

Schedule of Onshore Petroleum Exploration and Production Requirements

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Schedule of Onshore Petroleum Exploration and Production Requirements

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PART I - INTRODUCTORY

101 Applicability of the direction implementing this Schedule

Notwithstanding anything to the contrary in this Schedule, the direction implementing this Schedule applies only to or in relation to acts, omissions, matters, circumstances or things touching, concerning, arising out of or connected with the exploration or exploitation of the soil and subsoil for petroleum.

102 Exemptions

(1) Where the Minister is satisfied that:

- (a) compliance with a requirement of this Schedule in a particular case is unnecessary, impracticable or undesirable; and
 - (b) alternative action that is at least as safe will be taken and that in the particular circumstances it is appropriate,
- the Minister may exempt any person or class of persons from the duty to comply with the particular requirement subject to such conditions as the Minister thinks applicable.

(2) Where:

- (a) a person contravenes or fails to comply with a condition of an exemption; or
 - (b) the Minister is satisfied that the circumstances under which an exemption was granted have altered,
- the Minister may revoke the exemption (either as it applies to a particular person, or generally) in writing at any time.

103 Independent validation and verification

The construction, alteration or reconstruction of drilling and production equipment, wells, safety systems and emergency facilities shall not be undertaken without approval and, where required by the Minister, validation and or verification by an independent validator.

104 Definitions

In this Schedule, unless inconsistent with the context or subject matter:

- **abandon**, means to decommission, that is to permanently plug and abandon a well as per the requirements of the Code
- **the Act**, means the Northern Territory *Petroleum Act, 1984*, as amended, or the *Petroleum (Prospecting and Mining) Act* as the context requires
- **API**, means a code, bulletin, recommended practice, specification, or standard published by the American Petroleum Institute or equivalent international standard accepted by the Minister
- **Accept or accepted**, means accepted by the Minister

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- **approval or approved**, means the approval of or approved by the Minister
- **ASEG-GDF**, means Australian Society of Exploration Geophysicists General Data Format
- **appraisal well**, means a well drilled principally to define more accurately the extent or nature of a previously discovered oil or gas accumulation
- **Australian Standard (or AS)**, means a standard published by the Standards Association of Australia
- **basic data**, includes all data acquired in the field or laboratory including physical and chemical measurements conducted as part of the analysis of fluid or core and cutting samples
- **blooey line**, in relation to air or gas drilling, means a system of pipes arranged to carry away from the drilling rig any air or gas that has returned to the surface
- **blowout preventer**, means a device attached immediately above the casing, which can be closed to shut in the well
- **circulation**, means the passing of fluid down the drill pipe, casing or tubing in a well and back up to the surface, or the passing of fluid in the reverse direction
- **Code**, means Code of Practice: Onshore Petroleum Activities in the Northern Territory
- **completion**, means a flowpath in a well that allows the production of fluids from a discrete formation interval through the well, or the injection of fluids into a discrete formation interval through the well, and includes the necessary sub-surface equipment independent of other flowpaths in the well
- **conductor casing string**, means a pipe installed to cover unconsolidated surface formations, and which may provide a means for return of drilling fluid from the well before the surface casing is installed
- **contractor**, means a person engaged to perform work for an Operator under contract (not being a contract of employment)
- **cubic metre**, in relation to gas or liquid, means the amount of gas or liquid in a cubic metre of space at standard conditions of 101.325 kilopascals absolute pressure (14.7 psia) and 15 °C (60 °F) temperature
- **decommission**, means to permanently plug and abandon a well in accordance with the requirements of the Code
- **department**, means Department of Primary Industry and Resources
- **depth**, is true vertical depth unless otherwise indicated
- **development well**, means a well that is drilled within the expected limits or boundaries of a petroleum accumulation and that is drilled principally to produce, or to facilitate the production of, the petroleum reserves from that accumulation
- **diverter**, means device attached to the wellhead to close the vertical flow path and direct well flow away from the drill-floor and drilling rig
- **drilling rig**, means the equipment used in connection with rotary or other drilling, including a workover or well service rig, but does not include a seismic shot hole drilling rig
- **drilling operations**, means the making of wells by means of rotary or other drilling
- **enhanced recovery**, means increasing the recovery of petroleum from a reservoir so that it produces a quantity greater than the quantity that would have been achieved by the action of natural reservoir energy on the naturally occurring reservoir fluids, but does not include fracture stimulation, localised wash treatments, or artificial lift

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- **exploration well**, means a new field wildcat well drilled with a view to discovering a new oil or gas accumulation, or to obtaining stratigraphic information that may assist in the discovery of a new oil or gas accumulation
- **fluid**, in relation to production, means petroleum or a mixture of petroleum and water
- **gas oil ratio**, means the ratio of total gas (expressed in standard cubic metres) to clean oil (expressed in standard cubic metres) produced during a stated period
- **geophysical survey/surveying**, means geophysical investigation by any generally recognized method including seismic, gravimetric, magnetic, electrical, geochemical, or radioactive methods, but excludes operations conducted wholly or partly within a well
- **In force**, in relation to a well operations management plan (including any accepted revisions), means that:
 - The plan has been accepted
 - The acceptance of the plan has not been withdrawn
 - The operation of the plan has not ended
- **independent validator**, in relation to a validation or verification, means a person who has the necessary competence and ability, and access to data, in relation to the matters being validated or verified, to arrive at an independent opinion on the matters
- **inspector**, means a person appointed as an Inspector under the Act
- **interest holder**, means a person holding a petroleum interest for the activity
- **intermediate casing string**, means a pipe installed in a well after the surface casing string to seal off unconsolidated formations, lost circulation zones, abnormal pressure zones and/or hydrocarbon zones
- **interpretative information** means a conclusion or opinion based wholly or partly on basic data analysis or other documentary information
- **installation**, means a drilling or a production installation or a related construction site or camp site
- **liner string**, means a pipe which is an intermediate or production casing string but does not extend to the wellhead
- **Minister**, means the Minister that is administering the *Petroleum Act*
- **multiple completion well**, means a well that has more than one completion
- **notified**, means the sending of a written notice to the Minister, unless otherwise specified
- **operation** or **petroleum operation**, means any activity relating to exploration for, or the production, processing or transportation of, petroleum
- **Operator**, means the representative of the interest holders appointed in accordance with Clause 108
- **person-in-charge**, a person appointed by an Operator to provide onsite management and control of any specified operation
- **plant**, includes:
 - (a) any machinery, equipment, vehicle, implement, tool or article used in, or in connection with, an operation;
 - (b) any tank, vessel, pit or dump used in, or in connection with, an operation;
 - (c) any pipeline, but excludes a pipeline under the *Energy Pipelines Act*.
- **production casing string**, means a pipe installed in a well to isolate one or more zones for testing or production purposes

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- **production equipment** means equipment for flow regulation or measurement, for sampling or storage of fluid from a well, or for separation of fluid components
- **production facility/installation**, means a system (other than a short term or temporary system) made up of plant (other than pipelines) that is used in a production, processing or transportation operation, or in an operation to treat or dispose of waste materials that result from petroleum production
- **production test**, means an operation (other than formation fluid sampling into a container positioned by a wireline operation) carried out on a well to recover reservoir fluids for or in connection with estimating well productivity
- **quarter**, means any three calendar month period commencing on 1 January, 1 April, 1 July or 1 October in any year
- **regulated well activity**, includes but is not limited to; the drilling and well construction of exploration, appraisal or development well(s), re-entering an existing well for the operation, modification, special services, decommissioning of that well or any other purpose.
- **reservoir**, means any subsurface formation or geological sequence containing a petroleum pool
- **reservoir measurements**, means measurements of reservoir pressure, temperature, fluid characteristics and movement of fluids or fluid interfaces within a reservoir
- **reservoir pressure**, means the static or stabilized pressure that exists, or that is inferred to exist, in a reservoir at a given datum
- **separator**, means an apparatus used at the surface to separate fluids produced from a well
- **special services**, includes logging, perforating, testing, cementing or portable laboratory services, power-tong services, wireline services, coiled tubing operations, acidizing, fracturing, artificial lift or similar services carried out at a well location.
- **validation**, means:
 - (1) a statement in writing from an independent validator verifying that:
 - (a) the plan, design, construction and or installation of petroleum wells or facilities is suitable for the purposes for which they are intended; and that
 - (b) the plan, design, construction and or installation complies with relevant codes, standards and specifications; and that
 - (c) the plan, design, construction and or installation meets the criteria as may be required by the Minister from time to time.
 - (2) a validation must cover the full scope of the activity for which approval is sought in accordance with this Schedule.
- **verification**, means a statement in writing from an independent validator verifying that the construction and or installation of petroleum wells or facilities is performed in accordance with approved plans, codes and standards and passed all tests necessary to verify the suitability for the purposes for which they are intended
- **wellhead**, means the casing head and includes any casing hanger or spool, or tubing hanger, and any flow control equipment up to and including the wing valves
- **well control manual**, means a well control manual, handbook and or procedures in force for well control during well construction operations as approved by the interest holder
- **well logging**, means recording one or more physical properties, formation characteristics or reservoir measurements as a function of depth of a well
- **workover**, means any operation carried out on a well in order to improve productivity or remedy a down hole mechanical defect, including but not limited

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to recovering tubing, (re-)perforating, (re-)completing, stimulating, or in any way altering the down hole configuration of the well

105 Codes, standards and specifications

- (1) Reference in this Schedule to a code, standard or specification, unless inconsistent with the context or subject matter, is a reference to the latest issued edition of that code, standard or specification.
- (2) Where a document, standard, rule, code or specification adopted by this Schedule, whether in part or in whole, refers to another document, standard, rule, code or specification that document, standard, rule, code or specification shall be deemed to be incorporated with, and form part of, the document, standard, rule, code or specification.
- (3) Where a document, standard, rule, code or specification adopted by this Schedule is inconsistent with this Schedule, this Schedule shall prevail, unless otherwise specified, in writing, by the Minister.
- (4) Compliance with the Code of Practice: Onshore Petroleum Activities in the Northern Territory (the **Code**) is mandatory.

106 Personnel competence

- (1) A person carrying out an operation shall have any certificate of competence, authorization or qualification required by the Minister.
- (2) The Minister may at any time require that evidence be furnished to enable the Minister to determine whether a person is competent to be engaged in a particular operation.

107 Tests

Except where otherwise specified in this Schedule any test required under this Schedule shall be carried out in such a manner as will enable the results to be recorded and certified:

- (1) in an endorsed document within the meaning of the By-laws of the National Association of Testing Authorities, Australia; or
- (2) where the test is not a test in respect of which an endorsed document of the kind referred to in Sub-Clause (1) can be given, to the satisfaction of the Minister; or
- (3) where the test is a test in respect of which an endorsed document of the kind referred to in Sub-Clause (1) can be given but for practical reasons acceptable to the Minister the requirement for such endorsement has been waived, to the satisfaction of the Minister.

108

General duties and responsibilities of interest holders, operators and contractors

- (1) Operations shall be carried out under the overall management and control of an Operator, appointed in writing by the interest holder(s). No appointment or replacement of an Operator shall be effective until the Minister is notified.
- (3) Subject to this Schedule:
 - (a) it is the duty of an interest holder, Operator and any contractor to ensure compliance with these requirements and any other requirements as the Minister sees fit; and
 - (b) in the event of a contravention, or failure to comply with a provision, of these requirements, the interest holder, Operator and contractor may all be liable for an offence.
- (3) In addition to the operation of Sub-Clause (1), if a requirement provides that a particular person shall perform or discharge a function or duty under the requirement, that person is guilty of an offence if the person contravenes, or fails to comply with the requirement.
- (4) Subject to any express provision in a particular requirement:
 - (a) the Operator shall provide, install and maintain such plant as is necessary to enable compliance with this Schedule; and
 - (b) where a contractor has been engaged to perform particular work, the contractor shall also, in relation to the performance of that work, provide, install and maintain such plant as is necessary to ensure compliance with this Schedule.
- (5) It is a defence to a charge for an offence against this Schedule for the accused to prove:
 - (a) that the offence relates to a matter which the accused did not know and could not reasonably have been expected to have known; or
 - (b) that it was not reasonably practicable for the accused to comply with the relevant direction in the circumstances of the particular case; and
 - (c) that the accused took alternative action that was at least as safe and effective as the terms of the relevant requirement.

109

Inspectors

- (1) Where an Inspector considers:
 - (a) that the integrity of any operating system, well, pipeline or facility has been, or is in danger of being, compromised; or
 - (b) that work being carried out:
 - (i) is contravening a provision of the Act, these requirements, or any additional conditions imposed by the Minister; or

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- (ii) is compromising, or may compromise, the integrity of an operating system; or
- (iii) is not in accordance with good oilfield practice,

the Inspector may, by a notice in writing, refer the matter to the relevant Operator.

- (2) The notice shall specify a day by which the Operator shall report to an Inspector on the action taken in relation to the notice.
- (2) An Inspector may:
 - (a) direct that no further work be carried out until the matter referred to in the notice is remedied;
 - (b) give directions as to the measures to be taken to remedy the matter referred to in the notice, which directions may include:
 - (i) that plant be repaired or replaced;
 - (ii) that any part of the environment be restored or rehabilitated;
 - (iii) that a particular work practice be altered or discontinued.
- (4) An Operator shall not contravene, or fail to comply with, a notice given under this requirement.
- (5) An Operator shall not re-commence operations without approval.

110 Operations near, or interference with, public utilities

- (1) An operation shall not be carried out in a manner that interferes with a road, railway or pipeline, a telephone or power line or cable, a radio or television mast, or any other form of public utility or facility.
- (2) When an operation is to be carried out on a track ordinarily used by the public, or in the vicinity of an inhabited area, the Operator shall give written notice to any council, or land owner, in whose area the road, track or inhabited area is situated.

111 Resolution of conflict with other requirements

- (1) Where requirements within this Schedule conflict with statutory requirements administered by NT WorkSafe the conflict shall be resolved as follows:
 - (a) where the NT WorkSafe requirements are the more stringent the Operator shall follow those requirements; but
 - (b) where the NT WorkSafe requirements are the less stringent the Operator shall consult with the Department and with NT WorkSafe for their collaborative determination of the course to be followed.
- (2) The requirements of this Schedule are separate to and distinct from those in the Petroleum (Environment) Regulations. If applicable and to the extent applicable, all requirements of this Schedule must be incorporated into an environment management plan under the Petroleum (Environment) Regulations.

112 Application to Territory waters

- (1) These requirements extend, with such modifications as may be necessary, to petroleum operations in submerged lands within the limits of the Territory.
- (2) Where an operation is carried out in an area referred to in sub-Clause (1), these requirements will be taken to include, with such modifications as may be determined by the Minister, the requirements of the *Petroleum (Submerged Lands) Act*.

PART II - SAFETY & SYSTEM INTEGRITY

Division 1 - General Requirements

201 General duty of care

An Operator and any contractor shall minimize the risk to health, safety, the environment and system integrity in respect to an operation, so far as is reasonably practicable by:

- (1) providing and maintaining:
 - (a) a safe working environment;
 - (b) safe systems of work;
 - (c) plant and substances in a safe condition;
 - (d) environment protection.
- (2) providing to any person carrying out work as part of that operation such information, instruction and training as are reasonably necessary to ensure that the person is safe from injury or risk to health.
- (3) complying with all occupational health and safety requirements of NT WorkSafe and the legislation it administers.
- (4) complying with a current environment management plan in accordance with the Petroleum (Environment) Regulations for regulated activities and avoiding or minimising and rectifying any adverse impact on the environment for non-regulated activities under the Petroleum (Environment) Regulations.

202 Safety management plan

- (1) Operations shall not be carried out unless subject to and in accordance with an accepted safety management plan.
- (2) In the event of any conflict or inconsistency between an approved safety management plan and the requirements of this Schedule, the Schedule shall prevail.

203 Emergency response plans

- (1) Operations shall not be carried out unless there are approved Emergency Response Plans that set out procedures to be followed, actions to be taken and personnel responsibilities during reasonably foreseen emergencies.
- (2) All facilities must be fitted with a remote emergency shutdown device.

204 Updating of plans

Emergency Response Plans and Operational Plans shall be updated as required by changed circumstances, as required by this Schedule, or as required by the Minister, and any update of the plans shall be submitted to the Minister for approval.

205 Availability of plans, procedures and directions

Emergency Response Plans and Operational Plans and all relevant Procedures and Directions shall be readily available at each installation, and all persons at an installation shall be made aware of them.

206 Instruction of personnel

- (1) All documentation referred to in Clause 205 shall be drawn to the attention of every person on or before the date on which that person commences to be engaged in operations in the petroleum interest area, and each such person shall be advised to comply with them.
- (2) Any amendments to the documents referred to in Clause 205 shall be drawn immediately to the attention of every person engaged in or concerned with operations in the petroleum interest area and each such person will be advised to comply with them.
- (3) On entering the work place for the first time each person shall be required to sign an acknowledgement that the documents referred to in Clause 205, and the Schedule of Requirements (and any amendments thereto) have been drawn to their attention and that they have been advised to comply with them.
- (4) Records of all acknowledgements shall be held by the Operator for a period of not less than 5 years and made available to an Inspector.

207 Admittance to an operational site

A person who is not engaged in or directly concerned with the carrying on of operations or the execution of works shall not be admitted to an installation without approval by the person-in-charge and, where such approval has been granted, that person shall be given all necessary instructions required by All documentation referred to in Clause 205 referred to in Clause 205 and all relevant Directions on or before the arrival at the site.

208 Person-in-charge

- (1) The name of the person-in-charge of any operation shall be clearly displayed on the site of that operation.
- (2) The person-in-charge shall ensure to the best of his/her ability that all personnel in his charge know and comply with all relevant requirements and safety procedures applicable to the operations under his control.

209 Communication

- (1) Radio or telephone communication facilities shall be maintained at each main operational location, main tank farm, main pumping station and main compressor station and shall also be available in connection with any well drilling, or servicing operations.
- (2) All communication equipment shall be maintained in good working condition.

210 Command of English

A person shall not be engaged, whether as employee, agent or contractor, in carrying out of operations, unless they have a command of English sufficient to enable them to readily understand written and spoken directions in English on matters which may affect safety.

211 Radioactive substances

- (1) The Minister shall be informed, in writing, whenever it is proposed to use any radioactive material, other than in routine well logging or non-destructive testing.
- (2) A person engaged in the handling of, or the use of, radiation apparatus or radio-active substances shall comply with the requirements of all applicable radiation control legislation.
- (3) All reasonable precautions shall be taken at production facilities or at any other location where a build-up of naturally occurring radioactive materials may be present.

212 Emergency drill exercises

All persons at an installation shall participate in emergency drill exercises, at a frequency specified in the approved emergency response plan(s), under the control of the designated person in charge and a record shall be kept of such drills.

213 Debris constituting a fire hazard

- (1) Any rubbish, debris or oil refuse that could constitute a fire hazard shall be removed or drained to a safe distance of not less than 45 metres away from all buildings, installations, wells and production facilities.

- (2) The rubbish, debris or oil refuse shall then be disposed of in a proper manner that is consistent with the approved environment management plan for the operation.

214 Flares, flare pits and flare lines

- (1) A flare pit or the end of a flare line shall not be located within 45 metres of a well, separator, below-ground pipeline, storage tank or temporary production facility, or within 45 metres of an unprotected source of flammable vapour.
- (2) A flare pit or the end of a flare line shall not be located within 100 metres of an established road, railway, above ground pipeline or building.
- (3) An access road shall not be sited within 25 metres of a flare pit or the end of a flare line.
- (4) A flare line shall be safely secured and of an appropriate rating for the operating conditions.
- (5) All permanent flare installations shall be fenced off and an approved method, acceptable to an Inspector, shall be provided to ignite the flare.
- (6) A flare pit shall be sited and constructed so as not to create a hazard to property or natural vegetation.
- (7) Proper supervision and firefighting equipment and materials shall be available to meet an emergency during flaring operations.
- (8) Where a flare could be extinguished during production or testing operations, provision shall be made for relighting the flare by a device acceptable to an Inspector.

215 Fuel tanks

All reasonable precautions shall be taken to ensure that any leakage or spillage from any fuel storage tank will be adequately contained to prevent any damage to the immediate environment.

216 Temporary cessation of any operation

- (1) Prior to, or immediately following, the cessation or temporary shutdown of any drilling, workover or production operation, each well and all plant shall be made safe in accordance with good oilfield practice; and
- (2) The Operator shall keep the Minister informed about the cessation of operations and the proposed duration of cessation of operations at least every three months; and
- (3) The operator must comply with Clause 421 in relation to completed wells.

217 General safety precautions

- (1) All buildings and other structures, machinery and equipment shall be inspected on a regular basis and a proper record of the inspection, signed by the person who conducted the inspection, shall be entered in the tour report or a log book or in some other similar system.
- (2) A log book, or similar system, shall be kept at each operational site or the central field office.
- (3) Any information recorded in a tour report or log book (or other system) shall be accurate and include all relevant dates and times.
- (4) Records must be retained at least 5 years after the petroleum interest has been surrendered.

Division 3 - Reporting

218 Reporting of death and serious injury

- (1) In this Clause and this Schedule a serious injury is one which requires immediate attention by a medical practitioner.
- (3) Where a person dies or suffers a serious injury:
 - (a) a report shall forthwith be made to the Minister; and
 - (b) a report in writing giving full particulars and all related circumstances shall be transmitted to the Minister as soon as practicable after the occurrence; and
 - (c) the above reports shall be in addition to, and not take precedence over, reports required by NT WorkSafe.

219 Reporting serious damage other than environmental harm

- (1) In this Clause and this Schedule serious damage to property means:
 - (a) the loss or destruction of property with a value exceeding \$50,000;
 - (b) damage to property, the repair of which damage would cost an amount exceeding \$50,000; or
 - (c) a loss, destruction or damage to any property by reason of which any person dies or suffers serious injury.
- (2) Where serious damage to property occurs:
 - (a) a report of each occurrence shall forthwith be made to an Inspector; and
 - (b) a report in writing shall be submitted to the Minister as soon as practicable specifying:
 - (i) the date, time and place of such occurrence;
 - (ii) particulars of the damage;
 - (iii) the events so far as they are known or suspected that caused or contributed to the occurrence;

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- (iv) particulars of repairs carried out or proposed to be carried out to damaged property; and
- (v) measures taken, or to be taken, to prevent a possible recurrence.

220 Reporting a potentially hazardous event

Where an event occurs which is not in the normal or ordinary course of a particular operation and which is professionally considered to have been likely to cause injury to a person or serious damage to property:

- (1) a report of the event shall forthwith be made to an Inspector; and
- (2) a report in writing of the event shall be submitted to the Minister as soon as practicable specifying measures taken or to be taken to prevent a possible recurrence.

221 Reporting damage other than environmental damage less than \$50,000

Where damage to property occurs which is not serious damage to property but which results in a significant loss of structural integrity or load bearing capacity in the property damaged or results in some other significant unsafe condition:

- (1) a report of the damage shall forthwith be made to the Minister; and
- (2) a report in writing shall be submitted to the Minister as soon as practicable specifying measures taken or to be taken to prevent a possible recurrence.

222 Reporting of emergencies

Any emergency shall be reported forthwith to the Minister without delay.

PART III - DRILLING, WELL RE-ENTRY AND WORKOVER OPERATIONS

Division 1 - General Requirements

301 Approval to carry out well activities

- (1) A regulated well activity shall not be commenced without an accepted Well Operations Management Plan (WOMP or plan) in force. Regulated activities are those as defined in the Petroleum (Environment) Regulations (PER). A regulated well activity includes but is not limited to; the drilling and well construction of exploration, appraisal or development well(s), re-entering an existing well for the operation, modification, decommissioning of that well or any other purpose.
- (2) All regulated well activities must be undertaken in accordance with an accepted WOMP.

- (3) Subject to Sub-Clause (2), a titleholder may request in writing, the consent of the Regulator to the titleholder undertaking a well activity in a specified manner. The request must include sufficient information for the Regulator to assess whether or not undertaking the well activity in the requested manner would result in the integrity of the well becoming subject to a significant new risk or a significantly increased level of risk.
- (4) Subject to Sub-Clause (1), a titleholder shall, in writing, apply to the Regulator for acceptance by the Regulator of a WOMP not less than 45 days before the proposed start of the first well activity to which the plan would apply.

301a Decision on application for accepted well operations management plan

- (1) Within 45 days after a titleholder submits a WOMP to the Regulator:
 - (a) If the Regulator is reasonably satisfied that the plan meets the criteria set out in Clause 301b, the Regulator must accept the plan; or
 - (b) If the Regulator is not reasonably satisfied that the plan meets the criteria set out in Clause 301b, the Regulator must give the titleholder notice in writing under Sub-Clause (2); or
 - (c) If the Regulator is unable to make a decision on the plan within the 45 day period, the Regulator must give the titleholder notice in writing and set out a proposed timetable for consideration of the plan.
- (2) A notice to a titleholder under this sub-clause must:
 - (a) State that the Regulator is not reasonably satisfied that the plan submitted meets the criteria set out in Clause 301b; and
 - (b) Identify the criteria set out in Clause 301b about which the Regulator is not reasonably satisfied; and
 - (c) Set a date by which the titleholder may resubmit the plan.
- (3) The date referred to in Sub-clause (2) (c) must give the titleholder a reasonable opportunity to modify and resubmit the plan.
- (4) Within 45 days after the titleholder has resubmitted a modified plan, the regulator must provide notice in writing of the Regulator's decision on the resubmitted plan as per (1) and (2).

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- (5) If the titleholder does not resubmit a modified plan by the date referred to in Sub-clause (2) (c), or a later date agreed to by the Regulator, the Regulator must:
- (a) Refuse to accept the plan; or
 - (b) Act under Sub-Clause (6).
- (6) For Sub-Clause (5) (b), the Regulator may do either of the following:
- (a) Accept the plan in part;
 - (b) Accept the plan subject to conditions.

301b Criteria for acceptance of well operations management plan

- (1) For Clause 301a, the criteria for acceptance of a well operations management plan for a well are;
- (a) That, subject to Sub-Clause 301c (2), the plan includes the matters mentioned in Sub-Clause 301c (1); and
 - (b) That the plan is appropriate to the nature and scale of the well, and of the well activities relating to the well to which it applies; and
 - (c) If the plan applies to more than one well, that the risks to the integrity of the well are similar; and
 - (d) That the plan demonstrates how the risks to the integrity of the well will be reduced to as low as reasonably practicable; and
 - (e) That the performance outcomes, performance standards and measurement criteria included in the plan are appropriate.

301c Contents of well operations management plan

- (1) The matters that must be included in a well operations management plan are as follows:
- (a) A description of the well, and the well activities relating to the well, to which the plan applies;
 - (b) A description of the risk management process used to identify and assess risks to the integrity of the well;

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- (c) A description and explanation of the design, construction, operation and management of the well, and conduct of well activities, showing how risks to the integrity of the well will be reduced to as low as reasonably practicable;

NOTE:

A separate well plan summary, detailing the location of all known faults and geo-hazards, must be submitted for uploading on the Department's website.

- (d) A description of the performance outcomes against which the performance of the titleholder in maintaining the integrity of the well is to be measured;
- (e) A description of the control measures that will be in place to ensure that the risks to the integrity of the well will be reduced to as low as reasonably practicable throughout the life of the well, including periods when the well is not operational (dormant) but has not been permanently decommissioned;
- (f) A description of the performance standards for the control measures identified under paragraph (e);
- (g) The measurement criteria that will be used to determine whether the performance outcomes identified under paragraph (d) and the performance standards under paragraph (f) are being met;
- (h) A description of the monitoring, audit and well integrity assurance processes that will be implemented to ensure the performance outcomes and performance standards are being met throughout the life of the well including periods when the well is not operational (dormant) but has not been permanently plugged and abandoned (decommissioned).

NOTE:

- This part is to be written with reference to the Department's guideline: "Monitoring, Inspection and Reporting Requirements for Suspended (Dormant) Wells in the Northern Territory".
 - Results of the monitoring process and outcomes are to be uploaded on the Government's website along with any remedial action undertaken as per Clause 302a.
- (i) A description of the measures and arrangements that will be in place for the suspension and abandonment of the well, showing:

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- i. How, during the process of suspending or abandoning the well, risks to the integrity of the well will be reduced to as low as reasonably practicable; and
 - ii. How the actions taken during that process will ensure that the integrity of the well is maintained while the well is suspended or abandoned;
- (j) a description of the measures and arrangements that will be used to ensure that contractors and service providers undertaking well activities are aware of their responsibilities in relation to the maintenance of the integrity of the well, and have appropriate competencies and training;
- (k) description of the measures and arrangements that will be used to regain control of the well if there is a loss of containment;
- (l) a timetable for carrying out and completing the well activities to which the plan applies.
- (m) a tabulated summary referencing where the specific requirements of Clause 301c are addressed in the **WOMP**.
- (n) a tabulated summary referencing where the relevant Principles and Mandatory Requirements of the **Code** are addressed in the **WOMP**.
- (2) The Regulator may give a titleholder permission, notified in writing, not to include matters in a well operations management plan if those matters are regulated in the title.
- (3) A well operations management plan may include any other information that the titleholder believes is relevant.

301d Revision of a well operations management plan

- (1) A titleholder must submit to the Regulator a proposed revision of the well operations management plan that is in force for a well in the title area, before the start of any well activity that the plan as currently in force does not apply to.
 - (2) A titleholder must (except when the Regulator has consented under Sub-Clause 301(3)) submit to the Regulator a proposed revision of a well operations management plan that is in force for a well in the title area, before making a significant change to the manner in which risks to the integrity of the well are reduced to as low as reasonably practicable.
 - (3) A titleholder must submit to the Regulator a proposed revision of a well operations management plan that is in force for a well in the title area:
-

- (a) as soon as practicable after the integrity of the well becomes subject to a significant new risk or a significantly increased level of risk; or
- (b) if the Regulator gives the titleholder a direction under section 71 of the Act which is inconsistent with the plan.

301e Revision at end of each 5 year period

- (1) A titleholder must submit to the Regulator a proposed revision of the well operations management plan that is in force for a well in the title area at least 45 days before the end of the period of 5 years that begins on the latest of the following days:
 - (a) the day the Regulator first accepts the well operations management plan;
 - (b) a day the Regulator accepts a proposed revision of the well operations management plan submitted under this regulation;
 - (c) a day notified by the Regulator under Sub-Clause (2).
- (2) For Sub-Clause (1)(c), if the Regulator accepts a proposed revision of a well operations management plan that was submitted under Clause 301d, the Regulator may notify the titleholder that the period of 5 years mentioned in Sub-Clause (1) starts on the day specified in the notice.

301f Acceptance of a revised well operations management plan

Clauses 301a and 301b also apply to a proposed revision to a plan.

301g Effect of non-acceptance of proposed revision

If a proposed revision of a well operations management plan is not accepted, the provisions of the plan in force before the proposed revision was submitted remain in force, as if the revision had not been proposed.

301h Plan ends when well permanently abandoned

The operation of a well operations management plan ends when:

- (a) the titleholder has permanently abandoned the well or wells to which the plan applies; and
- (b) the titleholder has given the Regulator a written report of the process that was undertaken in abandoning the well or wells, and the outcome of that process; and

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- (c) the Regulator notifies the titleholder in writing that the Regulator is reasonably satisfied that the process of abandoning the well or wells has been undertaken in accordance with the well operations management plan.

301i Transitional provisions

- (1) Clause 301i applies to wells that have been drilled and constructed prior to the date of this Schedule.
- (2) Where the titleholder intends to conduct a regulated well activity in any existing well, Clause 301 applies.
- (3) All titleholders must prepare a WOMP for the titleholder's existing wells for submission to the Regulator within 24 months after the date of this Schedule.

302a Well barrier integrity validation reporting

It is a requirement that, on any occasion a titleholder validates, installs, replaces or modifies a well barrier, or identifies degraded performance from a barrier, the titleholder must submit a "Well Barrier Integrity Validation" report as per the Department's guideline: "Well Barrier Integrity Validation Reporting".

The Well Barrier Integrity Validation Report (WBIV) is to be uploaded on the Department's website.

In accordance with Clause 103, and before submission to the Department, the titleholder will have the following results in the WBIV certified by an independent and reputable validator.

- Results of any well integrity tests conducted before and after hydraulic fracturing;
- Results of any integrity tests after a well barrier is installed, replaced or modified.

Submission of the WBIV to the Department must be accompanied with a copy of the validator's certification.

302b Information about specific activities

Activities requiring 21 days' notice

- (1) A titleholder must notify the Regulator about any of the following well activities in the title area before starting the well activity:
- (a) a well activity that involves drilling formation or a new well pathway eg; a sidetrack;
 - (b) a well activity that involves running tubular goods into a well or recovering tubular goods from a well;

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- (c) a well activity that involves removing a Christmas tree, tubing spool, casing spool or casing head from a well;
 - (d) a well activity that involves the installation of a Christmas tree saver for use with downhole operations or well testing.
- (2) Notice of an activity mentioned in Sub-Clause (1) must be given to the Regulator:
- (a) at least 21 days before the start of the well activity; or
 - (b) if the Regulator agrees to a shorter period—at least the agreed number of days before the start of the well activity.

Activities requiring notice at any time before start of activity

- (3) A titleholder must notify the Regulator about any of the following well activities in the title area before starting the well activity:
- (a) a well activity, not mentioned in Sub-Clause (1), that involves perforation or tubing punching;
 - (b) a well activity, not mentioned in Sub-Clause (1), that involves installation, removal or locking open of a downhole safety valve, storm choke valve, gas- lift valve or injection valve;
 - (c) a well activity, not mentioned in Sub-Clause (1), that involves the installation of a Christmas tree saver for use during maintenance work on Christmas tree components.

Form of notice

- (4) Notice of a well activity must be in writing and must include the following information relating to the well activity:
- (a) a reference that identifies the well operations management plan for the well;
 - (b) a description of the well, including the proposed or existing well name and number and the location of the well;
 - (c) the name of the facility from which the well activity will be carried out;
 - (d) the name of the operator of the facility;
 - (e) description of the well activity, including the objective, key elements, milestones and programmed depths;
 - (f) a list of any documents that have been prepared for the management, control or operation of the particular well activity;
 - (g) a current well barrier integrity status of the existing well and whether the barrier status will be altered by the activity
 - (h) the timetable for carrying out and completing the activity.

302c Regulator may request more information

- (1) If a titleholder gives the Regulator a notice about a well activity under Clause 302b, the Regulator may ask the titleholder to provide further written information about the well activity.
- (2) The request must be in writing and describe the information that is requested.

302d Notice of change in activity or circumstances

- (1) If the information in a notice about a well activity given to the Regulator under Clause 302b is no longer accurate, the titleholder must provide the Regulator with updated information as soon as practicable.
- (2) Sub-Clause (1) does not apply if the reason why the information is no longer accurate is because the integrity of the well is subject to a significant new risk or a significantly increased risk.

Note: A significant new risk or a significantly increased risk requires a revision of the well operations management plan for the well as per Clause 301d.

302e Notice that notified well activity has been completed

- (1) If a titleholder completes an activity for which notice was required under regulation 302b, the titleholder must notify the Regulator that the activity has been completed.
- (2) The notice must be in writing and must be given to the Regulator no later than 10 days after the activity is completed.
- (3) The notice must include details on how the activity objectives have been met.

303 Location survey and directional survey

- (1) As soon as practicable after the spudding of a well but no later than rig release, its exact location shall be determined by an independent suitably qualified surveyor to a location accuracy of not less than 1 metre based on the Geocentric Datum of Australia including the well's geographic coordinates (GDA94) and elevation (both ground level and kelly bushing or other measurement datum) tied to the Australian Height Datum to within 0.1 m accuracy.
- (2) A certificate shall be issued to the department for verification with specifics of the estimated error in the horizontal position and elevation of the well.
- (3) Unless otherwise approved, deviation surveys shall be taken at intervals of not more than 200 metres to ascertain the deviation of a well from vertical.

304 Prohibited drilling areas

A well shall not be drilled so that any part of it is less than 300 metres from a petroleum interest boundary, except in accordance with a consent in writing of the Minister.

305 Oil or gas lost or used during repair operations

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The quantities of all oil or gas lost by burning, venting to the atmosphere, flaring or mixing with other circulating fluids in the course of any well repair, recompletion or other similar operation shall be reported to the Minister as soon as practicable after the relevant event.

306 Evaluation of an occurrence of petroleum

If the Minister considers that an Operator is not adequately evaluating a potential occurrence of petroleum, the Minister may require the Operator to carry out such coring, logging, sampling or testing operations as the Minister thinks reasonable in the circumstances.

307 Core and cutting samples

- (1) Where cuttings are recovered from a well, samples, each a minimum of 200 grams dry weight per interval, shall be washed, dried in an approved manner and placed in suitable plastic bags or plastic bottles that are clearly and permanently labelled for identification and lodged in accordance with departmental geological sample submission procedures.
- (2) Where whole cores are recovered they shall where practicable be slabbed vertically and at least one vertical half of the core shall be placed in suitable labelled core tray and lodged as in Sub-Clause (1).
- (3) Full diameter core samples may, where approved, be retained for special studies provided that:
 - (a) they are retained in Australia unless otherwise approved and any residual material is returned to Australia on completion of the studies;
 - (b) applications to send core overseas for analysis must include details of sample intervals and depths;
 - (c) care is taken to protect them from unnecessary damage; and
 - (d) all residues are lodged with the Minister on completion of the studies.
- (4) All core and cutting samples should be lodged with the Minister within six (6) months of rig release.
- (5) Side-wall cores shall not be sent out of Australia unless otherwise approved, and all residues remaining after any studies on the cores shall be preserved and lodged with the Minister.
- (6) In relation to any samples retained overseas for further analysis, a report on progress shall be included in the annual report.

308 Reports on analysis of core and cuttings

- (1) Where an investigation, analysis or study is conducted on cuttings or cores, a copy of the report of the work and its conclusions shall be included in the interpretative well completion report or, in the case where this report has already been submitted, the annual report.

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- (2) Palynological slides and residues, palaeontological material and petrological slides prepared from cuttings or cores shall be properly labelled, stored and together with a list of the material lodged with the Minister prior to the surrender, expiry or cancellation of that part of the petroleum interest to which the material relates.

309 Fluid samples

- (1) All formation fluid recovered from formation tests or non-routine production tests shall, as far as practicable, be sampled in accordance with API.
- (2) Samples shall be labelled and analysed, and liquid samples shall be preserved for at least six months.
- (3) If collected, a 1 litre sample of liquid hydrocarbons or other fluid or 300 cm³ sample of gaseous hydrocarbons from formation or production tests shall be offered to the Minister and if required by the Minister, supplied in an API approved safety container.
- (4) Results obtained from the analysis of samples shall be included in the annual report.

310 Well evaluation logs

- (1) Before a well is cased (other than with surface casing), completed, suspended or abandoned, an approved suite of logs shall be run and recorded.
- (2) The suite shall at least be sufficient to provide a proper determination of:
 - (a) formation porosity;
 - (b) formation fluid saturations;
 - (c) stratigraphic correlation with surrounding wells; and
 - (d) if inadequate control exists in the vicinity of the well, velocity control.
- (3) The following shall be furnished to the Minister:
 - (a) a copy of each log run, which shall be forwarded as soon as possible after it is recorded;
 - (b) a copy of each log run data in standard format (ASCII or LAS), which shall be forwarded as soon as possible after it is recorded.

311 Flammable vapours

All flammable vapours shall be collected in appropriate vessels and equipment and safely vented to atmosphere, and any significant volume of gas shall be burnt through a flare system.

Division 2 - Reporting and Data Submission

312 Discovery of petroleum and estimate of petroleum resources

- (1) In addition to fulfilling the requirements of the Act with respect to reporting a discovery of petroleum, the results of the evaluation of the discovery including

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preliminary estimates of petroleum resources shall be conveyed in writing to the Minister within 3 months of the date of discovery, unless otherwise approved.

- (2) Each year, the interest holder shall provide the Minister with his current estimate of the petroleum resources in a petroleum pool in accordance with the Society of Petroleum Engineers "Petroleum Resources Management System", unless otherwise approved.
- (3) An estimate referred to in Sub-Clause (2) shall be in an approved form accompanied by any specific reports produced during the period and shall specify:
 - (a) the location of the petroleum pool;
 - (b) the reservoir rock and fluid properties; and
 - (c) the data, assumptions and methodologies upon which the estimate is based.
- (4) When a study resulting in a revised estimate of petroleum resources has been carried out, a report of the study and the revised estimate shall be sent to the Minister as soon as practicable after completion of the work.

313 Daily operations report of well activities

- (1) Each day before midday Australian Central Standard Time (ACST) a daily report of well operations for the previous 24 hours shall be sent to the Minister.
- (2) If activities involve drilling, the daily report shall be in an approved format and shall include but is not limited to:
 - (a) the name of the well;
 - (b) the drilled depth;
 - (c) the operations carried out to the nearest 15 minutes;
 - (d) the lithology of formations penetrated and the interpreted depth of any marker horizons;
 - (e) any indications of petroleum;
 - (f) results of surveys made in the well bore; and
 - (g) estimated daily and cumulative well costs.
- (3) If activities involve any type of well re-entry, the daily report shall be in an approved format and shall include but is not limited to:
 - (a) the name of the well;
 - (b) the operations carried out to the nearest 15 minutes;
 - (c) brief summary of results of any tests, logs and or surveys made in the well bore; and
 - (d) estimated daily and cumulative well costs.

314 Well completion report

- (1) Where a well has been plugged and abandoned, suspended or completed a basic well completion report and basic data shall be furnished to the Minister in accordance with section 76 of the Act.
- (2) A final or interpretative well completion report must be submitted within 12 months after rig release.

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- (3) A basic well completion report relating to the drilling of a well shall include, but not necessarily be limited to, the following:

General Data

- (a) The name and number of the well, and if the well is a sidetrack, the name of the parent well;
- (b) Exploration Permit, Retention Lease or Production Licence, 100k map sheet name and number and seismic line location or shotpoint number or other geophysical location identifier;
- (c) Well location map with an inset map showing the title location in the Northern Territory;
- (d) A brief description / summary of geological rationale for drilling;
- (e) A statement of well objectives and the degree to which the objectives have been met;
- (f) The depth reference (eg. Kelly bushing, rig floor) and the surveyed height of depth reference above the surface for onshore wells and above mean sea level for offshore wells;
- (g) The surveyed well location in latitude and longitude with reference to the Geocentric Datum of Australia 1994 (GDA94);
- (h) In the case of a well that has deviated from an approximately vertical path:
 - (i) the surveyed path of the well;
 - (ii) the coordinates of the bottom hole location; and
 - (iii) in the case of a potential producer, the coordinates at the intersection of the reservoir horizon;
- (i) The drilling contractor and drilling rig used;
- (j) The spud date, date of reaching total depth and date of rig release;
- (k) The along hole measured depth and the true vertical depths reached in metres;
- (l) A statement whether the well has been:
 - (i) completed as a producer;
 - (ii) suspended; or
 - (iii) abandoned.
- (m) The depth of any perforations.

Drilling

- (a) Particulars of the equipment, both surface and subsurface, installed in or on the well;
- (b) Particulars of the casing and equipment installed in or on the well complete with schematics showing major dimensions;
- (c) Particulars of all deviation surveys;
- (d) Particulars of cementing operations carried out and interpretative information about the well integrity;
- (e) Bit records including detailed information about the bottom hole assembly including measurement while drilling and logging while drilling equipment, including names of LWD and MWD tools;
- (f) Particulars of drilling fluids used and any fluid losses incurred.

Formation Evaluation

- (a) List of well evaluation logs including measurement-while-drilling logs, pressure detection logs and mud logs, wireline logs velocity surveys, tiltmeter surveys and micro-seismic surveys.

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- (b) List of cores, cuttings and samples taken including depth and interval;
- (c) Particulars of the operation and results including full raw pressure-time listings for all formation fluid sample tests and production tests carried out;
- (d) Particulars of Diagnostic Fracture Injection Testing (DFIT) and Hydraulic Fracturing (HF); and
- (e) Particulars of any hydrocarbon indicators and flow potential

Geology

- (a) The along hole and true vertical depths of seismic marker and reservoir horizons and bottom hole formation.

Appendices

- (a) Basic well completion data in approved format including:
 - (i) raw data, edited field data and processed data for all wireline logs, MWD and LWD logs;
 - (ii) field log and processed log display for all wireline, MWD and LWD logs;
 - (iii) mudlog data and display;
 - (iv) raw data, processed data, checkshot and time/depth analysis;
 - (v) velocity survey display; and
 - (vi) photography of the core and sidewall core, in both natural and UV light if taken;
 - (vii) Copy of all daily drilling reports
 - (b) a well index sheet.
- (4) An interpretive final well completion report shall include, but necessarily be limited to, the following:
- (a) Copy of the well index sheet submitted in sub-Clause (3) Appendices (b);
 - (b) Geological interpretations of the well data including, but not limited to, for exploration wells:
 - (i) lithology and stratigraphy;
 - (ii) reservoir properties and quality;
 - (iii) geochemistry of source rocks;
 - (iv) depositional environment;
 - (v) hydrocarbon indications; and
 - (vi) trap integrity;and, for development or appraisal wells, details of changes to the current reservoir model;
 - (c) For exploration wells, a discussion of the relevance of the well data to the evaluation of the hydrocarbon potential of the area;
 - (d) For development or appraisal wells, the implications for future field management.
 - (e) Reports of technical studies on velocity surveys, logs, samples, cores and sidewall cores (including petrophysical analysis, palaeontology, reservoir characteristics, fluid saturations, relative permeability, capillary pressure, fluid analysis and geochemical analysis) including:

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- (i) a composite well log including, where appropriate, wireline logs, sampling and testing details, interpreted formation tops and lithology of intervals penetrated;
 - (ii) interpretive log analysis; and
 - (iii) petrophysical, geochemical and other samples analyses.
- (f) Report of revised structure maps and appropriate interpreted seismic sections illustrating the post-drill structural and stratigraphic interpretation of the well.
- (g) Summary, conclusions and recommendations, if any, of the overall drilling activity.

PART IV - PRODUCTION OPERATIONS

Division 1 - General Requirements

400 Applicability of Part IV

Part IV applies to petroleum activities carried out within a producing field (under a production licence or production lease).

401 Approval of production equipment and safety systems

- (1) Production operations including operations for:
- (a) the enhanced recovery or recycling of petroleum;
 - (b) the processing, storage or disposal of petroleum;
 - (c) the disposal of produced formation water; and
 - (d) the injection of petroleum or water into an underground formation;
- but excluding a production test of a well, shall not be carried out unless the production equipment and safety systems have been approved.
- (2) The installation or modification of production equipment and safety systems shall not be undertaken without approval.
- (3) An application for approval to install or modify production equipment or safety systems shall be accompanied by descriptions, plans and drawings containing such details as the Minister requires.
- (4) Certain equipment, including pressure vessels, cranes, and hoists, will require registration under legislation administered by NT WorkSafe.
- (5) Clause 301 also applies to operations subject to Sub-Clauses (1) and (2) that involve a regulated well activity.

402 Production facilities

A production facility shall be designed, manufactured, constructed, tested, operated, inspected and maintained in accordance with relevant Australian and or API codes,

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standards, specifications, and recommended practices, or to specifications and practices acceptable to the Minister.

403 Production isolation valves

A production facility shall be equipped with clearly marked and accessible isolation and emergency shutdown valves that permit the flow of oil or gas to be safely shut off in the event of a fire, loss of containment or other emergency.

404 Initial production tests

- (1) A new well completion shall be subjected to a production test to determine, as far as practicable:
 - (a) initial reservoir pressure and temperature;
 - (b) representative chemical analyses of fluids, as they exist in the reservoir;
 - (c) the production capacity of the well; and
 - (d) the formation characteristics, including reservoir fluid and rock properties, that exist at least 10 metres from the well bore.
- (2) The production test of oil and gas completions shall be undertaken as soon as practicable after stabilized flow has been achieved.
- (3) Unless valid data are in existence, where a completion is to be subjected to a major stimulation procedure (such as fracturing or acidizing), a test shall be carried out no more than six months before the stimulation and then, unless otherwise approved, a further test shall be carried out not more than three months after the completion of the stimulation.
- (4) A test under Sub-Clause (3) shall determine as far as practicable any changes in fluid composition, production capacity and formation characteristics.
- (5) To the extent that the equipment installed may permit, where a test is carried out under Sub-Clauses (1), (2) or (3), the closed in and flowing bottom hole pressures shall be measured.
- (6) A detailed report on the results of a production test shall be furnished to the Minister within three months after the completion of the test (although the results of a test prior to a major stimulation may be combined with the results of the test after the stimulation).
- (7) Where an extended production test is approved a monthly report detailing pressure information, quantities of fluids produced and transfer or export of gas or hydrocarbon liquids shall be submitted to the Minister.

405 Reservoir management plan

- (1) Subject to Sub-Clause (2) and Clause 406, as applicable, a completion shall not be brought into production except in accordance with a reservoir management plan approved by the Minister that maximises ultimate recovery of petroleum from the reservoir.

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- (2) The Minister may require that a reservoir management plan be revised from time to time.

406 Evaluation of potential for retrograde condensation

- (1) Subject to this requirement, before production from a gas, gas condensate or volatile oil reservoir is commenced, the Operator shall carry out well sampling and evaluate the possibility of retrograde condensation occurring in the reservoir.
- (2) If it is not practicable to comply with Sub-Clause (1) before production is commenced, a program of work to carry out such an evaluation during the course of production shall be submitted for approval before production is commenced.
- (3) Where, on the commencement of these requirements, a reservoir is already in production, an evaluation of the potential for, or the documentation of the historical lack of evidence of, retrograde condensation shall be carried out and submitted to the Minister within one year after the commencement of these requirements.
- (4) Where, as a result of an evaluation under this requirement, there appears to be the possibility of retrograde condensation occurring in a reservoir, a full pressure-volume-temperature study shall be carried out and submitted to the Minister with the reservoir management plan.

407 Rate of recovery of petroleum

- (1) The production policy for a reservoir shall be in accordance with an approved reservoir management plan unless production is the subject of a specific direction under the Act.
- (2) An application under Sub-Clause (1) shall include proposed production policy and rate of recovery, past performance, predicted future performance and estimate of ultimate recovery from the reservoir.
- (3) A periodic review of reservoir description, production policy and current reservoir performance shall be submitted at the request of the Minister to demonstrate that a reservoir is being developed and produced in a manner consistent with sound reservoir management practices and maximises ultimate recovery.

408 Production tests on producing wells

A production test to estimate the rate of recovery of reservoir fluids shall be carried out on each producing well at least once each month unless the rate of recovery is measured continuously or unless otherwise approved.

409 Gas reservoir and well performance monitoring

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- (1) Bottom hole pressure build-up surveys shall be conducted on each gas completion at intervals of production not exceeding 10% of the currently estimated original proved plus probable recoverable reserves of the petroleum pool, in accordance with the approved reservoir management plan.
- (2) Each producing gas completion shall be tested, at intervals not exceeding four years, to determine changes in flow characteristics.
- (3) Well stream gas analysis shall be determined in conjunction with each test carried out under Sub-Clause (2), and at such other times as the Minister may require.
- (4) Each gas completion that is capable of production shall be tested to determine water production in a manner acceptable to the Minister at intervals not exceeding six months.
- (5) Gas completions shall be tested using a properly calibrated subsurface pressure gauge.
- (6) While a gas completion is being cleaned up or tested, the amount of gas flared shall be kept to a minimum in accordance with good oilfield practice.
- (7) The results of all gas completion tests shall be furnished to the Minister within one month after the end of the month in which the tests are carried out.
- (8) If a test indicates the production of formation water that had not been previously identified:
 - (a) a full separator test shall be carried out;
 - (b) a chemical analysis of the produced water shall be carried out; and
 - (c) further separator tests shall then be carried out at intervals acceptable to the Minister.

410 Oil reservoir pressure build-up surveys

Unless otherwise approved, bottom hole pressure build-up surveys shall be conducted, where downhole equipment permits, on each well completed in a pool from which oil is being produced, at intervals not greater than:

- (1) one year; or
- (2) the time required to produce 10% of the currently estimated original proved plus probable recoverable reserves of the petroleum pool, whichever is greater, in accordance with the approved reservoir management plan.

411 Measurement of produced petroleum and water

- (1) Petroleum including gaseous fluids and water shall not be recovered, flared, vented, disposed of or used in recovery operations unless approved equipment and procedures are used on each completion enabling both the quantity and composition of such fluids to be determined.
- (2) Where the Minister considers that inadequate production information is being obtained, the Minister may require that additional testing be carried out.

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- (3) Petroleum shall not be recovered simultaneously from more than one reservoir in a well unless the quantity and composition of petroleum and water from each reservoir are determined.
- (4) Petroleum recovered from different reservoirs and from more than one well shall not be commingled until the petroleum and water pass a point where the quantity and composition of petroleum and water from each well and from each reservoir are determined.
- (5) A metering device used on or in an oil or gas well, gathering system, production facility or pumping station shall conform to a recognized standard.
- (6) A meter or other device used to measure the production of oil, gas or water shall be proved and certified as to its accuracy in a manner, and at a frequency, acceptable to the Minister.

412 Measurement of production to determine royalties

- (1) The Minister may, for the purposes of determining the royalty payable, select a suitable metering device for the accurate and secure fiscal metering of oil, gas and associated liquids to be installed at a well or production facility, or on a pipeline, tank or other receptacle that is used for the storage or transportation of oil, gas or other fluids.
- (2) Except in an emergency, any metering device approved and installed under Sub-Clause (1) shall not be tampered with or removed without written approval.
- (3) Notice acceptable to the Minister shall be given of an intention, for Royalty purposes, to prove a petroleum meter or to sample a petroleum stream.

413 Pressure below bubble point

An oil completion shall not be produced so that the sandface pressure is below the bubble point pressure except in accordance with an approved reservoir management plan or production policy.

414 Surface connections

Each well from which petroleum is recovered shall be provided with such surface connections and equipment as are necessary to prevent the injection of petroleum or water into the well from another well or from production equipment.

415 Segregation of zones

- (1) An Operator shall, in relation to each multiple completion well, demonstrate that segregation between the completions has been achieved and maintained:
 - (a) after the initial well completion, after any change of subsurface equipment and after any other operation that may disturb, or exert abnormal differential pressures on, subsurface equipment; and
 - (b) at least once a year, or at such other intervals as the Minister may require or approve.
- (2) An Operator shall, within one month after completing a test referred to in Sub-Clause (1), furnish the Minister with a report of the test which includes all

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relevant data and an analysis and interpretation of the results to prove or confirm segregation.

- (3) If a test carried out or the production characteristics of a well indicate that segregation between completions is ineffective, the Minister shall be immediately informed.
- (4) All reasonable steps shall be promptly taken to re-establish segregation and, if those steps are not successful, the Minister may order that one or more of the completions be sealed off.
- (5) If an Operator fails to demonstrate to the Minister that segregation between completions has been achieved, the Minister may require that the well be shut-in or produced in a specified manner.
- (6) An Operator shall give the Minister at least three days' notice of an intention to carry out a test for the purposes of this requirement.

416 Minister may give directions in relation to enhanced recovery

In order to prevent undue residual petroleum left in the reservoir unrecovered, the Minister may, by written notice to the Operator require that:

- (1) an enhanced recovery scheme be used in a reservoir, or in a part of a reservoir, and may, for the purposes of that scheme, require that gas, water or some other substance be injected into the reservoir; and
- (2) any gas produced from a reservoir be injected into an underground reservoir for storage or other purposes.

417 Waste or contamination of petroleum or water

- (1) Where, in the opinion of the Minister, there is a reasonable possibility that oil, gas or water is being wasted or contaminated, the Operator shall carry out such tests and within such time as the Minister may specify.
- (2) If it is established that waste or contamination is occurring, the Operator shall take such steps as may be necessary or the Minister may require to remedy or prevent it.
- (3) The results of any test carried out under this requirement shall be furnished to the Minister as soon as practicable after they are obtained by the Operator.

418 Approval to vent or flare

Except in an emergency, petroleum shall not be flared or vented without approval, either directly or as part of an approved operation or plan.

419 Monitors and control mechanisms

Approved monitors and control mechanisms shall be used to:

- (1) control the rate of recovery of petroleum or water from a well;
- (2) control the pressure in pressure vessels and associated piping so that the safe working pressures are not exceeded;
- (3) prevent the escape of petroleum;
- (4) shut down any artificial lift device and close in a well in the event of:
 - (a) a break in a pressure vessel or associated piping receiving or conveying petroleum or water from the well;
 - (b) a failure of any control mechanism associated with the well which might result in the escape of petroleum or water or an unsafe condition; or
 - (c) any fire or explosion in the vicinity of the well; and
- (5) activate fire control mechanisms in the event of the outbreak of fire or an explosion.

420 Safety devices

Unless otherwise approved, a well that is capable of producing petroleum by natural flow shall be equipped with an approved safety device, which shall be:

- (1) designed so that it automatically stops the flow of petroleum or water from the well if the flow line or associated production equipment is damaged in such a way that would allow the escape of petroleum or water;
- (2) located in an approved position;
- (3) operated and tested at six (6) monthly intervals unless otherwise approved; and
- (4) where a test indicates that it may not operate correctly, repaired or replaced forthwith.

421 Protection of completed wells

- (1) A well that has not been suspended or plugged and abandoned shall be inspected at intervals not exceeding six months.
- (2) On an inspection under Sub-Clause (2):
 - (a) all tubing and annulus pressures shall be measured;
 - (a) any evidence of communication shall be evaluated;
 - (b) integrity of surface equipment including valves, gauges, vents and joints shall be assessed; and
 - (d) the extent of any necessary repairs or maintenance shall be determined.
- (3) At approved intervals but not less frequent than 5 years the Operator shall run corrosion logs to determine the rate of corrosion of the production casing.

- (4) An Operator shall, at the end of each month, furnish the Minister with a report on the wells that have been worked over during the previous month.

422 Decommissioning plans

Clauses 423, 424 and 425 shall be subject to an approved decommissioning plan submitted to the Minister no later than six (6) months prior to the cessation of production activities.

423 Decommissioning of wells

- (1) Unless otherwise approved, within four (4) years of completion of production activities and prior to the surrender of a production licence all wells shall be decommissioned, that is, permanently plugged and abandoned.
- (2) The Minister may require that a well be plugged and abandoned:
- (a) in the interest of safety;
 - (b) for the protection of the environment; or
 - (c) for the purpose of the elimination of waste or contamination.

424 Removal of facilities

- (1) Upon completion of production activities and within two (2) years after the surrender of a production licence, every production facility shall be dismantled and removed or decommissioned in accordance with a plan submitted and approved under Clause 422 and in accordance with an approved Environment Management Plan under the Petroleum (Environment) Regulations unless otherwise approved.
- (2) Production facilities may remain intact in a licence area up until two (2) years after the surrender of the production licence only with approval from the Minister, subject to an inspection and maintenance plan.
- (3) The Minister may require that any part or all of a production facility be dismantled and removed or decommissioned within a reasonable timeframe:
- (a) in the interest of safety;
 - (b) for the protection of the environment; or
 - (c) for the purpose of the elimination of waste or contamination.

425 Rehabilitation of lands

Following the completion of production activities and within two (2) years after the surrender of a production licence, the land surrounding or affected by production facilities and wells shall be restored in accordance with a current environment management plan.

Division 2 - Reporting and Data Submission

426 Program of work and annual reporting requirements

- (1) In accordance with section 59 of the Act the interest holder shall submit an annual report to the Minister in accordance with Clause 603.
- (2) An interest holder shall two (2) months prior to the commencement of each 12 month period submit to the Minister a program of work proposed to be carried out in the licence area during that 12 month period unless otherwise approved.

427 Estimate of petroleum resources

- (1) An interest holder shall, in each year, send to the Minister a report detailing the amount of petroleum resources in each petroleum pool in the licence area which shall include:
 - (a) the location of the petroleum pool;
 - (b) the estimated amount of petroleum resources by classification in accordance with the Society of Petroleum Engineers "Petroleum Resource Management System" reporting guidelines;
 - (c) the data, assumptions and methodologies upon which the estimates are based;
 - (d) a description of the reservoir (simulation) models used, a comparison of results with those previously obtained and a discussion of any implications regarding petroleum recovery; and
 - (e) any specific reports prepared during the year by the interest holder and or independent third party in connection with reserves estimation and classification, reservoir performance and production optimization.
- (2) When a study resulting in a revised estimate of recoverable or in-place petroleum in a pool has been carried out, a report of that study shall be sent to the Minister.
- (3) Not less frequent than every five (5) years an interest holder must submit an independent expert report to the Minister with an assessment of petroleum resources in the production licence area in accordance with the "Petroleum Resource Management" guidelines unless otherwise approved.

428 Monthly production report

Not later than the 15th day of each month a production report in respect of each field, in an approved form, relating to the last preceding calendar month shall be sent to the Minister including:

- (1) the total quantities of petroleum and water produced, injected, used, flared, vented, stored and delivered from the area;
- (2) the cumulative quantities of liquid and gaseous petroleum and water produced or injected as at the end of the month; and
- (3) for each well:
 - (a) its identification name and number;
 - (b) a summary of all work performed on it during the previous month;

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- (c) the result of any production test including the choke size used and the tubing and separator pressures observed during the test;
- (d) its status at the end of the month;
- (e) the number of days of production or injection;
- (f) the total estimated quantities of liquid, gaseous petroleum and water produced or injected during the month, their corresponding daily average rates, average gas oil ratios and water cut data; and
- (g) the cumulative quantities of liquid and gaseous petroleum and water produced or injected as at the end of the month.

429 Production facility maintenance reporting

- (1) Reports shall be furnished to the Minister as soon as practical after any:
 - (a) mechanical damage, corrosion or erosion that could affect the safety or integrity of a production facility to an extent that necessitates a change in operations; and
 - (b) non-routine corrosion investigation (such as instrumented pigging, acoustic emission testing and pipe examinations).
- (2) A report under Sub-Clause (1) shall include, or be followed by, a report on any repairs carried out.
- (3) Where a pressure test is carried out on a section of a production facility, a report on the results and interpretation, shall be sent to the Minister within one month after the completion of the test.
- (4) In addition to the other requirements of this Clause, the Operator shall, commensurate with reporting requirements under sub-Clause 426 (1) after the end of each year send to the Minister a report:
 - (a) summarizing the routine corrosion and other surveys carried out on a production facility during the year;
 - (b) assessing the condition of the production facility as at the end of that year; and
 - (c) summarizing forward maintenance plans including any plant shutdowns in the following five (5) years.

430 Records of periodic inspections

- (1) Accurate records shall be maintained of all periodic inspections of facility equipment and piping.
- (2) Records shall include the particulars of the inspections, testing or proving of:
 - (a) pressure vessels;
 - (b) meters;
 - (c) pressure relief valves;
 - (d) control valves; and
 - (e) wells including wellheads, valves, gauges, vents, joints, sub-surface safety valves and other downhole equipment; and
 - (f) any other items, equipment or piping reasonably determined by the Minister.
- (3) Records of inspections for corrosion shall be maintained for the production facility, equipment piping and wells.
- (4) All records shall be entered into a digital maintenance management system.

431 Commingled production records and reports

Where oil, gas or water from two or more wells is commingled before it is measured, the Minister may, on the application of an Operator, allow records to be kept and reports to be furnished on a combined basis but, in that event, the production from each individual well shall be estimated in a manner acceptable to the Minister to determine, so far as may be practicable, the actual production from each well (and that estimate will represent the production of that well for the purposes of the Act).

432 Reports on downhole surveys

- (1) Where a downhole survey is conducted in a well, a report of the survey, together with any records made for the purpose of the survey, shall be submitted to the Minister not later than the last day of the succeeding month.
- (2) A report of a downhole survey shall include;
 - (a) one digital copy in native file format and one digital copy in portable document format of each log at each scale run in the survey unless otherwise approved; and
 - (b) one digital copy in portable document format of computer processed interpretation logs if generated, unless otherwise approved.

PART V - GEOPHYSICAL AND GEOLOGICAL SURVEYS

Division 1 - General Requirements

501 Application

An Operator shall ensure that all geophysical and geological surveys are conducted in accordance with the requirements of this Schedule, the Code of Practice for Petroleum Activities, any conditions as per the approval instrument and a current environment management plan.

502 Person-in-charge

- (1) The Minister shall be notified of the name and contact details of the person-in-charge of any geological or geophysical party not less than 14 days prior to the commencement of operations and shall be clearly displayed at the site of that operation.
- (2) The person-in-charge shall ensure that all personnel in their charge know and comply with all relevant requirements of this Schedule, the Code of Practice for Petroleum Activities, applicable legislation and safety procedures and the environment management plan.

503 Approval to carry out geophysical and geological surveys

- (1) A person shall not carry out a geophysical or geological survey without approval.

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- (2) An application for approval to carry out a geophysical or geological survey shall include:
- (a) the type of survey and the expected date of commencement, duration and cost;
 - (b) a plan showing the area of the survey and existing land tenures, roads, tracks, mines, quarries and habitations;
 - (c) in the case of seismic survey, details of the energy source to be used and a plan of the proposed survey traverses;
 - (d) in the case of gravity, magnetic or other geophysical or geochemical survey, a plan showing the proposed survey stations and/or traverses (aerial, aquatic or terrestrial) and a brief description of operations;
 - (e) either;
 - (i) where the Petroleum (Environment) Regulations are not applicable, a statement of proposed environmental protection and rehabilitation measures in relation to the survey; or
 - (ii) where the Petroleum (Environment) Regulations are applicable, a copy of the current environmental management plan under the Petroleum (Environment) Regulations in relation to the survey; and
 - (f) names and addresses of any contractors to be employed; and
 - (g) a statement of arrangements with any other parties having an interest in the land affected.
- (3) An application to carry out a geological or geophysical survey shall be submitted at least one month prior to the commencement of operations.

504 Protection of the environment

A person carrying out a seismic survey shall operate in accordance with the Code of Practice for Petroleum Activities and the approved environmental protection and rehabilitation measures under Clause 503 (2) (e) if the operations are not covered under a current environment management plan.

505 Operations on roads and in inhabited areas

- (1) Seismic survey operations shall comply with an approved traffic management plan.
- (2) Where a seismic survey is to be carried out in the vicinity of a building or public utility, all reasonable steps shall be taken to ensure that the operation does not cause any damage or inconvenience to any person.

506 Energy sources

- (1) A person shall not operate a vibrator within 20 metres of any gas, oil or water pipeline, electric cable or other utilities or installations without the approval of the operator of the facility.
- (2) Prior to operating an energy source in areas where there are gas or water pipelines, the pipeline Operator should be advised.
- (3) If a seismic line is to cross a pipeline the pipeline Operator shall be given opportunity to inspect the site.

- (4) If required by the pipeline Operator, an earth ramp or other load-bearing structure shall be constructed over the pipeline before heavy vehicles begin crossing the pipeline.

Division 2 - Reporting

507 Weekly reports

A weekly report shall be forwarded to the Minister stating progress of the survey. When a survey has been completed, a summary stating the start and completion dates and the number of kilometres or samples acquired (including geochemical samples) shall also be forwarded.

508 Basic data retention and submission

- (1) Where a geological or a geophysical survey has been carried out, all basic data and original field records pertinent to the survey shall be retained in Australia unless otherwise approved, properly stored and maintained so as to prevent undue deterioration and submitted as required by sub-Clause (3).
- (2) All data that are submitted shall be clearly identified and labelled in approved digital storage media and in approved formats.
- (3) When a geological or geophysical field survey has been carried out, the following acquisition and processed data shall, unless otherwise approved, be submitted within 12 months of completion of data acquisition:
- (a) where a geophysical survey other than seismic survey has been carried out, and where applicable:
 - (i) raw and processed located data;
 - (ii) gridded data; and
 - (ii) final processed image(s).
 - (b) where a 2D seismic survey has been carried out, and where applicable:
 - (i) navigation data in in the form of x, y and z co-ordinates for each shotpoint or full fold polygon outline;
 - (ii) seismic field data;
 - (iii) observers logs and associated support data including uphole data and itemised field tape listing in accordance with sub-Clause (3)(b)(ix);
 - (iv) raw and final stacked data, including near/mid/far sub-stacks if generated;
 - (v) raw and final migrated data, including PSTM, PSDM and near/mid/far sub-stacks;
 - (vi) final processed navigation, elevation and bathymetry data;
 - (vii) shotpoint to common depth point (CDP) relationship;
 - (viii) data for both stacked and migrated velocities, including line number, shotpoint and time versus root mean square (RMS) pair;
 - (ix) itemised process tape listing showing:
 - tape number;
 - survey name;
 - line number;
 - shotpoint range;

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- common depth point (CDP); and
 - data type.
- (c) where a 3D seismic survey has been carried out and where applicable:
- (i) data submission shall be as per Sub-Clause (3)(b);
 - (ii) final navigation data in the form of:
 - final processed (grid) bin coordinates; and
 - polygonal position data (outline of the full fold area)
 - (iii) data for both stacked and migrated velocities, including:
 - bin number; and
 - time versus root mean square (RMS)
 - (iv) 2D data subset, if production is required by the Minister.
- (4) All magnetic tapes or other digital media submitted shall be of at least manufacturer's certified "error free" quality and be accompanied by suitable verification testing.
- (5) Where seismic reprocessing, an analysis, study or operation not covered by Sub-Clause (1) is undertaken to satisfy the work commitments of the petroleum interest, written reports of the activity, reprocessing and / or interpretation results as per Clauses 509 (3) and 509 (4) shall be forwarded to the Minister as soon as possible.
- (6) Activities referred to in Sub-Clause (5) include but are not limited to geophysical and geological studies and seismic reprocessing. Reprocessed seismic data shall be forwarded to the Minister within 12 months of reprocessing. Field data used for seismic reprocessing is not required unless requested by the Minister.

509 Final reports on geophysical and geological surveys

- (1) Where a geophysical or geological survey has been completed, a separate acquisition, processing and interpretation report shall be submitted not later than 12 months after the completion of the project.
- (2) An acquisition report relating to a geophysical or geological survey shall include but not be limited to:
- (a) the name and location of the survey, including a location map;
 - (b) petroleum interests covered and name of petroleum interest holder/s and Operator;
 - (c) the start and end dates of acquisition;
 - (d) the names of acquisition contractors used;
 - (e) the final line kilometres recorded, and for a 3D seismic survey, the full fold area acquired;
 - (f) The number and length of lines and number of data acquisition points along each line;
 - (g) geometry of the acquisition parameters;
 - (h) particulars of the system and equipment used for data acquisition, positioning and navigation;
 - (i) results of any data processing;
 - (j) results of systems tests, calibrations and diagnostics;
 - (k) summary of acquisition including any data quality issues and recommendations, if any, regarding processing;
 - (l) itemised field tape listing showing tape number, survey name, line number, shot point range and data type; and
 - (m) detailed list of deliverables submitted with the acquisition report
 - (n) a copy of all weekly reports previously submitted under Clause 507.
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- (3) A processing report relating to a geophysical or geological survey shall include, but not be limited to:
- (a) name of the survey as per the acquisition report;
 - (b) the start and end dates of processing;
 - (c) name of processing contractors;
 - (d) the purpose of the processing;
 - (e) a summary of the data acquisition parameters;
 - (f) details of all processing sequences and techniques;
 - (g) for a geophysical survey a sample Extended Binary Coded Decimal Interchange Code (EBCDIC) header from the final data set;
 - (h) a list of processed data;
 - (i) for a 3D seismic survey – a description of the position of the survey polygon and a calculation for the 3 dimensional line numbering convention;
 - (j) summary of processing including any issues with data quality and recommendations, if any, for further processing; and
 - (k) detailed list of deliverables submitted with the processing report
- (4) An interpretation report relating to a geological or geophysical survey shall include, but not be limited to:
- (a) the survey name as per the acquisition and processing reports;
 - (b) a description of the objectives of the interpretation;
 - (c) a discussion and justification of the interpreted results;
 - (d) for a seismic survey;
 - (i) a list of the surfaces interpreted;
 - (ii) a justification of the surfaces interpreted, including synthetic seismograms if available;
 - (iii) the velocity field used to convert time to depth and the basis for the velocity field; and
 - (iv) time slices to describe the deposition environment if available.
 - (e) index of maps and sections;
 - (f) digital images of interpretative maps in approved format;
 - (g) conclusions drawn from the interpretation; and
 - (h) detailed list of deliverables / final products.

PART VI - REPORTING REQUIREMENTS FOR PETROLEUM INTERESTS

601 Periodic reports for exploration permits

- (1) Annual reports required under the Act shall include:
- (a) a general discussion of permit status and operations carried out (including office studies);
 - (b) technical conclusions derived from the year's operations;
 - (c) a list of reports submitted during the year;
 - (d) an outline of work plans for the next year;
 - (e) a summary of annual expenditure; and
 - (f) reports on desktop studies, geological surveys, core sampling reports, consultant reports or any other geoscience information not submitted with drilling or geophysical reports should be submitted in separate files as appendices to annual reports. Annual reports remain confidential, however appendices will be publically released as interpretative studies.

- (2) The annual report must clearly identify the interest holder's performance against the agreed minimum work program and provide explanations for any variations.

602 Periodic reports for retention licences

- (1) Annual reports required under the Act shall include:
 - (a) a general discussion of Retention Licence status and operations carried out, if any (including desktop studies);
 - (b) technical conclusions derived from the year's studies and/or operations;
 - (c) a list of reports submitted during the year;
 - (d) an outline of work plans for the next year;
 - (e) a summary of annual expenditure; and
 - (f) as per Clause 601(1)(f) if applicable.
- (2) The annual report must provide the Minister with a comprehensive understanding of the interest holders' activities during the year and the basis for any opinions about the future commerciality of the Petroleum Interest or otherwise
- (3) Six months prior to the expiry of the final year in the Retention Licence term, should the interest holder wish to extend the retention Licence, the interest holder must submit to the Minister a Marketing Report in support of the request for an extension.

603 Annual operations reports for production licences

- (1) Annual reports required under the Act shall include but are not limited to:
 - (a) a general discussion of Production Licence status and operations carried out (including office studies);
 - (b) technical conclusions derived from the year's operations;
 - (c) a list of reports submitted during the year;
 - (d) an outline of work plans for the next year; and
 - (e) a detailed summary of capital and operational expenditure incurred during the previous 12 month period and a summary of field expenditure to date.
 - (f) a forecast of capital and operational expenditure for the upcoming five (5) year period and a level 2 schedule of major field works and planned shutdowns.
 - (g) a reserves and resources update.
- (2) The annual report must provide the Minister with a comprehensive understanding of the status of the Production Licence and the interest holders plans to maximise the returns from the petroleum resource.

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