

reportable incident, see regulation 3 of the Environment Regulations.

residual drilling material means the mostly solid component (that may contain some residual fluid) of drilling materials including muds and cuttings or cement returns from wells which have been separated from the fluid component of drilling fluids.

reservoir, see section 5 of the Petroleum Act.

sacred sites, see section 3 of the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT).

scope 1 emissions, see section 10 of the National Greenhouse and Energy Reporting Regulations 2008 (Cth).

scope 2 emissions, see section 10 of the National Greenhouse and Energy Reporting Regulations 2008 (Cth).

sensitive receptors are locations, populations or environmental values that are particularly susceptible to impacts from a regulated activity due to the receptors' sensitivity, value, use and/or proximity to the regulated activity. These receptors include, but are not limited to, human receptors, places or objects of heritage significance and sacred sites, water-dependent ecosystems, and areas where environmental values require a higher level of protection.

significant environmental harm, see section 9 of the *Environment Protection Act 2019* (NT).

'significant species of fauna' and ***'significant species of flora'*** (collectively significant species), see Land Clearing Guidelines – Northern Territory Planning Scheme 2020.

significant vegetation, see Schedule 2, clause 2.2 Northern Territory Planning Scheme 2020.

storage structure means a structure used to store process-affected water or wastewater, including, but not limited to, above ground tanks and lined containment structures.

stormwater means rainwater that runs off sites or infrastructure associated with regulated activities, or that accumulates within or on sites or infrastructure associated with regulated activities, and that has not come into contact with hazardous materials associated with regulated activities.

suitably qualified person means a person (including an entity) who has professional qualifications, appropriate training or skills or experience relevant to the nominated subject matters or tasks. They can give authoritative assessment, advice and analysis about performance relevant to the subject matters using relevant protocols, standards, methods or literature or conduct tasks in accordance with requirements.

sump means an engineered pit in which drilling material or drilling fluids are temporarily stored while drilling activities are completed, and where residual drilling material or drilling fluids are processed or disposed of.

threatened species means:

(a) threatened wildlife and essential habitats within the meaning of the *Territory Parks and Wildlife Conservation Act 1976* (NT) (TPWC Act), and
(b) threatened species, ecological communities and critical habitat listed under the EPBC Act.

unconventional resource means a petroleum resource hosted in a low-permeability source rock with significant lateral extent, such as shale, that prevents or significantly limits recovery without specialised extraction technologies, such as hydraulic fracturing and horizontal drilling.

vegetation community, as defined in the National Vegetation Information System, means an assemblage of plant species which are structurally and floristically similar and form a repeating unit across the landscape.

wastewater means water that has been used or produced by a regulated activity and has no further use and requires disposal, and:

(a) is not stormwater as defined in this Code,
(b) is not potable water or utility water for general-purpose water use, or
(c) is not sewage effluent.

water-based drilling fluid means a drilling fluid (or mud) where the base fluid is water.

water resource, see section 4 of the *Water Act 2007 (*Cth).

waterway, see section 4 of the *Water Act 1992 (*NT).

weed means a weed or potential weed under section 7 of the *Weeds Management Act 2001* (NT).

well barrier, see section 2 of the Code of Practice: Well Integrity (NT).

Well Operations Management Plan or ***WOMP***, see section 60(1) of the Petroleum Act.

wetland means plant communities that grow beside or in wetlands (swamps and lakes) and are subject to intermittent, periodic or permanent flooding or saturation of the soil. Note: In guiding interest holders on submission of an EMP for approval, the Petroleum Regulation Unit may consult the Flora and Fauna Division of the Department to determine whether an area subject to intermittent and/or periodic seasonal flooding is a wetland area.

3. How to use this Code

As described in section 1.1, this Code was developed following a mapping exercise which identified common key environmental risks from standard petroleum activities. As such, much of the Code deals with regulated activities consistent with the standardised framework set out in this Code. However, the Code does not cover every regulated activity, environmental aspect, environmental risk source and control measure, and some may only be captured in the Code in part. The following pathways may apply, and an interest holder may need to follow one or more of them:

(a) for a regulated activity captured in this Code, the interest holder must follow the steps detailed below in section 3.2 applying the requirements in section 6,

(b) for a regulated activity not dealt with in this Code, or where an interest holder proposes an alternative regulated activity, the interest holder must follow the processes set out in section 7, and/or

(c) for control measures, the interest holder must include and implement all relevant mandatory control measures in section 6. The interest holder may include additional control measures without following section 7. However, where the interest holder proposes an alternative to a mandatory control measure in section 6, the interest holder must follow the process for alternative control measures in section 7.

3.1. Environmental outcomes

An EMP must specify the environmental outcomes for regulated activities.[23] Seventeen environmental outcomes are set out in of this Code and collectively they describe the mandatory outcomes industry must meet when conducting regulated activities. Interest holders must commit to these environmental outcomes in their EMPs where relevant to the regulated activities. The prescribed environmental outcomes must consider the nature of petroleum activities, and how environmental impacts can be measured and managed. An environmental outcome must be linked with measurement criteria, control measures and environmental performance standards to show a coherent implementation strategy.[24]

3.2. Step-by-step process for regulated activities captured by this Code

3.2.1. Step 1: Identify environmental aspects, environmental risk sources and environmental impacts of regulated activities

Interest holders must adopt the following methodology when identifying and assessing the environmental impacts relevant to the regulated activities that they propose to carry out:

(a) identify the regulated activities (section 6.1),

(b) identify the environmental aspects of the regulated activities (section 6.1), and

(c) for each environmental aspect:

i. identify the environmental risk sources, and the environmental risks that may arise from the identified environmental risk sources (sections 6.1.1– 6.1.11),

ii. assess the likelihood and consequences of the identified environmental risks to determine environmental impacts, and

[23] Schedule 1, clause 4(a) Environment Regulations.
[24] Schedule 1, clause 6(2)(a) Environment Regulations.

iii. identify environmental outcomes that may be affected by the identified relevant key environmental risks and environmental impacts (section 4).

It is the interest holder's responsibility to evaluate and include in the EMP all environmental aspects for the regulated activities of an EMP and to assess their environmental risks.[25]

3.2.2. Step 2: Identify and implement mandatory control measures and environmental performance standards

An EMP must identify and include the mandatory control measures and environmental performance standards described in section 6.2 of this Code for each relevant environmental aspect, environmental risk source and environmental impact identified in Step 1.

Having regard to the mandatory control measure codes in the regulated activity tables in section 6.1, interest holders can determine the relevant mandatory control measures and environmental performance standards. All relevant mandatory control measures:

(a) must be included in the interest holder's EMP, and

(b) must be implemented by the interest holder in a way that will reduce the relevant key environmental risks and environmental impacts to a level that is ALARP and acceptable and will achieve the environmental outcomes.

It is the interest holder's responsibility to include appropriate mandatory control measures, and where necessary, additional control measures. The process for alternative control measures is set out in section 7.

3.2.3. Step 3: Specify measurement criteria

Measurement criteria are addressed in section 5 of this Code. An EMP must specify the measurement criteria to be used to demonstrate compliance with environmental outcomes or environmental performance standards. Measurement criteria must be linked to environmental performance standards listed in Table 4. Except where measurement criteria are prescribed for groundwater in section 5.1, it is the interest holder's responsibility to develop the specific measurement criteria that will be used to determine compliance with their environmental performance standards or environmental outcomes.[26] This provides interest holders operational flexibility without compromising environmental outcomes.

3.3. Management plans appended to the EMP and SUPPs

This Code requires interest holders to develop and implement specific operational plans as mandatory control measures. These plans may be management plans appended to the EMP or SUPPs not included in EMPs. Further information on each is detailed in sections 8 and 9 respectively.

[25] Schedule 1, clause 3 Environment Regulations.
[26] Schedule 1, clause 4(c) Environment Regulations.

4. Environmental outcomes

Table 1 lists the mandatory environmental outcomes industry must meet when carrying out regulated activities. An EMP must demonstrate for all environmental outcomes that the activity will be carried out in a manner by which the environmental impacts and environmental risks of the activity will be reduced to a level that is ALARP and acceptable.

Generally, the mandatory environmental outcomes require that interest holders prevent specified environmental impacts and environmental risks arising from the carrying out of an activity, or a stage of an activity, within a regulated activity area. 'Prevent' in context is used to require interest holders to take active steps (to be set out in their EMP) to avoid the environmental risk and environmental impact from occurring. It does not require a guarantee that no environmental impact or risk will occur in every circumstance. Whether an environmental outcome has been achieved will be determined by reference to implementation of relevant control measures, environmental performance standards and measurement criteria.

The environmental outcomes are designed to aid interest holders in understanding their obligations under the Northern Territory's EP Act early in planning and development. They are also aligned with the NT EPA Environmental factors (refer to the NT EPA Environmental factors and objectives guidance material for the relevant environmental objectives against each factor).

The interest holder must commit to the mandatory environmental outcomes in Table 1 in their EMP, and if approval is sought for regulated activities not covered by this Code, interest holders may establish additional environmental outcome(s).

Table 1: Environmental outcomes

Outcome	Environmental Outcome	NT EPA Environmental Factors
CEO-01	Regulated activities are conducted to prevent the introduction of declared weeds or potential weeds and control the spread of declared weeds or potential weeds in the regulated activity area.	Terrestrial ecosystems, aquatic ecosystems, marine ecosystems, community and economy
CEO-02	Regulated activities are conducted to prevent the introduction of invasive fauna and control the spread of invasive fauna in the regulated activity area.	Terrestrial ecosystems, aquatic ecosystems, marine ecosystems, community and economy
CEO-03	Regulated activities are conducted to prevent the unauthorised ignition of bushfires and modification of the fire regime in the regulated activity area.	Terrestrial ecosystems, aquatic ecosystems, marine ecosystems, community and economy, culture and heritage

Outcome	Environmental Outcome	NT EPA Environmental Factors
CEO-04	Regulated activities are conducted to prevent environmental harm to significant species of flora and fauna and their habitat and areas of high ecological value.	Terrestrial ecosystems, aquatic ecosystems, marine ecosystems
CEO-05	Regulated activities are conducted to prevent degradation of biodiversity, significant vegetation, habitat connectivity and native wildlife corridors.	Terrestrial ecosystems, aquatic ecosystems, marine ecosystems
CEO-06	Regulated activities are conducted to prevent unauthorised impacts to sacred sites and places or objects of heritage significance.	Culture and heritage
CEO-07	Regulated activities are conducted to prevent unauthorised changes to the overland flow of water, the flow of water in waterways, the stability of the bed and banks of waterways, and the persistence of water in waterways.	Hydrological processes, inland water environmental quality
CEO-08	Regulated activities are conducted to prevent unauthorised changes to groundwater quantity and availability within an aquifer, including mitigating impacts to designated beneficial uses and the functionality of local ecosystems.	Hydrological processes, community and economy
CEO-09	Regulated activities are conducted to prevent unauthorised changes to aquifer water quality, including mitigating impacts to designated beneficial uses and the functionality of local ecosystems.	Inland water environmental quality, human health
CEO-10	Regulated activities are conducted to prevent groundwater cross-flow between aquifers that are in natural hydraulic isolation.	Hydrological processes, inland water environmental quality
CEO-11	Regulated activities are conducted to prevent environmental harm to soil, flora, fauna, livestock or harm to human health from process-affected water and wastewater regulated activities (including generation, handling, storage, treatment and transportation).	Terrestrial environmental quality, inland water environmental quality, marine environmental quality, human health
CEO-12	Regulated activities are conducted to prevent environmental harm to soil, flora, fauna, livestock or harm to human health from the handling, storage and transport of chemicals used in regulated activities.	Terrestrial environmental quality, inland water environmental quality, marine environmental quality, human health
CEO-13	Regulated activities are conducted so that greenhouse gas emissions are identified, monitored and mitigated.	Atmospheric processes

Outcome	Environmental Outcome	NT EPA Environmental Factors
CEO-14	Regulated activities are conducted to prevent environmental harm from atmospheric emissions to air quality, flora, fauna, livestock or harm to human health.	Air quality
CEO-15	Regulated activities are conducted to prevent environmental harm to the community living in or near the activities and the amenity of that area.	Community and economy, culture and heritage
CEO-16	Regulated activities are conducted to prevent environmental harm to soil, surface water or groundwater, including from the handling, storage, transport and disposal of waste.	Terrestrial environmental quality, inland water environmental quality, marine environmental quality, community and economy, human health
CEO-17	Regulated activities are conducted to rehabilitate disturbed areas and restore environmental values to a state which is demonstrably comparable to those that existed prior to the commencement of regulated activities, or to a landholder agreed post-development land use.	Terrestrial environmental quality, inland water environmental quality, marine environmental quality, community and economy

5. Measurement criteria

An interest holder must establish and define measurement criteria in the EMP that demonstrate whether the relevant environmental outcomes or environmental performance standards are being achieved.

Measurement criteria must be specific to the regulated activities, environmental aspects, control measures and environmental performance standards included in the EMP. The criteria must be measurable, auditable and supported by monitoring, inspection, records or other evidence that allows the interest holder and the Minister to determine whether the relevant environmental outcome or environmental performance standard has been met.

5.1. Groundwater relevant mandatory measurement criteria

The Department considers the protection of groundwater as a priority and as such this Code prescribes specific measurement criteria to meet groundwater related outcomes. These criteria must be included in EMPs where the relevant environmental outcome applies. The EMP may include additional groundwater related measurement criteria where needed to demonstrate that all environmental impacts and environmental risks are reduced to a level that is ALARP and acceptable.

Table 2: Measurement criteria related to groundwater outcomes

MC Code	Measurement Criteria	Outcome	Mandatory Control Measures	Regulated Activities
MC-001	Groundwater monitoring conducted shows that: (a) groundwater extraction volumes and aquifer groundwater level or pressure changes are within approved limits and in accordance with the requirements of a water extraction licence issued under the *Water Act 1992* (NT), and (b) groundwater extraction is in accordance with the water trigger provisions under the EPBC Act, where applicable. Any changes to groundwater outside of approved limits in a water extraction licence are reported and investigated to determine their cause and potential environmental impact.	CEO-08	CMC-900	Water bores [27]

[27] Groundwater extraction for the petroleum activities is regulated under the *Water Act 1992* (NT), and where applicable, also under the EPBC Act.

MC Code	Measurement Criteria	Outcome	Mandatory Control Measures	Regulated Activities
MC-002	Groundwater monitoring conducted shows that: (a) changes to groundwater chemistry are at or below the compliance threshold limits in the EMP. Any changes to groundwater chemistry outside of the approved limits are reported and investigated to determine their cause and potential environmental impact.	CEO-09	CMC-201, CMC-202, CMC-203, CMC-301, CMC-302, CMC-303, CMC-401, CMC-402, CMC-403, CMC-404, CMC-405, CMC-501, CMC-502, CMC-503, CMC-504, CMC-506, CMC-507	Petroleum wells, hydraulic fracturing, management of process-affected water and wastewater, operating petroleum facilities, ancillary activities
MC-003	Groundwater monitoring conducted shows that: (a) changes to groundwater levels, pressure or hydraulic head in each aquifer are: i. within approved limits and in accordance with the requirements of a water extraction licence issued under the *Water Act 1992* (NT), where a licence applies, or ii. within the bounds of baseline conditions and natural variability, and (b) changes to groundwater chemistry in each aquifer are at or below the compliance threshold limits in the EMP. Any changes to groundwater outside of limits approved in a water extraction licence or the EMP, or baseline conditions are reported and investigated to determine their cause and potential environmental impact.	CEO-10	CMC-350, CMC-351	Petroleum wells, hydraulic fracturing, operating petroleum wells

6. Requirements related to specific environmental aspects of regulated activities

The requirements in section 6 of this Code apply to specific environmental aspects of regulated activities and their key risk sources. They do not replace the need for an interest holder to evaluate and include in the EMP all environmental aspects for the regulated activities of an EMP and to assess their environmental impact and environmental risk sources and implement appropriate control measures.

6.1. Environmental aspects and key risk sources

This section of the Code outlines environmental aspects for regulated activities that have key environmental impact and environmental risk sources (sections 6.1.1 to 6.1.11). The environmental aspects are grouped according to the activities described in Table 3. Interest holders should refer to the relevant regulated activity in the following sections to identify the applicable mandatory control measures and expected environmental outcomes. Presenting mandatory control measures and outcomes under each regulated activity ensures clarity where alternative control measures may be proposed by interest holders. In such cases, it remains clear which environmental outcomes must be achieved, and which NT EPA factors are to be considered when undertaking the risk assessment.

Table 3: Regulated activities considered by the Code

Activity Code	Regulated Activity	Regulated Activity Description	Environmental Aspect	
CEA-G	Generic activities	The components of regulated activities that have environmental aspects that are common to many activities. Note: This activity primarily addresses the use of vehicles and mobile plant and equipment.	CEA-G1	Operation of vehicles and mobile equipment as part or in support of regulated activities.
			CEA-G2	Import, mobilisation and demobilisation of equipment and materials used in regulated activities.
			CEA-G3	Ignition sources associated with regulated activities and equipment.
CEA-S	Seismic surveys		CEA-S1	Preparation of access for seismic surveys.

Activity Code	Regulated Activity	Regulated Activity Description	Environmental Aspect	
		All activities associated with the conduct of seismic surveys using minimal disturbance methods so that vegetation clearing is limited with little to no disturbance of topsoil via: (a) the use of existing tracks, (b) the diversion of lines, (c) the use of slashing, mulching or rolling, and (d) minimising waterway crossings. Seismic activities that require more extensive vegetation clearing or land clearing are not captured by this Code.	CEA-S2	Seismic survey data acquisition.
			CEA-S3	Rehabilitation of access prepared for seismic surveys.
CEA-L	Land clearing for regulated activities	All regulated activities that clear vegetation and/or disturb the surface for the preparation of sites, with the exception of seismic surveys. These regulated activities include: (a) linear infrastructure including but not limited to access roads, access tracks or gathering lines, and (b) discrete infrastructure including but not limited to well pads, compression facilities, petroleum processing facilities, camps, laydown yards, stores, workshops, administration facilities and borrow pits. Note: Land clearing may also be considered an aspect of other regulated activities. For example, petroleum wells will need a well pad to be prepared, gathering lines will need a "right of way".	CEA-L1	Preparation of sites.
			CEA-L2	Discrete site location.
			CEA-L3	Preparation of linear sites.
			CEA-L4	Linear site location.
			CEA-L5	Construction and operation of borrow pits.
CEA-B	Support activities for construction, operation and decommissioning	Support activities for the construction, operation and decommissioning of water bores.	CEA-B1	Support activities for water bore construction, operation, monitoring, maintenance and decommissioning.

Activity Code	Regulated Activity	Regulated Activity Description	Environmental Aspect	
	of water bores (Water bores)	Note: The support activities primarily refer to the site for water bores. The requirements for bore design, integrity, drilling fluids are managed via a bore work permit under the *Water Act 1992* (NT).	CEA-B2	Extraction of groundwater for regulated activities.[28]
CEA-D	Drilling, construction, operation, maintenance and decommissioning of petroleum wells (Petroleum wells)	All regulated activities that are directly associated with petroleum wells and well pads throughout the well lifecycle including drilling, operations, maintenance and decommissioning, with the exception of: (a) hydraulic fracturing, (b) storage of produced hydrocarbons at the surface, or (c) drilling fluids no longer in use. Note: The regulation of petroleum well activities throughout the well lifecycle is managed through a WOMP which contains the controls on well operations and well integrity. The environmental aspects of well operations in this Code are those that involve surface activities directly associated with drilling, environmental requirements for drilling fluids, and responses to a well integrity incident.	CEA-D1	All drilling, construction, maintenance, intervention, workover and decommissioning activities for petroleum wells that require a WOMP, with the exception of hydraulic fracturing.
			CEA-D2	Drilling petroleum wells through aquifers before the aquifers can be isolated from the well.
			CEA-D3	Drilling fluid systems and cement additives used for petroleum well activities. These fluids include drilling fluids, completion fluids, workover fluids.
			CEA-D4	Disposal of drill cuttings, waste drilling fluids and residual drilling material during or after drilling activities.
			CEA-D5	Decommissioning of drill sumps, tanks and associated containment structures.

[28] Groundwater extraction for the petroleum activities is regulated under the *Water Act 1992* (NT), and where applicable, also under the EPBC Act

Activity Code	Regulated Activity	Regulated Activity Description	Environmental Aspect	
			CEA-D6	Well production testing and well production.
			CEA-D7	Air-drilling (use of air or gas as a drilling fluid, or as a component of a drilling fluid (such as mist, foam, or aerated fluids)).
CEA-H	Hydraulic fracturing	All regulated activities that are directly associated with hydraulic fracturing (activities covered by a WOMP), with the exception of: (a) management of process-affected water (for example, water or fluid stored for use in hydraulic fracturing or flowback water once it has entered a storage tank), or (b) management of the well operations component of hydraulic fracturing. Note: The regulation of petroleum well activities, including hydraulic fracturing, is managed through a WOMP which contains the controls on well operations and well integrity. The environmental aspects of hydraulic fracturing in this Code are those that involve surface activities directly associated with hydraulic fracturing, environmental requirements for hydraulic fracturing and flowback fluids, and responses to well integrity incidents.	CEA-H1	Hydraulic fracturing operations.
			CEA-H2	Hydraulic fracturing fluid systems used for petroleum well activities.
CEA-W	Management of process-affected water and wastewater	All regulated activities that involve water storage, process-affected water and wastewater storage and disposal activities. These requirements apply to all regulated activities that directly result in the	CEA-W1	Storage of process-affected water and wastewater produced by regulated activities in above ground tanks.

Activity Code	Regulated Activity	Regulated Activity Description	Environmental Aspect	
	produced by regulated activities	generation of process-affected water and wastewater as a result of regulated activities with the exception of: (a) drilling fluids currently in use, (b) acquisition, storage and disposal of potable water for human consumption in camps and facilities, (c) stormwater that has not come into contact with hazardous materials on site, which is considered to be normal rainfall runoff, or (d) sewage, including treated effluent, which is regulated under the *Public and Environmental Health Act 2011*. Process-affected water includes, but is not limited to: (a) water generated for use in drilling or hydraulic fracturing activities, (b) residual water-based drilling fluids, (c) residual water phase of non-aqueous drilling fluids, (d) hydraulic fracturing fluids, (e) flowback fluid, (f) produced water, and (g) water used or derived from petroleum processing. Storage of process-affected water in ponds or dams is not captured by the Code.	CEA-W2	Use and/or transfer of process-affected water and wastewater produced by regulated activities between storages and operational areas within the regulated activity site.
			CEA-W3	Transfer of process-affected water and wastewater produced by regulated activities between regulated activity sites through temporary water transfer flow lines and associated infrastructure.
			CEA-W4	On-site treatment of process-affected water and wastewater produced by regulated activities.
			CEA-W5	Transport of wastewater or residual waste off-site.
			CEA-W6	Management of stormwater and rainfall runoff on discrete petroleum regulated activity sites.
CEA-F	Operating petroleum facilities	All regulated activities that are:	CEA-F1	Construction, commissioning, operation and maintenance of surface petroleum facilities.

Activity Code	Regulated Activity	Regulated Activity Description	Environmental Aspect	
		(a) covered by a petroleum surface infrastructure plan as detailed in s60(3) of the Petroleum Act, or (b) activities on a petroleum interest other than a production licence that would require a petroleum surface infrastructure plan if they were on a production licence. Note: These facilities include, but are not limited to, gathering lines for gas, hydrocarbon liquids, process-affected water or wastewater; gas or oil processing facilities; and water treatment facilities that are not contained within a single well pad.	CEA-F2	Construction, operation and maintenance of gathering lines and associated infrastructure for gas, hydrocarbon liquids, process-affected water or wastewater.
CEA-A	Atmospheric emissions from regulated activities	The component of all regulated activities that generate atmospheric emissions, including: (a) combustion of fuels, (b) flaring of gas, (c) venting of gas, and (d) fugitive emissions.	CEA-A1	Combustion of fuels by stationary and mobile equipment.
			CEA-A2	Planned or unplanned venting of gas.
			CEA-A3	Flaring of gas.
			CEA-A4	Fugitive emissions from gathering lines and associated infrastructure.
			CEA-A5	Planned and unplanned emissions from well activities.
			CEA-A6	Greenhouse gas emissions.
CEA-R	Rehabilitation	The components of regulated activities involving the rehabilitation of land disturbed, cleared or otherwise impacted by regulated activities.	CEA-R1	Rehabilitation of discrete sites.
			CEA-R2	Rehabilitation of linear corridors.

Activity Code	Regulated Activity	Regulated Activity Description	Environmental Aspect	
			CEA-R3	Rehabilitation of borrow pits (shallow excavations).
CEA-Y	Ancillary	Ancillary regulated activities, including, but not limited to camps, sewage treatment, administration offices, stores and warehouses, laydown yards, workshops, aviation activities, communication infrastructure, power generation and distribution, and road transport.	CEA-Y1	Power generation and transmission.
			CEA-Y2	Material (including hazardous chemicals) transport and storage in storage yards, stores and warehouses.
			CEA-Y3	General waste management.

6.1.1. Generic activities

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-G1.01	Operation of vehicles and mobile equipment leading to the introduction or spread of weeds.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-001, CMC-002	CEO-01
CRS-G1.02	Operation of vehicles and mobile equipment results in ignition of a bushfire.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Community and economy	CMC-003	CEO-03
CRS-G1.03	Operation of vehicles and mobile equipment leading to the introduction or spread of pest fauna species.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Culture and heritage	CMC-004	CEO-02
CRS-G2.01	Import of equipment leading to the introduction of weeds.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy, Culture and heritage		CEO-01
CRS-G2.02	Import of equipment leading to the introduction of pest fauna species.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Culture and heritage	CMC-004	CEO-02
CRS-G3.01	Regulated activities alter fire regime due to additional ignition sources, changes in fire management practice and addition or removal of barriers to the spread of fire.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Community and economy	CMC-003	CEO-03

6.1.2. Seismic surveys

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-S1.01	Preparation of access for seismic surveys causes degradation, fragmentation and loss of ecological communities.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-150	CEO-05
CRS-S1.02	Preparation of access for seismic surveys causes environmental harm to significant species of flora and fauna.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-150, CMC-161, CMC-162, CMC-163	CEO-04
CRS-S1.03	Preparation of access for seismic surveys results in opportunity for pest fauna species to establish themselves.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Culture and heritage	CMC-004	CEO-02
CRS-S1.04	Preparation of access for seismic surveys causes disturbance to places or objects of heritage significance or sacred sites.	Culture and heritage	CMC-100, CMC-101, CMC-102, CMC-150	CEO-06
CRS-S1.05	Preparation of access for seismic surveys causes disturbance to waterways at waterway crossings.	Hydrological processes, Aquatic ecosystems	CMC-151	CEO-07
CRS-S1.06	Preparation of access for seismic surveys results in erosion.	Terrestrial environmental quality, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-171	CEO-07
CRS-S1.07	Preparation of access for seismic surveys causes a loss to amenity.	Community and economy, Culture and heritage	CMC-150	CEO-15

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-S2.01	Conduct of seismic surveys causes environmental harm to significant species of flora and fauna.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-161, CMC-162, CMC-163, CMC-150	CEO-04
CRS-S2.02	Conduct of seismic surveys causes bushfire.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Community and economy	CMC-003	CEO-03
CRS-S3.01	Inadequate rehabilitation of access lines prepared for seismic surveys causes degradation to biodiversity.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-800	CEO-05
CRS-S3.02	Inadequate rehabilitation of access lines prepared for seismic surveys results in opportunity for weeds.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-001, CMC-002	CEO-01
CRS-S3.03	Inadequate rehabilitation of access lines prepared for seismic surveys results in opportunity for invasive fauna species to establish themselves.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Culture and heritage	CMC-004	CEO-02
CRS-S3.04	Inadequate rehabilitation of access lines prepared for seismic surveys results in erosion.	Terrestrial environmental quality, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-800	CEO-07

6.1.3. All regulated activities that require land clearing

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-L1.01	Land clearing for discrete sites causes degradation, fragmentation and loss of ecological communities.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-150	CEO-05
CRS-L1.02	Land clearing for discrete sites causes environmental harm to significant species of flora and/or fauna.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-150, CMC-161, CMC-162, CMC-163	CEO-04
CRS-L1.03	Import of dry materials used in site preparation results in introduction of weeds.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-001, CMC-002	CEO-01
CRS-L1.04	Stockpiling of topsoil creates opportunity for the establishment of weeds.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-001, CMC-002	CEO-01
CRS-L1.05	Cleared or disturbed land for discrete sites creates opportunity for establishment of weeds.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-001, CMC-002	CEO-01
CRS-L1.06	Preparation of sites for regulated activities causes disturbance of places or objects of heritage significance or sacred sites.	Culture and heritage	CMC-100, CMC-101, CMC-102	CEO-06

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-L1.07	Preparation of discrete sites for regulated activities causes erosion and/or sedimentation through stockpiling of material, stormwater flows, changes to grade and/or changes to vegetation cover.	Terrestrial environmental quality, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-171, CMC-172	CEO-07
CRS-L1.08	Preparation of discrete sites for regulated activities causes disturbance to overland flow.	Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-150, CMC-152	CEO-07
CRS-L2.01	Location of discrete sites for regulated activities causes a loss in amenity.	Community and economy, Culture and heritage	CMC-150	CEO-15
CRS-L2.02	Proximity of discrete sites to humans impacts on health and causes harm to sensitive receptors.	Community and economy, Human health	CMC-150	CEO-12
CRS-L3.01	Land clearing for linear sites causes degradation, fragmentation and loss of ecological communities.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-150	CEO-05
CRS-L3.02	Land clearing for linear sites damages or disturbs significant species of flora and/or fauna.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-150, CMC-161, CMC-162, CMC-163	CEO-04
CRS-L3.03	Preparation of linear sites for regulated activities causes disturbance to waterways at waterway crossings.	Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-150, CMC-151	CEO-07
CRS-L3.04	Preparation of linear sites for regulated activities causes disturbance to overland flow.	Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-150, CMC-152	CEO-07

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-L3.05	Preparation of linear sites for regulated activities causes erosion and/or sedimentation through stockpiling of material, stormwater flows, changes to grade and/or changes to vegetation cover.	Terrestrial environmental quality, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-171, CMC-172	CEO-07
CRS-L3.06	Cleared or disturbed land for linear sites creates opportunity for establishment of weeds.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-001, CMC-002	CEO-01
CRS-L3.07	Linear sites or corridors result in opportunity for pest fauna species to establish themselves.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Culture and heritage	CMC-004	CEO-02
CRS-L4.01	Linear sites or corridors for regulated activities result in modified fire regime.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Community and economy	CMC-003	CEO-03
CRS-L4.02	Location of linear sites for regulated activities causes a loss in amenity.	Community and economy, Culture and heritage	CMC-150	CEO-15
CRS-L4.03	Proximity of linear sites to humans causes harm to sensitive receptors.	Community and economy, Human health	CMC-150	CEO-12
CRS-L5.01	Source of water results in opportunity for pest fauna species to establish themselves.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Culture and heritage	CMC-004	CEO-02

6.1.4. Water bores

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-B1.01	Water bore construction, operation, monitoring, maintenance and decommissioning results in spills of fuel or other chemicals during use, handling and storage.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health	CMC-401, CMC-402	CEO-12
CRS-B2.01	Extraction of groundwater causes excessive drawdown of groundwater levels or declines in pressure levels.	Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Community and economy, Culture and heritage	CMC-900	CEO-08

6.1.5. Petroleum wells

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-D1.01	Petroleum well activities (drilling, construction, maintenance, operation and decommissioning) leading to well integrity failure and contamination of aquifers.	Aquatic ecosystems, Inland water environmental quality, Human health	CMC-203, CMC-350, CMC-351	CEO-08
CRS-D1.02	Petroleum well activities (drilling, construction, maintenance, operation and decommissioning) leading to well integrity failure and release of fluids to the environment at surface, causing contamination of soil or surface water.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health	CMC-350, CMC-351, CMC-403, CMC-404	CEO-08
CRS-D1.03	Flaring gas during petroleum well activities, including production testing, resulting in ignition of a bushfire.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Community and economy	CMC-003	CEO-03
CRS-D1.04	Petroleum well activities (drilling, construction, maintenance, operation and decommissioning) causing a loss of amenity through prominent infrastructure, noise and light emissions.	Community and economy, Culture and heritage	CMC-150, CMC-153	CEO-15
CRS-D2.01	Drilling a petroleum well using non-aqueous drilling fluids before aquifers are isolated by verified physical well barriers, leading to losses of those fluids to aquifers.	Aquatic ecosystems, Inland water environmental quality	CMC-203, CMC-401	CEO-09
CRS-D2.02	Drilling a petroleum well through aquifers before aquifers are isolated from the	Inland water environmental quality, Human health, Culture and heritage	CMC-201, CMC-202	CEO-08

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
	wellbore by verified physical well barriers, leading to contamination of aquifers by drilling fluids and/or cement slurries.			
CRS-D3.01	Transport, transfer, storage or handling of drilling additives and chemicals for petroleum well activities leading to accidental release to the environment and contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-401, CMC-402, CMC-403, CMC-404, CMC-405	CEO-12
CRS-D3.02	Operation of drilling fluid handling systems, drill sumps or tanks during petroleum well activities leading to accidental release of drilling fluid to the environment and contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-301, CMC-403, CMC-405	CEO-11
CRS-D3.03	Storage and handling of drilling fluids in sumps or tanks during petroleum well activities leading to seepage, leakage or infiltration into soil or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-301	CEO-11
CRS-D3.04	Storage of drilling fluids in sumps or tanks during petroleum well activities leading to overtopping during significant rainfall events and release to the environment.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health	CMC-504	CEO-11
CRS-D4.01	Disposal of residual drilling material, including drill cuttings and associated	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality,	CMC-302, CMC-303	CEO-16

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
	solids, causing contamination of soil, surface water or groundwater.	Marine environmental quality, Marine ecosystems, Human health, Culture and heritage		
CRS-D4.02	Disposal of waste drilling fluids from petroleum well activities causing contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-503	CEO-16
CRS-D5.01	Decommissioning of drill sumps or tanks following petroleum well activities causing contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-303, CMC-800	CEO-16
CRS-D7.01	Air-drilling a petroleum well resulting in inadequate containment of gases and ignition of a bushfire.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Community and economy	CMC-003	CEO-03
CRS-D7.02	Air-drilling a petroleum well resulting in inadequate containment of fluids and cuttings, causing contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-304	CEO-11

6.1.6. Hydraulic fracturing

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-H1.01	Hydraulic fracturing activities cause well integrity failure, resulting in contamination of aquifers.	Aquatic ecosystems, Inland water environmental quality, Human health	CMC-350, CMC-351	CEO-08
CRS-H1.02	Hydraulic fracturing activities cause well integrity failure and release of fluids to the environment at surface, resulting in contamination of soil or surface water.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-350, CMC-351, CMC-403, CMC-404	CEO-08
CRS-H1.03	Hydraulic fracturing activities cause excessive fracture growth, creating or enhancing connectivity between subsurface formations.	Aquatic ecosystems, Inland water environmental quality, Human health	CMC-350, CMC-351	CEO-08
CRS-H1.04	Import of dry materials used in hydraulic fracturing activities resulting in introduction of weeds.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-001, CMC-002	CEO-01
CRS-H1.05	Operation of flares during hydraulic fracturing activities causes a bushfire.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Community and economy	CMC-003	CEO-03
CRS-H1.06	Hydraulic fracturing operations cause a loss of amenity through prominent infrastructure, noise and light emissions.	Community and economy, Culture and heritage	CMC-150, CMC-153	CEO-15
CRS-H2.01	Transport, transfer, storage or handling of additives and chemicals for hydraulic fracturing activities leading to accidental release to the environment and contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-401, CMC-402, CMC-403, CMC-404, CMC-405	CEO-12

6.1.7. Management of process-affected water and wastewater produced by regulated activities

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-W1.01	Storage of process-affected water or wastewater in above ground tanks leading to an accidental release to the environment and contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-501, CMC-502, CMC-503, CMC-504, CMC-506	CEO-11
CRS-W1.02	Storage of process-affected water or wastewater in above ground tanks leading to overtopping due to overfilling or rainwater ingress, resulting in contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-502, CMC-504	CEO-11
CRS-W1.03	Storage of process-affected water or wastewater in above ground tanks causes entrapment of wildlife or stock.	Terrestrial ecosystems	CMC-505	CEO-11
CRS-W1.04	Storage of process-affected water or wastewater in above ground tanks allows wildlife or stock to access process-affected water or wastewater, causing poisoning.	Terrestrial ecosystems	CMC-505	CEO-11
CRS-W1.05	Storage of process-affected water or wastewater in enclosed tanks causes development of an explosive atmosphere, resulting in fire or explosion.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health	CMC-502	CEO-03
CRS-W2.01	Transfer or use of process-affected water and wastewater causes accidental release to the environment.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-507, CMC-560	CEO-11

CRS-W3.01	Transfer of process-affected water and wastewater through temporary transfer water flow lines and associated infrastructure causes accidental release to the environment.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-507, CMC-560	CEO-11
CRS-W4.01	Treatment of process-affected water and wastewater causes accidental release to the environment.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-501, CMC-504, CMC-506, CMC-507	CEO-11
CRS-W6.01	Stormwater, rainfall runoff and accumulated rainfall on discrete sites interacts with petroleum regulated activities, causing contamination.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health	CMC-503	CEO-11

6.1.8. Operating petroleum facilities

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-F1.01	Operation of petroleum facilities causes a loss of amenity through prominent infrastructure, noise and light emissions.	Community and economy, Culture and heritage	CMC-150	CEO-15
CRS-F2.01	Operation of gathering lines and associated infrastructure for process-affected water and wastewater causes accidental release to the environment and contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health, Culture and heritage	CMC-403, CMC-503 CMC-507, CMC-552, CMC-553	CEO-11
CRS-F2.02	Operation of gathering lines and associated infrastructure for hydrocarbons causes accidental release to the environment and contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health	CMC-403, CMC-507, CMC-552, CMC-553	CEO-11

6.1.9. Ancillary activities

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-Y1.01	Power generation and distribution activities create ignition sources causing fires.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health	CMC-003	CEO-03
CRS-Y2.01	Transport, storage and handling of hazardous chemicals causes accidental release to the environment and contamination of soil, surface water or groundwater.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health	CMC-401, CMC-402, CMC-403, CMC-404	CEO-12
CRS-Y3.01	General waste management provides food source that results in opportunity for invasive pest fauna species to establish themselves.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Culture and heritage	CMC-004	CEO-02

6.1.10. All regulated activities that generate atmospheric emissions

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-A1.01	Combustion of fuels from regulated activities causes atmospheric emissions that impact air quality.	Air quality	CMC-602, CMC-603	CEO-14
CRS-A2.01	Venting of gas from regulated activities causes atmospheric emissions that impact air quality.	Air quality	CMC-600	CEO-14
CRS-A3.01	Flaring of gas from regulated activities causes atmospheric emissions that impact air quality.	Air quality	CMC-600, CMC-601	CEO-14
CRS-A4.01	Operation of gathering lines, including emissions from high point vents and low point drains, causes atmospheric emissions that impact air quality.	Air quality	CMC-653	CEO-14
CRS-A5.01	Petroleum well activities, including air drilling, well drilling, completions, workovers, decommissioning and hydraulic fracturing flowback, cause atmospheric emissions that impact air quality.	Air quality	CMC-653, CMC-654	CEO-14
CRS-A6.01	GHG emissions from regulated activities contribute to climate change.	Atmospheric processes	CMC-650, CMC-651, CMC-652, CMC-653	CEO-13

6.1.11. Rehabilitation

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
CRS-R1.01	Delayed or inadequate rehabilitation of disturbed areas causes a loss of amenity.	Community and economy, Culture and heritage	CMC-800	CEO-17
CRS-R1.02	Delayed or inadequate rehabilitation of disturbed areas causes degradation of environmental values.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-800	CEO-17
CRS-R1.03	Rehabilitation of areas affected by residual contaminants from petroleum activities, causes residual contamination in soil, surface water or groundwater after rehabilitation activities are completed.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Human health	CMC-800	CEO-17
CRS-R1.04	Inadequate rehabilitation of discrete sites results in erosion after rehabilitation activities are completed.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-800	CEO-17
CRS-R1.05	Inadequate rehabilitation of discrete sites results in disturbance to overland water flow after rehabilitation activities are completed.	Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-800	CEO-17
CRS-R1.06	Inadequate rehabilitation of linear corridors creates opportunities for weeds to establish after rehabilitation activities are completed.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-800	CEO-17
CRS-R2.01	Inadequate rehabilitation of linear corridors provides opportunities for pest fauna species to establish after rehabilitation activities are completed.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Culture and heritage	CMC-800	CEO-17
CRS-R2.02	Inadequate rehabilitation of linear corridors causes obstruction to	Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-800	CEO-17

Source Code	Environmental Risk Source and Environmental Risk	NT EPA Environmental Factors	Mandatory Control Measures	Environmental Outcomes
	waterways after rehabilitation activities are completed.			
CRS-R2.03	Inadequate rehabilitation of linear corridors results in disturbance to overland water flow after rehabilitation activities are completed.	Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-800	CEO-17
CRS-R2.04	Inadequate rehabilitation of linear corridors creates opportunities for weeds to establish after rehabilitation activities are completed.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-800	CEO-17
CRS-R2.05	Inadequate rehabilitation of linear corridors results in erosion after rehabilitation activities are completed.	Terrestrial environmental quality, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-800	CEO-17
CRS-R3.01	Inadequate rehabilitation of borrow pits results in artificial water sources after rehabilitation activities are completed.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-800	CEO-17
CRS-R3.02	Inadequate rehabilitation of borrow pits results in disturbance to overland water flow after rehabilitation activities are completed.	Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-800	CEO-17
CRS-R3.03	Inadequate rehabilitation of borrow pits results in erosion after rehabilitation activities are completed.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems	CMC-800	CEO-17
CRS-R3.04	Inadequate rehabilitation of borrow pits creates opportunities for weeds to establish after rehabilitation activities are completed.	Terrestrial environmental quality, Terrestrial ecosystems, Aquatic ecosystems, Inland water environmental quality, Marine environmental quality, Marine ecosystems, Community and economy	CMC-800	CEO-17

6.2. Mandatory control measures

This section of the Code outlines the mandatory control measures and the applicable environmental performance standard that demonstrates the control is in place. Table 4 lists each mandatory control measure, the relevant environmental performance standard and the regulated activities covered in sections 6.1.1 to 6.1.11. The applicable mandatory control measures and environmental performance standards must be implemented and included in the EMP. For example, if an interest holder is conducting seismic activities, go to section 6.1.2 to ensure all relevant mandatory control measures, environmental performance standards and environmental outcomes are included in the EMP.

Table 4: Mandatory control measures and environmental performance standards

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
CMC-001	A Weed Management Plan is implemented.	CMC-001.01	The potential for the introduction and spread of weeds is managed in accordance with the interest holder's Weed Management Plan.	Generic activities, seismic surveys, all regulated activities that require land clearing, hydraulic fracturing
CMC-002	Appointment of weed management officer(s)	CMC-002.01	The interest holder has a dedicated weed officer as required by section 6.2.1.1 of this Code.	Generic activities, seismic surveys, all regulated activities that require land clearing, hydraulic fracturing
CMC-003	A Bushfire Management Plan is implemented.	CMC-003.01	The potential for the ignition, spread of fire and the modification of fire regime is managed in accordance with the interest holder's Bushfire Management Plan.	Generic activities, seismic surveys, all regulated activities that require land clearing, petroleum wells, hydraulic fracturing, ancillary activities
CMC-004	Pest species management protocols are in place where regulated activities are	CMC-004.01	The interest holder has a protocol for the management of pest species that: (a) meets the requirements of any guidelines published by the Department,	Generic activities, seismic surveys, all regulated activities that require land clearing, ancillary activities

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
	conducted on a production licence.		(b) adopts an adaptive approach, acknowledging that the understanding of complex and dynamic systems and the impact and management of pests is incomplete, (c) identifies pest species that are known to occur in the regulated activity area, (d) identifies stakeholders who might be affected by or need to be involved in pest management activities, (e) implements pest management actions so that population densities of pest fauna are managed, (f) implements pest management actions that minimise the risk of new pests entering or establishing in the regulated activity area, and (g) monitors and evaluates the effects of pest fauna management actions and implements corrective actions to produce the desired outcomes.	
CMC-100	A Cultural Heritage Management Plan is implemented where the regulated activities of an EMP are conducted on a production licence. An interest holder may implement a Cultural Heritage Management Plan for any regulated activities on a petroleum interest other than a production licence or	CMC-100.01	The potential for impacts on sacred sites and places or objects of heritage significance is managed in accordance with the interest holder's Cultural Heritage Management Plan.	Seismic surveys, all regulated activities that require land clearing

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
	implement CMC-101 and CMC-102.			
CMC-101	Pre-clearing surveys are conducted prior to clearing of land for the regulated activities of an EMP to identify places or objects of heritage significance or sacred sites (cultural heritage pre-clearing survey).	CMC-101.01	A pre-clearing cultural heritage survey is completed at least 1 week prior to any clearing of land for the regulated activities of an EMP. Noting, a cultural heritage survey may require an Authority Certificate from the Aboriginal Areas Protection Authority,[29] consultation or agreement with native title holders, traditional Aboriginal owners and/or Aboriginal Land Councils, and/or a report from an archaeologist and anthropologist.	Seismic surveys, all regulated activities that require land clearing
		CMC-101.02	The scope and resolution of a cultural heritage pre-clearing survey is commensurate with the extent and locations of the regulated activity site.	Seismic surveys, all regulated activities that require land clearing
		CMC-101.03	The cultural heritage pre-clearing survey is conducted by a suitably qualified person.	Seismic surveys, all regulated activities that require land clearing
CMC-102	An unexpected finds protocol is implemented for cultural heritage pre-clearing surveys and during clearing activities.	CMC-102.01	An unexpected finds protocol is in place that defines: (a) how an unexpected find will be characterised to determine its significance, (b) actions to be taken in the event of an unexpected find in accordance with the significance of the unexpected find, (c) the delegate with authority to decide on actions, and	Seismic surveys, all regulated activities that require land clearing

[29] Authority Certificates are the primary statutory mechanism for the identification and protection of sacred sites and are issued by the Aboriginal Areas Protection Authority. Obligations relating to Authority Certificates are established under the *Northern Territory Sacred Sites Act 1989* (NT) and operate independently of the petroleum regulatory framework.

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
			(d) notification and reporting requirements in the event of an unexpected find: i. that has not resulted in disturbance or damage, or ii. that has resulted in disturbance or damage.	
		CMC-102.02	Unexpected finds are managed in accordance with the unexpected finds protocol.	Seismic surveys, all regulated activities that require land clearing
CMC-150	Sites for regulated activities are selected in accordance with site selection criteria.	CMC-150.01	Site selection criteria for regulated activity sites are established in the EMP that meet the requirements of Annex A of this Code.	Seismic surveys, all regulated activities that require land clearing, petroleum wells, hydraulic fracturing, operating petroleum facilities
		CMC-150.02	Sites for regulated activities are selected in accordance with the site selection criteria in Annex A of this Code.	Seismic surveys, all regulated activities that require land clearing, petroleum wells, hydraulic fracturing, operating petroleum facilities
		CMC-150.03	As-constructed sites for regulated activity sites are in accordance with the site selection criteria in Annex A of this Code.	Seismic surveys, all regulated activities that require land clearing, petroleum wells, hydraulic fracturing, operating petroleum facilities

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
CMC-151	Waterway crossings are located, designed and constructed so that the waterway is not obstructed and there is no material change to water flow in the waterway.	CMC-151.01	Waterway crossings are located, designed and constructed so as to: (a) minimise the number of waterway crossing points for all regulated activities, (b) cross waterways as close as reasonably practicable to right angles to the waterway, (c) avoid obstruction of the waterway by preventing: i. material changes in the volume, speed or direction of surface water flow or likely flow of surface water in the waterway, ii. obstructions to fauna passage, and iii. material alteration to the stability of the bed or banks of the waterway (including as a result of vegetation removal), and (d) ensure the timing and staging of works minimise disturbance of waterway flows as far as reasonably practicable. If required under the *Water Act 1992* (NT), obtain a permit or other authorisation for interference with a waterway before construction of waterway crossings commences.	Seismic surveys, all regulated activities that require land clearing
CMC-152	Sites for regulated activities are located, designed and constructed so that natural overland flow is not materially altered.	CMC-152.01	Sites for the regulated activities of an EMP are located, designed and constructed: (a) in a manner that prevents material changes in the volume or speed of overland flow to waterways, wetlands, floodplains or groundwater recharge areas, and (b) so that the timing and staging of works does not result in material change to the overland flow.	All regulated activities that require land clearing
CMC-153	The spatial density of well pads for production	CMC-153.01	The maximum spatial density of well pads does not exceed one well pad per four square kilometres within a well field.	Petroleum wells, hydraulic fracturing

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
	of unconventional resources does not exceed a maximum density threshold.		A well field is defined as the smallest contiguous area that fully contains all proposed well pads with a 1-kilometre buffer around it. The interest holder must not nominate a larger development footprint for the purpose of altering the disturbance density calculation.	
CMC-161	Significant species of fauna and flora that potentially occur in the regulated activity site are identified in the EMP.	CMC-161.01	Significant species of fauna and significant species of flora that are confirmed, likely or have potential to occur in the regulated activity site are identified in the EMP in accordance with Annex B of this Code.	Seismic surveys, all regulated activities that require land clearing
CMC-162	Significant species management protocols are in place for each significant species of flora and fauna, where required, to prevent environmental harm to the species or associated habitat.	CMC-162.01	Significant species of fauna and significant species of flora protocols are in place for the species or associated habitats confirmed or likely to be present in the regulated activity site, and presented in the EMP.	Seismic surveys, all regulated activities that require land clearing
		CMC-162.02	The significant species protocol meets the requirements of Annex B of this Code.	Seismic surveys, all regulated activities that require land clearing
CMC-163	An unexpected significant species finds protocol is implemented for pre-clearing surveys and during clearing activities.	CMC-163.01	An unexpected significant species finds protocol is in place for species not expected to occur in the regulated activity site that defines: (a) how an unexpected find will be characterised to determine its significance, and (b) actions to be taken in the event of an unexpected find in accordance with the significance of the unexpected find.	Seismic surveys, all regulated activities that require land clearing

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
		CMC-163.02	Unexpected significant species finds are managed in accordance with the unexpected significant species finds protocol.	Seismic surveys, all regulated activities that require land clearing
CMC-171	An Erosion and Sediment Control Plan is implemented prior to the commencement of a regulated activity involving land clearing, surface disturbance or changes to grade in an area greater than 0.25 ha.	CMC-171.01	An Erosion and Sediment Control Plan is in place: (a) prior to the commencement of any activities that involve land clearing or surface disturbance at a site, and (b) for the duration of any activities that involve land clearing or surface disturbance at a site until the site is rehabilitated or permanent erosion and sediment controls are established and demonstrated to be effective.	All regulated activities that require land clearing
		CMC-171.02	The Erosion and Sediment Control Plan must be prepared by a suitably qualified person or be endorsed by a Certified Professional in Erosion and Sediment Control and adhere to the requirements of: (a) the International Erosion Control Association's Best Practice Erosion & Sediment Control - for building and construction sites, and (b) the Australian Pipelines and Gas Association's Code of Environmental Practice Onshore Pipelines.	All regulated activities that require land clearing
		CMC-171.03	The interest holder must comply with the Erosion and Sediment Control Plan at all times during any activities that involve land clearing or surface disturbance at a site.	All regulated activities that require land clearing
CMC-172	Erosion and sediment controls are implemented prior to the commencement of a regulated activity involving land clearing,	CMC-172.01	Erosion and sediment controls that prevent sediment run off from the site are in place: (a) that are consistent with the requirements of the International Erosion Control Association's Best Practice Erosion & Sediment Control - for building and construction sites, and	All regulated activities that require land clearing

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
	surface disturbance or changes to grade in an area less than 0.25 ha or seismic lines and access tracks.		(b) for the duration of any activities that involve land clearing or surface disturbance at a site until the site is rehabilitated or permanent erosion and sediment controls are established.	
CMC-201	Fluids used in drilling and cementing used when drilling through aquifers and before those aquifers are isolated from the wellbore by a verified well barrier do not contain chemicals or other substances that could leave a residual toxicity in the aquifer.	CMC-201.01	Drilling fluids used when drilling through aquifers and before those aquifers are isolated from the wellbore by a verified well barrier, and cement additives used in cementing the outer annulus of well sections that cross aquifers, must not contain chemicals or other substances that could adversely affect aquifer water quality and leave residual toxicity in the aquifer, including: (a) chemicals listed in Schedule 7 of the Industrial Chemicals Environmental Management Standard (IChEMS),[30] (b) chemicals listed under the Rotterdam Convention,[31] or (c) chemicals restricted for use in the NT.	Petroleum wells
		CMC-201.02	Make-up water used in cementing the outer annulus of well sections that cross aquifers must not contain contaminants or other substances that could adversely affect aquifer water quality and leave residual toxicity in the aquifer.	Petroleum wells
CMC-202	Drilling and cementing activities when drilling through aquifers and before those aquifers are isolated from the wellbore by a verified	CMC-202.01	Volumes and composition of drilling fluid or cement lost to formation are monitored and recorded for each drilling and cementing interval.	Petroleum wells

[30] IChEMS Online Register - DCCEEW.
[31] Chemicals listed in the Rotterdam Convention | Australian Industrial Chemicals Introduction Scheme (AICIS).

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
	well barrier are managed to prevent or minimise losses to formation.			
CMC-203	Aquifers are isolated from the wellbore when using non-aqueous drilling fluids.	CMC-203.01	Aquifers are isolated by a verified physical well-barrier before non-aqueous drilling fluids are circulated or used in any well section.	Petroleum wells
CMC-301	Drilling fluids and cuttings are stored within appropriate containment during use and residual drilling materials disposed of in a timely manner at the end of well activities.	CMC-301.01	All water-based drilling fluids, cuttings and residual drilling material stored on site are contained in sumps and/or above ground tanks, unless they are being managed in accordance with an approved Residual Drilling Material Disposal Plan (RDMDP).	Petroleum wells
		CMC-301.02	All non-aqueous drilling fluids and residual drilling material stored on site are contained in above ground tanks, unless they are being managed in accordance with an approved RDMDP.	Petroleum wells
		CMC-301.03	Sumps that are used to contain water-based drilling fluids and residual drilling material must: (a) be designed and certified by a suitably qualified person, (b) be constructed with a geomembrane liner that: i. forms a barrier between groundwater, soil and substrata, and the drilling fluids, cuttings and residual drilling material stored in the sump, and ii. has appropriate specifications for the application that considers permeability, durability, puncture resistance, tensile strength, protection against damage during installation and operation, chemical resistance and resistance to weathering,	Petroleum wells

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
			(c) be constructed in accordance with a Construction Quality Assurance (CQA) plan. The CQA plan must be able to verify materials used comply with specifications, and (d) verify that the method of construction/installation is appropriate and, as a result, design requirements have been met.	
		CMC-301.04	Above ground tanks that are used to contain drilling fluids, cuttings and residual drilling material must: (a) be designed and constructed to withstand the loads they will encounter during operation, (b) be chemically compatible with the stored material, and (c) be located within an area with secondary containment that meets the requirements of CMC-402.	Petroleum wells
		CMC-301.05	Residual drilling materials held in sumps are managed, and disposed of within 12 months of the completion of drilling activities on the well pad.	Petroleum wells
CMC-302	A RDMDP is in place to manage the disposal of residual drilling material.	CMC-302.01	A RDMDP that complies with the requirements of section 8.6 of this Code is approved and in place.	Petroleum wells
		CMC-302.02	Disposal of residual drilling materials is in accordance with the approved RDMDP.	Petroleum wells
CMC-303	Disposal of residual drilling material is conducted in accordance with a certified residual drilling disposal method.	CMC-303.01	A residual drilling disposal method is in place prior to: (a) disposing of any residual drilling material on the land on which the regulated activities of an EMP are being carried out, and (b) re-using residual drilling materials as part of a regulated activity.	Petroleum wells
		CMC-303.02	The residual drilling disposal method must be certified by a Contaminated Land Auditor. This certification must state that the	Petroleum wells

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
			residual drilling disposal method satisfies the RDMDP requirements in section 8.6.2 of this Code. For the avoidance of doubt, the Contaminated Land Auditor must undertake an assessment of potential environmental harm following the protocols of, and to the standard of, their accrediting environment protection authority or agency.	
		CMC-303.03	Disposal of residual drilling material is conducted in accordance with the certified residual drilling disposal method.	Petroleum wells
CMC-304	Fluids and cuttings from air drilling are diverted to appropriate containment.	CMC-304.01	Fluids and cuttings from air-drilling of formations likely to contain material quantities of gases or hydrocarbons are diverted to one or more flare pits or flare tanks: (a) to combust any hydrocarbons produced during drilling, and (b) that are designed and constructed to contain, within the pit or tank, drill cuttings and fluids produced from the well during air drilling.	Petroleum wells
		CMC-304.02	Dust suppression is installed and operating to limit dust emissions from fluids and cutting returns produced during air-drilling.	Petroleum wells
CMC-350	Petroleum well activities are covered by an approved WOMP.	CMC-350.01	An approved WOMP is in place under the Petroleum Act before well activities commence.	Petroleum wells, hydraulic fracturing
CMC-351	Well integrity incidents are managed to minimise impacts to the environment.	CMC-351.01	Well integrity incidents where well or formation fluids are lost to formation or at the surface are investigated to determine their environmental impact, and a response plan developed and implemented as soon as reasonably practicable to mitigate any residual environmental impacts.	Petroleum wells, hydraulic fracturing

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
CMC-401	Hazardous chemicals, or chemicals that may cause environmental harm, that are used in petroleum activities are identified and their risks are known. Chemicals that may cause material environmental harm or significant environmental harm are not used in petroleum activities.	CMC-401.01	Chemicals that will be used in the regulated activities of an EMP are identified and assessed, describing: (a) the product that the chemical is in, (b) the intended uses(s) of the product, (c) the volume, physical state, and concentration of the chemical in products, (d) the assessed chemical quantity and injection concentration, and (e) the risk classification (low or high).	Water bores, petroleum wells, hydraulic fracturing, ancillary activities
		CMC-401.02	Chemicals listed in Schedule 7 of the Industrial Chemicals Environmental Management Standard[32] (IChEMS), listed under the Rotterdam Convention[33], or restricted for use in the NT are not used in regulated activities.	Petroleum wells, hydraulic fracturing, ancillary activities
CMC-402	Hazardous chemicals, or those that may cause environmental harm, are stored and handled within secondary containment.	CMC-402.01	All hazardous chemicals used as part of regulated activities are stored within secondary containment that is designed, constructed and operated to meet the following criteria: (a) to have sufficient capacity to hold 100% of the volume of the largest container stored in the area plus 10%, unless the container is equipped with individual secondary containment, (b) have sufficiently low permeability such that it is able to contain the material until it can be removed or treated, (c) be compatible with the material or waste stored or used within the containment, and	Water bores, petroleum wells, hydraulic fracturing, ancillary activities

[32] IChEMS Online Register - DCCEEW
[33] Chemicals listed in the Rotterdam Convention | Australian Industrial Chemicals Introduction Scheme (AICIS)

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
			(d) be appropriately resistant to physical, chemical and other failure during handling, installation and use.	
		CMC-402.02	Secondary containment is inspected for the integrity of the containment system including any operable components, and the presence of any spills or leaks: (a) daily during active use, (b) weekly when not in active use and are stored temporarily or in outdoor conditions, and (c) monthly when not in active use and are stored in an enclosed storage facility (e.g. warehouse).	Water bores, petroleum wells, hydraulic fracturing, ancillary activities
		CMC-402.03	Remedial actions are available in the event that the integrity of secondary containment is damaged or compromised.	Water bores, petroleum wells, hydraulic fracturing, ancillary activities
		CMC-402.04	Where the integrity of secondary containment is damaged or compromised, remedial actions are implemented as soon as reasonably practicable.	Water bores, petroleum wells, hydraulic fracturing, ancillary activities
		CMC-402.05	All spills detected during inspection of secondary containment are recorded in the Spill Register as set out in section 8.2 of this Code.	Water bores, petroleum wells, hydraulic fracturing, ancillary activities
		CMC-402.06	Stormwater from within secondary containment is monitored to detect contamination before release to the environment.	Water bores, petroleum wells, hydraulic fracturing, ancillary activities
CMC-403	A Spill Management Plan (SMP) is in place to manage spills from secondary containment or to the environment.	CMC-403.01	A SMP that complies with the requirements of section 8.2 of this Code is in place.	Petroleum wells, hydraulic fracturing, ancillary activities
		CMC-403.02	Any spills are managed in accordance with the approved SMP.	Petroleum wells, hydraulic fracturing, ancillary activities

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
CMC-404	An Emergency Contingency Plan (ECP) is in place to manage the impacts for any unplanned emergency or potential emergency event, as applicable to the scope of the regulated activities of an EMP, that have potential to result in material or significant environmental harm.	CMC-404.01	An ECP that complies with the requirements of section 0 of this Code is in place.	Petroleum wells, hydraulic fracturing, ancillary activities
CMC-405	Areas of a well pad or petroleum facility where any fluids are stored, handled or used are bunded and lined so that any spilled fluids are contained until they can be removed or treated.	CMC-405.01	Where containment is applied to an area of a well pad by a bund and liner: (a) the liner is sufficiently impervious and able to contain spilled material or waste until it can be removed or treated, (b) the bund and liner are designed and certified by a suitably qualified person, (c) the bund and liner are constructed in accordance with a CQA plan. The CQA plan must be able to verify materials used comply with specifications, and (d) the method of construction/installation is appropriate and, as a result, design requirements have been met.	Petroleum wells, hydraulic fracturing
		CMC-405.02	The bunded area is inspected for integrity of the bund and liner and the presence of any spills: (a) weekly during inactive periods if there are sources of fluids on site, and	Petroleum wells, hydraulic fracturing

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
			(b) daily during active use.	
		CMC-405.03	Remedial actions are available in the event that the integrity of the bund or liner is damaged or compromised.	Petroleum wells, hydraulic fracturing
		CMC-405.04	Where the integrity of the bund or liner is damaged or compromised, remedial actions are implemented as soon as reasonably practicable.	Petroleum wells, hydraulic fracturing
CMC-501	Design, construction and operational standards for above ground open tanks are appropriately met.	CMC-501.01	Above ground open tanks are designed so that: (a) they incorporate a leak detection system: i. between the liners within the tank where double lined tanks are used for storage or treatment infrastructure, and ii. between the outer liner, tank wall and floor, (b) the liners used are designed to appropriate specifications for the application that considers permeability, durability, puncture resistance, tensile strength, damage during installation, chemical resistance and resistance to weathering, (c) the storage will not be compromised by external hazards including fire, flood, wind loading or collision by a vehicle, and (d) they are constructed in accordance with a CQA plan. The CQA plan must be able to verify materials used comply with specifications, including the tank foundation.	Management of process-affected water and wastewater produced by regulated activities
		CMC-501.02	Above ground open tanks are constructed to meet the requirements of CMC-501.01.	Management of process-affected water and wastewater produced by regulated activities
CMC-502	Additional design, construction and operational	CMC-502.01	In addition to the requirements for above ground open tanks, above ground enclosed tanks must also meet the following performance standards.	Management of process-affected water and

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
	requirements for above ground enclosed tanks are appropriately met.		Enclosed tanks must be designed so that: (a) the ingress of rainwater into the enclosed tank is limited, otherwise CMC-503 will apply, (b) the ingress of rainwater between liners is limited, to avoid false leak detection alerts, (c) there is a system for the collection and diversion of rainwater to prevent overtopping or contamination with fluid stored in the tank, and (d) the build-up of explosive gases within the tank is avoided.	wastewater produced by regulated activities
		CMC-502.02	Above ground enclosed tanks are constructed to meet the requirements of CMC-501.01 and CMC-502.1	Management of process-affected water and wastewater produced by regulated activities
CMC-503	A Process-Affected Water and Wastewater Management Plan (PAWWMP) is in place that is applicable to the scope of the regulated activities of an EMP.	CMC-503.01	A PAWWMP that complies with the requirements of section 8.1 of this Code is in place.	Management of process-affected water and wastewater produced by regulated activities
		CMC-503.02	All process-affected water and wastewater is managed in accordance with the approved PAWWMP.	Management of process-affected water and wastewater produced by regulated activities
CMC-504	Process-affected water and wastewater storages, treatment storages and drill sumps that are open to rainfall	CMC-504.01	All process-affected water and wastewater storages, treatment storages and drill sumps open to rainfall are operated so that: (a) there is sufficient capacity within the storage on 1 October every year to meet the wet season DSA determined in accordance with Annex C of this Code,	Petroleum wells, Management of process-affected water and wastewater produced by regulated activities

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
	are operated with sufficient Design Storage Allowance (DSA) to accommodate seasonal rainfall and with extreme storm storage.		(b) the mandatory reporting level (MRL), determined in accordance with Annex C of this Code, is marked on the storage in such a way that during routine inspections of that storage, it is clearly observable, and (c) immediately on becoming aware that the MRL has been reached, the interest holder will: i. meet the notification requirements in section 6.5 of this Code, and ii. act to prevent the occurrence of any unauthorised discharge from the storage.	
		CMC-504.02	Water levels, stored volumes and available storage capacities in all process-affected water and wastewater storages and treatment storages are monitored: (a) on a continuous basis using a telemetered wastewater level monitoring system, and (b) with a contingency method in place so that in the event that the telemetered monitoring fails, monitoring of water levels occurs provided weather conditions allow safe access to the petroleum facility or well pad: i. no less than daily between 1 October and 1 May of the following calendar year, and ii. weekly between 1 May and 1 October.	Petroleum wells, Management of process-affected water and wastewater produced by regulated activities
		CMC-504.03	On-site weather stations must be installed at the petroleum facility. Weather stations must be: (a) calibrated, (b) capable of measuring temperature, humidity, rainfall, pressure, sunshine, wind and evaporation, and	Petroleum wells, Management of process-affected water and wastewater produced by regulated activities

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
			(c) capable of being monitored in real time.	
CMC-505	Above ground tanks are designed and constructed in a manner that prevents access and/or entrapment of wildlife or stock animals.	CMC-505.01	Above ground tanks are designed and constructed to reduce attraction of wildlife, ensuring: (a) opportunities for perching are minimised, (b) wading areas are minimised, and (c) growth of vegetation, reeds, and insects are minimised.	Management of process-affected water and wastewater produced by regulated activities
		CMC-505.02	A systematic survey program must be implemented for above ground tanks to identify species of wildlife attempting to access above ground tanks.	Management of process-affected water and wastewater produced by regulated activities
		CMC-505.03	Where the systematic survey program identifies frequent visitation of above ground tanks or entrapment of wildlife in above ground tanks then further management controls that are appropriate to the species of wildlife accessing the above ground tanks must be implemented.	Management of process-affected water and wastewater produced by regulated activities
CMC-506	Above ground tanks are operated to prevent failure.	CMC-506.01	Above ground tanks are operated within their design limits at all times.	Management of process-affected water and wastewater produced by regulated activities
		CMC-506.02	Sites of regulated activities that include above ground tanks have: (a) physical barriers to prevent vehicle or mobile equipment from colliding with the tanks, or (b) operating procedures to mitigate the risk of vehicle collisions where physical barriers are not practicable.	Management of process-affected water and wastewater produced by regulated activities
CMC-507	Water transfer systems and associated	CMC-507.01	Water transfer systems and associated infrastructure used to move process-affected water and wastewater are designed and operated	Management of process-affected water and

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
	infrastructure are appropriately designed, maintained and operated.		to avoid release of fluids outside of containment, taking into account: (a) the loads that will be encountered by the system, (b) the composition of the fluids that will be transferred, (c) the operating conditions, (d) failure modes, (e) volumes that may be released in the event of a failure, (f) whether a release would be within containment, and (g) whether the transfer system is supervised, operated remotely, or operated automatically.	wastewater produced by regulated activities
		CMC-507.02	Water transfer systems and associated infrastructure used to move process-affected water and wastewater are operated and maintained in accordance with their design.	Management of process-affected water and wastewater produced by regulated activities
CMC-552	Gathering lines are buried.	CMC-552.01	Gathering lines between well pads and connecting to operating petroleum facilities are buried, except where it is necessary for inspection, in accordance with appropriate industry standards.	Operating petroleum facilities
CMC-553	Gathering line integrity failures are managed to minimise impacts to the environment.	CMC-553.01	Gathering line integrity failures where a material volume of hydrocarbons or water are released to the environment are investigated to determine their environmental impact, and a response plan developed and implemented as soon as reasonably practicable to mitigate any residual environmental impacts.	Operating petroleum facilities
CMC-560	Temporary water (including process-affected water and wastewater) transfer	CMC-560.01	Temporary water transfer flow lines are: (a) in place for no longer than 12 months, and (b) designed to prevent interference with fauna, surface water flow and other land users.	Management of process-affected water and wastewater produced by regulated activities

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
	flow lines are operated to ensure that their integrity is maintained.	CMC-560.02	The monitoring system for a temporary water transfer flow line must be capable of detecting: (a) a material release of water to the environment in a timely manner, considering: i. the composition and environmental hazard of the transferred fluid, ii. the sensitivity of the receiving environment and proximity to sensitive receptors, and iii. operating parameters for the temporary water transfer flow line (such as flow rates, pressures), and (b) interference with fauna, surface water flow and other land users.	Management of process-affected water and wastewater produced by regulated activities
CMC-600	Flaring and venting of gas as part of the regulated activities of an EMP is limited to be ALARP and acceptable.	CMC-600.01	Flaring of gas is only conducted where it is not commercially or technically feasible, or lawful, to use it and venting of gas is only conducted where it is not safe or technically practicable to flare it.	Atmospheric emissions
CMC-601	Flares are operated to maximise combustion of gas and to avoid smoke.	CMC-601.01	Where flares are used, they are designed and operated so that: (a) they operate at all times when gas may be vented to them, (b) a flame is visible at all times that gas is being flared, unless the flare is an enclosed flare, and (c) there are no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.	Atmospheric emissions
CMC-602	Fuel burning and combustion facilities are selected, maintained and	CMC-602.01	Selection criteria for fuel burning and combustion equipment are established to demonstrate best practice in minimisation of emissions of air pollutants and GHG.	Atmospheric emissions

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
	operated to limit emissions of air pollutants and GHG.	CMC-602.02	Operation and maintenance of fuel burning and combustion equipment demonstrate compliance with best practice procedures in minimisation of emissions of air pollutants and GHG.	Atmospheric emissions
CMC-603	Potential air contaminants from stationary fuel burning and combustion facilities are modelled, monitored and managed so that impacts on ambient air quality are avoided.	CMC-603.01	An EMP for regulated activities that includes fuel burning and combustion facilities that in isolation, or in combined operation, is or are capable of burning more than 500 GJ/day of fuel must include a Facilities Air Emissions Monitoring Plan (FAEMP) that complies with section 8.7 of this Code.	Atmospheric emissions
		CMC-603.02	Air emissions from fuel burning and combustion facilities are monitored and managed in accordance with an approved FAEMP.	Atmospheric emissions
		CMC-603.03	The interest holder demonstrates that the final design, installation and operation of the facility does not preclude the future installation of additional air pollution emission controls.	Atmospheric emissions
CMC-650	GHG emissions sources and their emissions intensities are identified.	CMC-650.01	The interest holder maintains a GHG emissions source register that complies with section 6.3.3 of this Code.	Atmospheric emissions
CMC-651	GHG emissions are estimated for the life of facilities that the regulated activities of an EMP contribute to.	CMC-651.01	The interest holder maintains a GHG emissions source register that complies with section 6.3.3 of this Code.	Atmospheric emissions
CMC-652	Annual GHG emissions from facilities that the regulated activities of an EMP contribute to are recorded.	CMC-652.01	The interest holder records emissions from facilities in a manner that is consistent with the measurement methods described in their GHG emissions source register and *National Greenhouse and Energy Reporting Act 2007* (NGER legislation).	Atmospheric emissions

Control	Mandatory Control Measure	EPS Code	Environmental Performance Standard	Regulated Activities
CMC-653	A leak detection and repair program is in place to manage GHG and volatile organic compounds leaks from facilities.	CMC-653.01	The interest holder implements a leak detection and repair program to detect and manage leaks from emission sources that: (a) is consistent with the leak detection methods described in their GHG emissions source register and NGER legislation, (b) describes the actions that will be taken in when a leak is detected, (c) defines leak rate thresholds above which repair will be undertaken, and (d) defines timelines to implement repairs.	Atmospheric emissions
		CMC-653.02	The interest holder maintains a record of leak detection and repair activities.	Atmospheric emissions
CMC-654	Emissions from well activities (air drilling, well drilling, completions, workovers and decommissioning, hydraulic fracturing flowback) are managed.	CMC-654.01	The interest holder implements methods for the conduct of well activities that minimise air emissions that are consistent with industry best practice.	Atmospheric emissions
CMC-800	A Rehabilitation Plan is in place that is applicable to the scope of the regulated activities of an EMP.	CMC-800.01	A Rehabilitation Plan that complies with the requirements of section 8.5 of this Code is in place.	Rehabilitation
		CMC-800.02	All rehabilitation activities are conducted in accordance with the approved Rehabilitation Plan.	Rehabilitation
CMC-900	Groundwater extraction is authorised under applicable approvals.	CMC-900.01	A water extraction licence under the *Water Act 1992* (NT) is in place before water extraction commences, and any applicable EPBC Act trigger requirement is complied with.	Water bores

6.2.1. Other mandatory control measures

The mandatory control measures in this section apply to the regulated activities identified in section 6.1 but are not related to a key risk. The inclusion of these measures provides clarity and consistency in management across EMPs.

6.2.1.1. Dedicated weed officer

An interest holder must have a dedicated weed officer at all times while conducting regulated activities on any petroleum interest. The weed officer must have demonstrated competency to manage weeds. Weed Management Plans must contain the following details:

(a) name(s) of dedicated weed officer,

(b) contact details, and

(c) evidence of their competency to manage weeds, including:
   i. knowledge of the biology and ecology of local weeds, and
   ii. knowledge of relevant weed management frameworks including NT legislation and plans; and the EPBC Act.

6.2.1.2. Maintenance and operation

All plant and equipment must be effectively and properly maintained and safely operated.

Measures to prevent fauna being harmed from entrapment must be implemented during the construction and operation of well infrastructure, dams and pipeline trenches.

6.2.1.3. Monitoring and analyses

All monitoring and sampling must be conducted by a suitably qualified person or suitably trained person.

All laboratory analyses and tests must be undertaken by a laboratory that has National Association of Testing Authorities accreditation for such analyses and tests.

Where there are no National Association of Testing Authorities accredited laboratories for a specific analyte or substance, then duplicate samples must be sent to at least two separate laboratories for independent testing or evaluation.

6.3. Record keeping

The record keeping requirements for an EMP are described in Schedule 1, clause 11 of the Environment Regulations, which requires the plan to specify arrangements for recording, monitoring and reporting information about the regulated activity in a manner that will enable the Minister to determine whether the environmental outcomes and environmental performance standards in the plan are being met.

The Code requires the mandatory groundwater measurement criteria stated in the Code to be included in the EMP and, interest holders must establish their own measurement criteria that demonstrate that the remaining environmental outcomes and environmental performance standards are being met.

Accordingly, the interest holder must keep all records generated in developing and applying measurement criteria for the regulated activities specified in the plan. This includes but is not limited to the registers detailed in sections 6.3.1 to 6.3.3 of this Code.

6.3.1. Spill register

The interest holder must maintain a spill register for each site where liquid contaminant or hazardous chemicals are stored, handled or used. The interest holder must:

(a) record all accidental releases of any volume of liquid contaminant or hazardous chemicals in the spill register,

(b) within 48 hours of the accidental release being identified, the following details must be recorded:
   i. the geographical location or area of the accidental release,
   ii. the source of the accidental release,
   iii. how the accidental release was identified,
   iv. the liquid contaminant or hazardous chemical released,
   v. whether the accidental release is a recordable incident, and
   vi. whether the accidental release is a reportable incident.

(c) within 28 days of the accidental release being identified, the following details must be recorded:
   i. remedial action taken to mitigate the impacts of the release,
   ii. the volume of any impacted water removed and how it was disposed of or treated,
   iii. the volume of any impacted soil removed:
      a. how it was disposed of or treated, and
      b. the depth of any associated excavation,
   iv. whether further remedial action is required and the details of that action,
   v. reference to any investigation taken in regard to the cause of the accidental release, and
   vi. the corrective actions taken or proposed to be taken to prevent recurrence of an incident of a similar nature.

6.3.2. Register of activities in wetland and riparian areas

A register must be kept of all linear infrastructure construction and maintenance activities in wetland and riparian areas which must include:

(a) location of the activity and watercourse name,

(b) estimated flow rate of surface water logged at the same time daily commencing one week prior to the activity and concluding one week after the construction activity, and

(c) dates and duration of works.

6.3.3. Greenhouse gas emissions regulation and register

6.3.3.1. Definitions

In this section 6.3.3 the following terms mean:

activity has the same meaning as in section 7 of the *National Greenhouse and Energy Reporting Act 2007* (Cth) (NGER Act)

facility has the same meaning as in section 9 of the NGER Act.

Safeguard Mechanism refers to the regulatory process set out in Part 3H of the NGER Act.

source has the same meaning as in section 1.10 of the National Greenhouse and Energy Reporting (Measurement) Determination 2008 (Cth).

6.3.3.2. Regulation of GHG emissions in the NT

The NGER Act establishes a framework for Australia's largest emitters to manage and report on their GHG emissions. This is the Safeguard Mechanism administered by the Clean Energy Regulator. The Safeguard Mechanism applies to industrial facilities emitting more than 100,000 tCO2-e of scope 1 emissions per year. Operators of these facilities must ensure their scope 1 emissions remain at or below the baseline, or they may purchase recognised carbon credits to offset any exceedance of the baseline.

The Safeguard Mechanism includes a requirement for all new onshore petroleum facilities in the Beetaloo Sub-basin to have net zero scope 1 emissions from entry (i.e. once their annual emissions exceed 100,000 tCO2-e per year). Noting, all new gas fields supplying gas to an existing Liquefied Natural Gas facility are treated as new facilities and are required to have net zero reservoir emissions from entry.

Interest holders should consider referring their activity proposal to the NT EPA if projected emissions exceed 100,000 tCO_2-e per year. The NT EPA has published guidance for the Atmospheric Processes environmental factor to provide advice to proponents on obligations under the EP Act, including when to consider referring a proposal based on GHG emissions, and expectations about GHG-related information to include in assessment documents.[34]

Avoiding or mitigating GHG emissions is the preferred approach to managing the emissions from a proposal. Where emissions cannot be avoided or mitigated, the residual emissions may be required to be offset.

The interest holder must maintain a register of all material scope 1 and 2 GHG emissions that are from facilities which the interest holder has operational control of and are required for the regulated activities of the EMP. The register must include existing emissions sources.

Content requirements and reporting for the GHG emissions source register is set out below.

6.3.3.3. GHG emissions source register content requirements – identification of sources

A GHG emissions source register must list each emissions source and describe:

(a) the nature of the emissions source,

(b) the type(s) of GHG emitted by the emissions source,

(c) whether GHG emissions from the source are a normal part of operations or an inadvertent event,

(d) an estimate of emissions from the source, including:
   i. the number of instances of an emissions source,
   ii. the frequency of emissions,
   iii. the duration of emissions,
   iv. the rate of emissions, and
   v. uncertainty in these estimates,

(e) how the selection, operation and conduct of an activity demonstrates that all reasonable and practical measures have been applied to avoid and mitigate emissions so they are ALARP through best practice design, process, technology and management,

(f) the methods for quantifying emissions from the source and how they comply with the requirements of the National Greenhouse and Energy Reporting (Measurement) Determination 2008, and

[34] Environmental Factor Guidance: Atmospheric Processes Greenhouse Gas Emissions.

(g) the methods that will be used for leak detection for sources that have components that may leak and how those leak detection methods comply with the requirements of the National Greenhouse and Energy Reporting (Measurement) Determination 2008.

6.3.3.4. GHG emissions source register content requirements – estimation of emissions

A GHG emissions source register must provide an estimate of annual emissions and cumulative total for regulated activities covered by the EMP. This estimate must be consistent with emissions estimates under NGER legislation.

6.3.3.5. GHG emissions source register record keeping requirements

The interest holder must:

(a) provide a preliminary GHG emissions source register with an EMP, and

(b) review their GHG emissions source register on an annual basis, and

i. state that no material changes to existing or planned GHG emissions sources for the regulated activities of an EMP have occurred, or

ii. update the register where material changes to:

a. existing or planned GHG emissions sources for the regulated activities of an EMP occur, and/or

b. the estimate of annual emissions for the regulated activities of an EMP.

6.4. Reporting

The reporting requirements for an EMP are set out in Schedule 1, clause 11 of the Environment Regulations, which requires the plan to provide for recording, monitoring and reporting information that will enable the Minister to determine whether the environmental outcomes and environmental performance standards are being met.

6.4.1. Annual Environmental Performance Report

The interest holder must submit an Annual Environmental Performance Report/AEPR in accordance with the Onshore Petroleum Annual Environmental Performance Reporting Form, as published and updated on the Department's website from time to time.

6.5. Notifications

6.5.1. Failure to maintain design storage allowance

The interest holder must notify the regulator within 48 hours of the exceedance being identified if a storage structure or sump storing residual drilling material, process-affected water or wastewater that is open to rainfall does not maintain the DSA described in Annex C.

The notification must include:

(a) identification of the storage structure or sump,

(b) the date and time the exceedance was identified,

(c) the DSA that applies to the storage structure or sump, and

(d) an outline of the strategy that will be implemented to restore the DSA and manage the risk of overtopping.

6.5.2. Mandatory reporting level

The interest holder must notify the regulator if a storage structure or sump storing residual drilling material, process-affected water or wastewater that is open to rainfall reaches or exceeds the MRL described in Annex C within 24 hours of the exceedance being identified.

The notification must include:

a) identification of the storage structure or sump,

b) the date and time the MRL was reached,

c) the MRL that applies to the storage structure or sump, and

d) details of the short and long-term actions being implemented to restore levels in the storage structure or sump to below the MRL to manage the elevated risk of overtopping.

7. Alternative regulated activities or alternative control measures

Where an interest holder proposes an alternative regulated activity or an alternative control measure, the interest holder must provide a detailed description and undertake a full assessment for the proposed alternative. These alternative regulated activities or alternative control measures must be addressed into an interest holder's EMP through the processes set out below in sections 7.1 and 7.2 respectively, and the requirements of any relevant guidelines published by the Department from time to time. The information provided must demonstrate that the relevant environmental outcomes will be achieved, and that environmental impacts and environmental risks will be reduced to a level that is ALARP and acceptable.

For the avoidance of doubt, an interest holder may include additional control measures in an EMP without following the process in this section, provided all relevant mandatory control measures in section 6 are included and implemented. The process in section 7.2 applies only where the interest holder proposes an alternative control measure to a relevant mandatory control measure in section 6.

7.1. Alternative regulated activities

Where an EMP proposes to use alternative regulated activities that are not described in this Code, then the interest holder must:

(a) clearly describe the alternative regulated activity and associated environmental aspects and environmental risk sources,

(b) complete a full assessment of those activities in the assessment of environmental impacts and environmental risks component of their EMP,

(c) demonstrate that the environmental impacts and environmental risks of the activity will be reduced to a level that is ALARP and acceptable. Where the proposed regulated activity is similar to an activity in of this Code the ALARP and acceptable assessment must include a comparison to that activity, and

(d) establish and define measurement criteria that demonstrate the environmental performance standards or environmental outcomes are met and included in the implementation plan component of their EMP.

7.2. Alternative control measures

Where an EMP proposes to use an alternative control measure to a mandatory control measure in this Code, then the interest holder must:

(a) clearly describe the alternative control measure and the alternative environmental performance standard(s),

(b) clearly identify the relevant environmental outcome that the control measure will contribute to,

(c) clearly identify the environmental impacts and environmental risks that the alternative control measure mitigates,

(d) complete a full assessment of the effectiveness of the proposed alternative control measure in the assessment of environmental impacts and environmental risks component of the EMP,

(e) demonstrate that the alternative control measure will reduce the environmental impacts and environmental risks of the activity to a level that is as low as or lower than the mandatory control measure, and

(f) establish and define measurement criteria that demonstrate the alternative environmental performance standards or environmental outcomes are met and included in the implementation plan component of their EMP.

8. Management plans appended to the EMP

8.1. Process-Affected Water and Wastewater Management Plan

The interest holder must have a PAWWMP in an EMP where the regulated activities have environmental aspects and risk sources for which such a plan is a mandatory control measure. The PAWWMP must meet the requirements of this Code and any relevant guidelines published by the Department from time to time.

8.1.1. Purpose of the PAWWMP

The purpose of a PAWWMP is to describe how process-affected water and wastewater derived from the regulated activities of an EMP will be managed:

(a) to track water uses and volumes as part of the regulated activities to support safe storage, authorised reuse, treatment and disposal, and the identification of unexplained losses or releases,

(b) to minimise the total volumes of water used by the regulated activities and maximise the reuse or recycling of process-affected water, where safe, authorised and reasonably practicable, and

(c) minimise the final volume of wastewater and residual waste material requiring disposal.

The PAWWMP contributes to the achievement of the CEO-08, CEO-09, CEO-10, CEO-11 and CEO-16 environmental outcomes.

8.1.2. PAWWMP requirements

A PAWWMP must be developed by a suitably qualified person.

The PAWWMP must include, but not be limited to:

(a) identification of each water, process-affected water and wastewater stream expected to be generated, stored, transferred, treated, reused or disposed of during the lifecycle of the regulated activities of an EMP,

(b) the anticipated chemical composition of each process-affected water and wastewater stream, including an assessment of whether the stream is hazardous or has the potential to cause environmental harm,

(c) a description of the overall approach, including contingency measures, to managing water, process-affected water and wastewater throughout the lifecycle of the regulated activities of an EMP,

(d) demonstration of how the waste management hierarchy, as defined in section 27 of the EP Act, and any specific requirements mandated in this Code (section 6.2) have been applied to process-affected water and wastewater management,

(e) a description of how water, process-affected water and wastewater volumes, storage, transfers, treatment, reuse and disposal will be tracked to achieve the purpose defined in section 8.1.1,

(f) a description of the process-affected water and wastewater sampling program,

(g) the triggers for the review of the PAWWMP and the overall review process, and

(h) the information on record keeping, notification and reporting commitments.

The PAWWMP is not required to include a separate assessment of environmental impacts and environmental risks. Potential environmental impacts and environmental risk sources related to

process-affected water and wastewater use, storage, handling and disposal are managed directly through control measures in the EMP.

8.2. Spill Management Plan

A SMP must be included in an EMP where the regulated activities have environmental aspects and risk sources for which such a plan is a mandatory control measure. The SMP must meet the requirements of this Code and any relevant guidelines published by the Department from time to time.

8.2.1. Purpose of a SMP

The purpose of a SMP is to describe:

(a) the potential spill scenarios that may result from the regulated activities of an EMP,

(b) the potential consequences of these spill scenarios, and

(c) the measures to prevent, detect, respond to and remediate spills.

The SMP contributes to the achievement of the CEO-08, CEO-9, CEO-11, CEO-12, CEO-14, CEO-15 and CEO-16 environmental outcomes.

8.2.2. SMP requirements

A SMP must be commensurate with the scale and nature of the regulated activities of an EMP and must be developed by a suitably qualified person.

A SMP must include, but not be limited to:

(a) a description of the potential spill scenarios that may result from regulated activities and the potential consequences of each spill scenario, including impacts on environmental outcomes,

(b) the minimum volume and composition of spill fluid that may constitute a reportable incident under the SMP,

(c) a summary of the control measures and monitoring systems in place to prevent, detect and mitigate the extent and impact of the spill scenarios, and the associated environmental performance standards that demonstrate their effectiveness and readiness,

(d) a description of the organisational responsibilities for responding to spills,

(e) a description of spill scenarios and the trigger parameters that would require the development and implementation of a remediation plan,

(f) a description of action response procedures for spill scenarios, scaled to the severity and nature of the spill, including:

  i. immediate actions to contain and mitigate the extent and impact of spills, including implementation of control measures and notification and reporting requirements to the Department, and

  ii. follow-up actions to investigate the cause of any spill, assess residual impacts and implement a remediation plan,

(g) the trigger parameters and thresholds that would initiate the ECP, and

(h) information on incident documentation and record keeping (see section 6.3.1).

8.3. Emergency Contingency Plan

An ECP must be included in an EMP where the regulated activities have environmental aspects and risk sources for which such a plan is a mandatory control measure. The ECP must meet the requirements of this Code and any relevant guidelines published by the Department from time to time.

8.3.1. Purpose of an ECP

The purpose of an ECP is to describe:

(a) the potential environmental emergency scenarios that may result from or impact upon the regulated activities of an EMP,

(b) the potential consequences of these environmental emergency scenarios, and

(c) the response to an environmental emergency event.

8.3.2. ECP requirements

An ECP must be commensurate with the scale and nature of the regulated activities of an EMP and must be developed by a suitably qualified person.

An ECP must include, but not be limited to:

(a) the potential environmental emergency events (including extreme weather events) that have potential to result in significant environmental harm,

(b) response procedures for each identified environmental emergency event, including a framework for prioritising response actions to prevent or mitigate significant environmental harm,

(c) a description of how the ECP integrates with and complements other management plans required under this Code, including the PAWWMP and SMP,

(d) a description of the organisational responsibilities for responding to environmental emergency events,

(e) an exercise program and schedule for testing emergency response to the identified environmental emergency events,

(f) a communications strategy for engaging with stakeholders and regulatory authorities as applicable in relation to an environmental emergency event, and

(g) information on record keeping, notification and reporting commitments.

8.4. Groundwater Monitoring and Management Plan

An interest holder must develop a Groundwater Monitoring and Management Plan (GMMP) before conducting regulated activities on any production licence it holds and include this in an EMP. The GMMP must meet the requirements of this Code and any relevant guidelines published by the Department from time to time.

Implementation of an approved GMMP is mandatory for activities on a production licence. A GMMP may also be required for regulated activities on exploration permits and retention licences where the scale, duration, location, or groundwater risk profile of the activity warrants groundwater management. This determination must be informed by a conceptual hydrogeological model, current scientific knowledge and an assessment of potential impact pathways associated with the regulated activities of an EMP.

8.4.1. Purpose of a GMMP

The purpose of a GMMP is to describe:

(a) how groundwater will be monitored to provide an early warning system for detecting potential groundwater impacts from the regulated activities of an EMP,

(b) the site-specific assessment criteria, including trigger values and compliance thresholds, required to detect, assess and manage changes attributable to the regulated activities of an EMP, and

(c) the management response framework that will be implemented when trigger values are exceeded so that corrective actions are taken before environmental harm occurs.

The GMMP contributes to demonstrating whether the CEO-08, CEO-09 and CEO-10 environmental outcomes are met.

8.4.2. GMMP requirements

A GMMP must be developed by a suitably qualified person.

A GMMP must include, but not be limited to:

(a) an assessment of baseline groundwater data and other environmental datasets to inform the design of a groundwater monitoring network capable of detecting potential environmental impacts from the regulated activities of an EMP,

(b) a description of the groundwater monitoring network, including information on monitoring locations, parameters and indicators, and the frequency and duration of monitoring, with justification for their selection,

(c) the sampling, measurement and analysis methods to be used for the identified parameters and indicators, including contingency procedures in the event of monitoring failure,

(d) trigger values and thresholds, including their relationship to baseline conditions, natural variability and any applicable regulatory or licence requirements,

(e) the assessment methods for identifying observed changes attributable to the regulated activities of an EMP,

(f) a staged response framework that defines actions to be taken when monitoring indicates an exceedance, anomaly, or potential or actual environmental impact,

(g) a description of the relationship between the GMMP and the control measures included in the EMP that operate in addition to groundwater monitoring,

(h) procedures for reviewing or updating the GMMP and its trigger values,

(i) a description of the organisational responsibilities for implementing the GMMP, and

(j) information on record keeping, notification and reporting commitments.

The GMMP is not required to include a separate assessment of environmental impacts and environmental risks, as these can be addressed within the EMP.

8.5. Rehabilitation Plan

A Rehabilitation Plan must be included in an EMP where the regulated activities have environmental aspects and risk sources for which such a plan is a control measure. The Rehabilitation Plan must meet the requirements of this Code and any relevant guidelines published by the Department from time to time.

8.5.1. Purpose of a Rehabilitation Plan

The purpose of a Rehabilitation Plan is to describe:

(a) the intended environmental outcomes and post-disturbance land use objectives for areas impacted by the regulated activities of an EMP,

(b) the approach to implementing rehabilitation, including progressive rehabilitation where practicable, to achieve a functioning, safe, stable, non-polluting and self-sustaining state, and

(c) the framework for monitoring, assessing and managing rehabilitation performance.

The Rehabilitation Plan contributes to the achievement of the CEO-17 environmental outcome.

8.5.2. Rehabilitation Plan requirements

A Rehabilitation Plan must be developed by a suitably qualified person.

A Rehabilitation Plan must include, but not be limited to:

(a) specific and defined environmental outcomes for rehabilitation,

(b) the scope, objectives and spatial extent of rehabilitation for each disturbance type,

(c) a description of stakeholder, landholder and relevant authority consultation commitments relevant to rehabilitation (where applicable),

(d) the risks, constraints and dependencies that may affect achieving rehabilitation environmental outcomes and how those matters will be managed and controlled,

(e) rehabilitation performance standards and measurement criteria that demonstrate whether rehabilitation has achieved, or is progressing towards achieving, the rehabilitation environmental outcomes,

(f) the rehabilitation approach (methodology) including details on the phases and timing of rehabilitation activities,

(g) a description of whether progressive rehabilitation is proposed, including the conditions and triggers for commencing progressive rehabilitation, and how it will be implemented,

(h) a description of how rehabilitation progress will be assessed, including details on monitoring locations, frequency and the assessment methods,

(i) triggers for intervention and corresponding corrective actions, and

(j) details on how data collected as part of rehabilitation activities will be recorded and reported.

8.6. Residual Drilling Material Disposal Plan

A RDMDP must be included in an EMP where the regulated activities have environmental aspects and risk sources for which such a plan is a mandatory control measure. The RDMDP must meet the requirements of this Code and any relevant guidelines published by the Department from time to time.

8.6.1. Purpose of a RDMDP

The purpose of a RDMDP is to describe:

(a) how residual drilling material generated by the regulated activities of an EMP will be characterised, assessed and managed to determine its suitability for the proposed disposal method and disposal site, and

(b) how residual drilling material, or a component of the residual drilling material, generated by the regulated activities of an EMP will be removed from the land on which the regulated activities are being carried out or disposed of on that land.

The RDMDP contributes to the achievement of the CEO-16 environmental outcome, and where relevant, the CEO-07, CEO-09, CEO-11 and CEO-17 environmental outcomes.

8.6.2. RDMDP requirements

A RDMDP must be developed by a suitably qualified person.

A RDMDP must describe, but not be limited to:

(a) the likely volumes, composition, heterogeneity, and temporal and spatial distribution of residual drilling material and potential pollutants that will be generated by the regulated activities of an EMP,

(b) the sampling strategy, analysis requirements, and quality assurance and quality control procedures to determine the composition and pollutant concentrations (maximum and leachable) in the residual drilling material,

(c) the thresholds, acceptable criteria or other measures that demonstrate the residual drilling material is of acceptable quality for the proposed disposal method and the proposed disposal site,

(d) whether residual drilling material, or a component of the residual drilling material, will be removed from the land on which the regulated activities of an EMP are being carried out or disposed of on that land, including information on, as relevant:
   i. removal from the land: how the residual drilling material will be contained, stored, managed and tracked until it is transferred off the land on which the regulated activities are being carried out, or
   ii. disposal of on the land: the suitability of the proposed disposal site, having regard to the characteristics of the residual drilling material, the proposed disposal method and the relevant environmental outcomes and performance standards.

(e) the proposed residual drilling disposal method, including the disposal method design, operational requirements, implementation controls and performance standards, and information on:
   i. segregation of components of the residual drilling material,
   ii. treatment of the residual drilling material prior to disposal,
   iii. the mixing or blending of residual drilling material with another material,
   iv. any other processes on which the disposal method relies on (such as degradation, stabilisation, or attenuation of substances), and
   v. any validation or verification requirements by an independent suitably qualified person,

(f) a monitoring program to assess and verify the performance of the disposal method,

(g) the trigger parameters and thresholds for intervention, and the corresponding corrective actions,

(h) the risks, constraints and dependencies that may affect achievement of relevant environmental outcomes and performance standards, and how those matters will be managed and controlled, and

8.7. Facilities Air Emissions Monitoring Plan

A FAEMP must be included in an EMP for regulated activities that include fuel burning and combustion facilities that in isolation, or in combined operation, is or are capable of burning more than 500 GJ/day of

fuel. The FAEMP must meet the requirements of this Code and any relevant guidelines published by the Department from time to time.

8.7.1. Purpose of a FAEMP

The purpose of a FAEMP is to describe:

(a) the stationary fuel burning and combustion sources that are part of the regulated activities of an EMP,

(b) the potential emissions to air and associated air quality impacts attributable to these stationary fuel burning and combustion sources, and

(c) how these potential air quality impacts will be monitored, reviewed and reported.

The FAEMP contributes to the achievement of the CEO-14 environmental outcome and, where relevant, the CEO-13 and CEO-15 outcomes.

8.7.2. FAEMP requirements

The FAEMP must describe, but not be limited to:

(a) an inventory of each stationary emission source and release point, including:
    i. location,
    ii. description of the emissions source type,
    iii. stack or release point height, diameter, orientation, and exhaust temperature,
    iv. minimum and maximum efflux velocity or flow rate, and
    v. maximum emission rates for key air pollutants (as concentration and mass emission rate),

(b) the ambient air quality in the vicinity of sites with emissions sources,

(c) the potential significant air contaminants that may be produced through the operation of fuel burning or combustion facilities as part of the regulated activities of an EMP,

(d) the predicted maximum ground level concentrations of significant air contaminants at sensitive receptors that must not be exceeded through the operation of fuel burning and combustion facilities as part of the regulated activities of an EMP, including justification for the selected concentrations or the assessment criteria that takes into account background concentrations, sensitive receptors, the National Environment Protection (Ambient Air Quality) Measure and any relevant Department guidelines,

(e) results of air dispersion modelling of significant contaminants from point and relevant non-point sources that are conducted in accordance with the NT EPA Guidance for Modelling Dispersion of Air Pollutants in the NT,

(f) a monitoring program that:
    i. undertakes annual stack tests or equivalent for each release point:
        a. that is carried out when the emissions source is operating under maximum operating conditions,
        b. that measures the concentration at the point of discharge for each significant contaminant (in mg/m^3, dry gas at 0°C and 101.325 kPa),
        c. that determines the mass emission rates for each significant contaminant (in g/s), and

ii. monitors ambient air quality at sensitive receptors where modelled ground level concentrations of significant contaminants approach or exceed relevant assessment criteria or maximum ground level concentrations,

(g) that dispersion modelling must be updated whenever:
   i. annual stack test monitoring shows materially higher emission rates than those used in the most recently conducted modelling,
   ii. new emissions sources are added as part of the regulated activities of an EMP, or
   iii. existing emission sources are materially modified, removed or operated under different conditions, and

(h) records to be kept, including:
   i. results of the monitoring program,
   ii. changes to emissions sources and operating conditions, and
   iii. updates to air dispersion modelling of significant contaminants.

9. Supplementary Management Plans and requirements

An interest holder must have certified each SUPP required by this Code before conducting regulated activities on the relevant petroleum interest.

A SUPP must:

(a) meet the requirements of this Code,

(b) meet any applicable statutory requirements,

(c) meet any relevant guidance published by the Department from time to time, and

(d) be certified by an independent qualified person using a standard form available on the Department's website.

The SUPPs required by this Code are:

(a) Weed Management Plan, which must meet the requirements of the *Weeds Management Act 2001* (NT),

(b) Bushfire Management Plan, which must meet the requirements of the *Bushfires Management Act 2016* (NT), and

(c) Cultural Heritage Management Plan, which must be developed before conducting regulated activities on a production licence and may be developed for other types of petroleum interest, must meet the requirements of this Code and any relevant guidelines published by the Department.

Once a SUPP has been certified by an independent qualified person in accordance with this Code, and before commencing the regulated activity to which the plan applies, the interest holder must give a copy to the Minister.[35]

The Minister is required to publish any certified SUPP, certified revised SUPP or amended SUPP within 14 days of receiving it from an interest holder. The Department will publish on its website all current SUPPs.

It is an offence to carry out a regulated activity in a manner which contravenes a SUPP.[36]

9.1. Purpose of a SUPP

The requirement for SUPPs recognises that the potential introduction and spread of weeds, the alteration of bushfire regimes, and the disturbance or interference with cultural and heritage values are well-established and consistently occurring sources of environmental risk from onshore petroleum activities.

The purpose of a SUPP is to require interest holders to implement a consistent and regional approach to managing these risks, utilising well-established control methods. Independent certification allows SUPPs to be responsive management plans. SUPPs may also be used to meet other regulatory requirements.

All SUPPs must comply with the mandatory requirements set out in section 9.4, as well as, where applicable those of limited application listed in section 9.5.

[35] Regulation 28A(4) Environment Regulations.
[36] Reg 31(5A).

9.2. Relationship between SUPPs and EMPs

A compliant and implemented SUPP is the primary mandatory control measure for managing the environmental risks to which the SUPP relates.

An interest holder must ensure that each SUPP is consistent with the regulated activities, their environmental aspects, environmental impacts and environmental risk sources identified in EMPs on the relevant petroleum interest(s). This approach allows a consistent approach to managing environmental risks that avoids inconsistencies between multiple EMPs held by the same interest holder.

A SUPP does not need to include a separate risk assessment.

A single SUPP may be applied to multiple petroleum interests within the same region.[37]

Cultural Heritage Management Plans are the primary mandatory control measure for managing environmental risks associated with culture and heritage on a production licence and may also be used as a control measure for regulated activities conducted on other petroleum interests. Separate Cultural Heritage Management Plans may be developed for a single petroleum interest to align with other circumstances, such as where there are different native title holders or traditional Aboriginal owners for parts of a petroleum interest.

9.3. Amendment and revision of SUPPs

A SUPP must include a change log that records each amendment and revision made to the plan. A SUPP may be amended or revised during the period of any applicable EMP.

9.3.1. SUPP revision

A SUPP must be revised, within the timeframe agreed by the Department or published in guidelines from time to time, if:

(a) there is a material change to the extent, scale or types of regulated activities or their environmental aspects that is relevant to the SUPP,

(b) there is a material change to a statutory requirement relevant to the SUPP, or

(c) revision is reasonably requested by a person appointed as an inspector under the Petroleum Act.

A SUPP revision must:

(a) be re-certified by an independent qualified person, and

(b) be provided to the Minister, including the updated change log, before the revised SUPP can take effect.

Additionally, the SUPPs identified below must be revised, within timeframes agreed by the Department or, where applicable, by an authorised person, if the specific circumstances set out are met:

(a) a Weed Management Plan must be revised when:

  i. previously undetected weed species are identified within the petroleum interest or adjacent region, or

  ii. revision is reasonably requested by an authorised person under the *Weeds Management Act 2001* (NT),

(b) a Bushfire Management Plan must be revised when:

[37] Northern Territory Government Regions place names.

i. there is a material change to bushfire risk, including fire history, fuel loads, fire management arrangements or neighbouring land use, or
ii. revision is reasonably requested by an authorised person under the *Bushfires Management Act 2016* (NT), and

(c) a Cultural Heritage Management Plan must be revised when:
i. there are significant changes to knowledge of cultural and heritage values within the petroleum interest, or
ii. there are changes to statutory requirements related to cultural and heritage management.

9.3.2. SUPP amendment

A SUPP may be amended without revision so long as the amendment(s) do not trigger the revision criteria set out in section 9.3.1. An amended SUPP must:

(a) have the amendment recorded in the change log, and

(b) together with the change log, be provided to the Minister before the amendment takes effect.

9.4. Mandatory requirements for all SUPPs

A compliant SUPP must include:

(a) context for the plan, including:
i. a list of the types of regulated activities, their environmental aspects and environmental risk sources relevant to the plan,
ii. the areas to which the plan applies and spatial information,
iii. baseline information relevant to the plan, and
iv. identification of stakeholders,

(b) control measures that address:
i. the key environmental risk sources identified in this Code that identify the relevant SUPP as a mandatory control measure, and
ii. any other risk sources related to the relevant SUPP identified by the interest holder in a related EMP, and

(c) the interest holder's record keeping, notification and reporting commitments under the plan.

In addition:

(d) a Weed Management Plan must include:
i. baseline weed information, and
ii. details of the interest holder's dedicated weed officer and how their role relates to the interest holder's roles and responsibilities for environmental management,

(e) a Bushfire Management Plan must include baseline fire regime information, and

(f) a Cultural Heritage Management Plan must include:
i. the results of any archaeological survey of the petroleum interest, including where no Cultural Heritage Management Plan is already in place,
ii. a summary of consultation with stakeholders on the Cultural Heritage Management Plan,
iii. summary information for other arrangements that are in place related to culture and heritage, and their role in mitigating harm to culture and heritage, including but not limited to Authority Certificates and land use agreements,

iv. where other arrangements are in place related to culture and heritage, those arrangements may be presented as control measures, and

v. where appropriate, confidential and sensitive information may be redacted.

9.5. Mandatory requirements specific to limited SUPPs

In addition to those requirements set out above in section 9.4 which apply to all SUPPs, the following mandatory requirements apply to those SUPPs as set out:

(a) a Weed Management Plan must address the potential introduction and spread of weeds and contribute to the achievement of the CEO-01 environmental outcome,

(b) a Bushfire Management Plan must address the potential alteration of bushfire regimes and contribute to the achievement of the CEO-03 environmental outcome, and

(c) a Cultural Heritage Management Plan must address the potential disturbance or interference with places and objects of heritage significance and sacred sites and contribute to the achievement of the CEO-06 environmental outcome.

Noting, in relation to the requirements for a Cultural Heritage Management Plan, that interest holders have a separate responsibility to develop an unexpected finds protocol (CMC-102 and CMC-163), and that the Department recognises that some aspects of culture and heritage are subject to other arrangements between interest holders and Aboriginal people, and that some of these agreements may be confidential.

Annex A. Site selection

The siting of regulated activities must meet the site selection requirements of this Code and any relevant guidelines published by the Department from time to time. The siting requirements must address:

(a) legislated restrictions,
(b) proximity to sensitive receptors,
(c) interaction of regulated activities with waterways,
(d) cultural heritage,
(e) ecological values,
(f) significant species,
(g) invasive species,
(h) fire,
(i) land suitability,
(j) visual amenity, and
(k) operational requirements.

Throughout the site selection process interest holders are expected to identify and assess environmental risks early in project planning and prioritise avoidance of impacts (or ALARP and acceptable in the alternate) through site selection and design.

A.1. EMP requirements

A.1.1. Site selection environmental outcomes

The site selection criteria contribute to the achievement of environmental outcomes CEO-04, CEO-05, CEO-06 and CEO-13. Site selection may also contribute to achieving other environmental outcomes.

A.1.2. Site selection spatial constraints framework

An EMP must describe the interest holder's spatial constraints framework covering the regulated activity site. The spatial constraints framework must:

(a) apply the constraint categories listed in section A.2 as a minimum,
(b) define any constraints on the conduct of activities to allow them to occur within a particular constraint category area,
(c) be commensurate with the type and scale of the regulated activities of an EMP,
(d) provide the rationale and hierarchy used to determine the constraint category of areas within the regulated activity site, which address the site values identified in guidance published by the Department from time to time, and:
    i. achieves the environmental outcomes listed in section A.1.1,
    ii. minimises the overall area of disturbance as far as reasonably practicable,
    iii. maximises the use or re-use of already disturbed land as far as reasonably practicable, and
    iv. minimises fragmentation of habitat as far as reasonably practicable,
(e) provide for the mapping of the constraint category areas within the regulated activity site that meets the requirements of section A.1.3,

(f) provide a process for review and amendment of constraint category areas based on:
  i. changes to the regulated activity area or regulated activity site,
  ii. revisions to datasets used to define constraint categories,
  iii. changes to listing status of threatened species relevant to the regulated activities of an EMP,
  iv. on-the-ground surveys to verify or augment existing data,
  v. additional assessments of environmental values, and
  vi. as required to meet commitments within the EMP or requirements of this Code,

(g) allow for the demonstration that the regulated activities of an EMP have been conducted in accordance with the restrictions on regulated activities described in section A.2, the interest holder's spatial constraints framework, commitments within the EMP and requirements of this Code, and

(h) be implemented from the commencement of regulated activities while the EMP remains in force.

A.1.3. Mapping and spatial data requirements

The interest holder must submit the map(s) of the constraint categories, the spatial data used to determine the constraint categories, and any as-constructed map, in the digital format specified by the Department from time to time.

A.2. Constraint categories

The constraint categories define the types of activities that may be conducted in an area. Additional constraints may be placed on the conduct of activities to allow them to occur within a particular constraint category area.

A.2.1. No-go (avoidance) areas

No regulated activities permitted except for low impact petroleum activities where they are essential for monitoring the condition of the area.

A.2.2. High constraint areas

No regulated activities permitted except for low impact petroleum activities and essential petroleum activities where:

(a) they are linear infrastructure,

(b) their location in a high constraint area is unavoidable given other constraints,

(c) the area of disturbance within high constraint areas is minimised to be ALARP and acceptable,

(d) impacts within high constraint areas are mitigated to be ALARP and acceptable, and

(e) disturbed areas are remediated and rehabilitated to support long term recovery as soon as reasonably practicable.

A.2.3. Essential constraint areas

No regulated activities permitted except for essential petroleum activities where:

(a) their location in an essential constraint area is unavoidable given other constraints,

(b) the area of disturbance within essential constraint areas is minimised to be ALARP and acceptable,

(c) impacts within essential constraint areas are mitigated to be ALARP and acceptable, and

(d) disturbed areas are remediated and rehabilitated to support long term recovery as soon as reasonably practicable.

A.2.4. Standard constraint areas

All regulated activities permitted so long as:

(a) the area of disturbance is minimised to be ALARP and acceptable,

(b) impacts are mitigated to be ALARP and acceptable, and

(c) disturbed areas are remediated and rehabilitated to support long term recovery as soon as reasonably practicable.

A.2.5. Pending assessment areas

No regulated activities permitted except for low impact petroleum activities where they are essential for assessment of the area.

A.2.6. Conditional constraints categories

The constraint categories for an area are conditional, pending:

(a) the grant of an Authority Certificate in relation to the land on which the activity will be carried out, in which case no regulated activities are permitted, or

(b) the collection of further information or assessments, in which case the constraints of section A.2.5 apply.

A.2.7. Legislated requirements

Regulated activities are not permissible in areas prohibited under NT legislation or policy. The interest holder is responsible for determining what legislation and policies apply to their activities. Such areas may include the following:

(a) petroleum reserved block as outlined in section 9 of the Petroleum Act,

(b) all gazetted towns with a 2km buffer, the Katherine municipality and the Alice Springs municipality,

(c) a Commonwealth reserve as defined in section 528 of the EPBC Act,

(d) an area within the National Park under the *Nitmiluk (Katherine Gorge) National Park Act 1989* (NT),

(e) a sanctuary or marine park defined in section 3 of the *Coburg Peninsula Aboriginal Land, Sanctuary and Marine Park Act 1981* (NT),

(f) a protected environmental area under the EP Act where petroleum activity is prohibited,

(g) an area where petroleum activity is prohibited under the EP Act (NT),

(h) an area of land declared to be a park or reserve under either section 9(4), section 12 or section 24 of the *Territory Parks and Wildlife Conservation Act 1976* (Northern Territory) (TPWC Act),

(i) an area of land managed under either section 73 or section 74 of the TPWC Act,

(j) an area declared as “essential habitat” under section 37 of the TPWC Act,

(k) land held by the Conservation Land Corporation, or

(l) an area where operations are not permitted according to the following sections of the Petroleum Act, unless subject to a relevant exemption:

  i. 109 Operations near residents or other areas,

  ii. 110 Operations near cemetery,

  iii. 111 Construction near habitable building, or

  iv. 112 Construction of well or well pad near designated bore.

Annex B. Significant species

B.1. Significant species identification and assessment

Significant species of flora and fauna and that potentially occur in the regulated activity site for an EMP must be identified and assessed through a desktop assessment that:

(a) determines the likelihood of significant species and their habitat being present in the regulated activity site,

(b) incorporates relevant datasets held by the NT and Commonwealth governments,

(c) determines the likelihood of an association between species and specific:
   i. locations,
   ii. landscape features, and
   iii. vegetation or ecological communities,

(d) identifies potential impacts on threatened species and assesses whether those impacts are likely to be significant, having regard to the Australian Government Significant Impact Guidelines 1.1, as updated from time to time,

(e) evaluates the level of certainty in the knowledge and the assessment of significant impacts for significant species, and identifies whether significant species management protocols are required, and

(f) is conducted by a suitably qualified person and according to any guidelines published by the Department.

B.2. Significant species management protocol

The interest holder must:

(a) implement the Department's significant species management protocol, where published, for any significant fauna or flora species that is confirmed likely to be present within the footprint of the regulated activities of an EMP, as identified by the Department, or

(b) develop and implement a significant species management protocol for each significant species identified that is confirmed or likely to be present in the regulated activity site. The significant species management protocols must meet the requirements of any guidelines published by the Department.

B.2.1. Species surveys

B.2.1.1. Species survey requirements

Significant species management protocols must have a description of on the ground survey requirements for the species, demonstrating:

(a) whether targeted surveys to determine the presence of the species or important habitat for the species in the regulated activity site are required, and

(b) whether pre-clearing surveys are required to prevent or minimise impacts on populations of the species or important habitat for the species.

B.2.1.2. Survey methods

Significant species management protocols must have a description of the methods that will be used to conduct on the ground surveys for the species that details:

(a) the survey technique or mode of survey,

(b) the spatial survey design,

(c) the temporal requirements:
   i. seasonal, and
   ii. frequency and duration, and

(d) the justification for the selection of the survey methods demonstrating that they are the most suitable methods for the species based on its ecology and life history.

B.2.2. Control measures to prevent or minimise impacts on species

Significant species management protocols must describe the control measures that will be established to prevent or minimise impacts on species and their habitat. Where prevention is not reasonably practicable, the control measures must establish:

(a) pre-clearing or pre-disturbance survey requirements,

(b) locations, with exclusion zones or buffer zones, of known or likely occurrences of the species that must be avoided based on their conservation significance (e.g. nests, or important congregations),

(c) locations or areas, with exclusion zones or buffer zones, to important or critical habitat for the species that must be avoided based on their conservation significance (e.g. breeding or foraging habitat),

(d) constraints on activities, including:
   i. maximum allowable disturbance to important or critical habitat areas for the species (breeding or foraging habitat),
   ii. temporal limitations on activities, and
   iii. other controls to prevent impacts on the species through interaction with regulated activities, including controls related to artificial water sources, light or noise disturbance, road crossings, open trenches, pits, sumps, tanks, fencing or other hazards,

(e) ongoing monitoring, survey, reporting and corrective action requirements, and

(f) adaptive management requirements to review and update controls where monitoring indicate that controls are not effective.

Annex C. Open storage structure and sump allowances

C.1. Design storage allowances

The DSA for a storage structure or sump that is open to rainfall must be either at the prescribed levels (section C.1.1) or determined in accordance with a calculation of the DSA using the prescribed method (section C.1.2).

C.1.1. Prescribed design storage allowances

The prescribed level for DSA is to be determined utilising the rainfall levels published by the Department.

C.1.2. Design storage allowance calculation method

The DSA must minimise the risk of contaminants being released from the storage structure or sump due to overtopping during a high rainfall event:

(a) the DSA for a storage structure or sump must provide sufficient capacity based on, at the 1st of October, the 90-day 1 in 1000 Annual Exceedance Probability (AEP) design rainfalls for the location of the storage structure or sump, and

(b) the DSA must:
   i. be determined by a suitably qualified person,
   ii. take into account the availability of rainfall data in close proximity to the storage structure or sump location and apply an appropriate error margin, and
   iii. take into account losses due to evaporation.

C.2. Mandatory reporting level

The MRL for a storage structure or sump is determined from the extreme storm storage allowance for that storage structure or sump. The MRL is the level at which the storage structure or sump has a remaining available volume equivalent to the extreme storm storage allowance for a storage structure or sump that is open to rainfall. The MRL must be determined in accordance with a calculation of the extreme storm storage allowance using the prescribed method (section C.2.1).

C.2.1. Extreme storm storage allowance calculation method

The extreme storm storage allowance capacity for a storage structure or sump must provide sufficient capacity based on the 7-day 1 in 1000 AEP design rainfalls for the location of the storage structure or sump.

The extreme storm storage capacity must:

(a) be determined by a suitably qualified person, and

(b) take into account the availability of rainfall data in close proximity to the storage structure or sump location and apply an appropriate error margin.