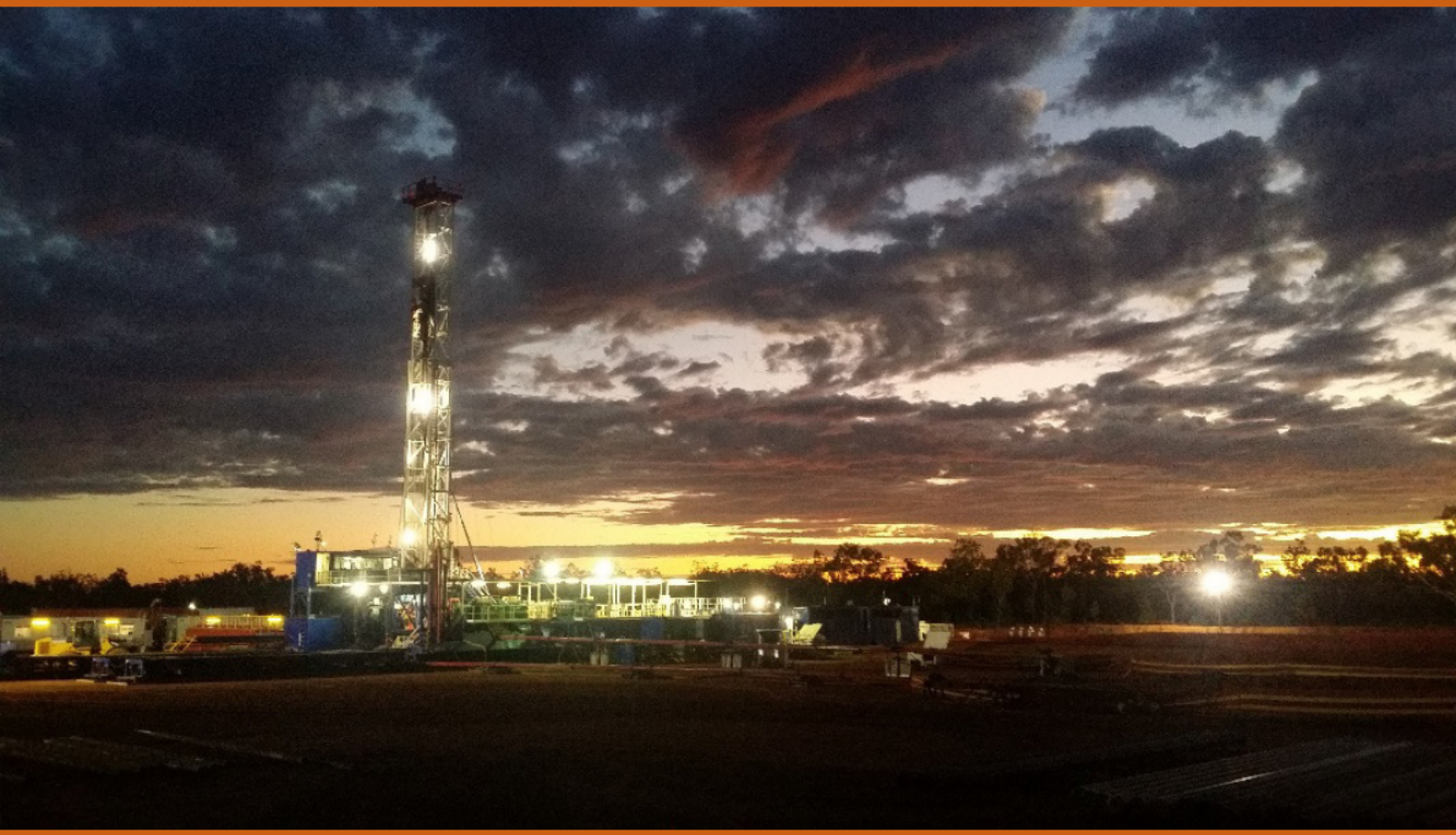
Department of Primary Industry and Resources
Submission #226

Energy Division
Department of Primary Industry and Resources

Submission to the Scientific Inquiry into Hydraulic Fracturing of Onshore Unconventional Shale Gas Reservoirs within the Northern Territory 2016



April 2017

NORTHERN TERRITORY GOVERNMENT

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Cover image (Kalala S-1 Wellsite at dawn, 2015) provided courtesy of Carl Altmann, Origin Energy.

Acronyms and Abbreviations

AAPA - Aboriginal Areas Protection Authority
ACOLA - Australian Council of Learned Academies
Act – *NT Petroleum Act*
AER - Alberta Energy Regulator
ALARP - As low as reasonably practicable
ALRA - *Aboriginal Land Rights (NT) Act (Cwlth)*
API - American Petroleum Institute
APPEA - Australian Petroleum Production & Exploration Association
ATSE - Australian Academy of Technological Sciences and Engineering
Bbl - Barrels
BOP - Blowout Preventer
CAS - Chemical Abstract Service
CBM - Coal bed methane
CLA - Cambrian Limestone Aquifer
COAG - Council of Australian Governments
CORE - Creating Opportunities for Resource Exploration
CSG - Coal Seam Gas
CTN - Consent to Negotiate
DTF - Department of Treasury and Finance
DENR - Department of Environment and Natural Resources
Department - Department of Primary Industry and Resources
DFIT - Diagnostic Fracture Injection Test
DIPL - Department of Infrastructure, Planning and Logistics
DoEE - Department of the Environment and Energy (Cwlth)
DoR - Department of Resources
DPIR - Department of Primary Industry and Resources
DTBI - Department of Trade Business and Innovation
EA Act - *Environmental Assessment Act*
EIA - Environmental Impact Assessment
EIS - Environmental Impact Statement
EMP - Environment Management Plan
EPBC Act - *Environmental Protection and Biodiversity Conservation Act (Cwlth)*
ERP - Emergency Response Plan
ESD - Ecologically Sustainable Development
Full Council Meeting - Land Council Representatives and Traditional Owners of a specific region are present
ILUA - Indigenous Land Use Agreements
Inquiry - Scientific Inquiry into Hydraulic Fracturing of Onshore Unconventional Shale Gas Reservoirs within the Northern Territory
LAO - Land Access Officer
MBbl – Thousands of barrels

MMBbl – Millions of barrels
MNES - matters of national environmental significance
MSDS - Material Safety Data Sheets
NAPE - North American Prospect Expo
NICNAS - National Industrial Chemicals Notification and Assessment Scheme
NNTT - National Native Title Tribunal
NOI - Notice of Intent
NOPSEMA - National Offshore Petroleum Safety and Environment Management Authority
NORMs - Naturally occurring radioactive materials
NT - Northern Territory
NT EPA - Northern Territory Environment Protection Authority
NTA - *Native Title Act*
NTCA - Northern Territory Cattlemen's Association
NTG - Northern Territory Government
NTGS - Northern Territory Geological Survey
PER - Petroleum (Environment) Regulations 2016
PExR - Petroleum Exploration Regulations
PPrR - Petroleum Production Regulations
RTN - Right to Negotiate
Schedule - Schedule of Onshore Petroleum Exploration and Production Requirements 2016
SCP - Spill Contingency Plan
SIM – System Integrity Manual
SNP - standard negotiating period
SPE-PRMS - Society of Petroleum Engineers-Petroleum Resource Management System
STRIKE – Spatial Territory Resource Information Kit for Exploration
TOs - Traditional Owners
WH&S Act - *Work Health and Safety (National Uniform Legislation) Act*
WMPC Act - *Waste Management and Pollution Control Act*

Units of Measurement

m^3 Cubic metres
ha Hectare
MBbl Thousands of barrels
MMBbl Millions of barrels
ML Megalitres, equivalent to million litres
GL Gigalitres, equivalent to 1 x 10^9 litres
Bcf Billion cubic feet, equivalent to 1 x 10^9 cubic feet
Tcf Trillion cubic feet, equivalent to 1 x 10^{12} cubic feet
GJ Gigajoules, equivalent to 1 x 10^9 Joules
TJ Terajoules, equivalent to 1 x 10^{12} Joules
PJ Petajoules, equivalent to 1 x 10^{15} Joules (and approximately 1 BcF of gas)

Introduction

Local, national and international demand-led growth for natural gas as an energy source stems from the global quest for energy security and commitments to reduce pollution and greenhouse gas emissions. Natural gas also underpins the Darwin to Katherine power grid, the Alice Springs grid and the Tennant Creek grid, with off-grid locations serviced by imported diesel and emerging solar hybrid options for remote communities.

Over the last decade, significant investments have been made in the Northern Territory's (NT) onshore exploration to discover recoverable reserves of shale gas. The greater McArthur basin and the Georgina basin including the Beetaloo Sub-basin, host some of the oldest potentially recoverable natural gas resources in the world. New technologies and drilling practices have improved the opportunities to target these "unconventional" natural gas resources.

The innovation that has facilitated the economically viable extraction of shale gas, are the improved precision and reduced costs of directional (horizontal) drilling and the introduction of engineered fracture fluids, such as slickwater, which are more efficient in creating dense networks of fractures to unlock gas from shale. These innovations amongst others have resulted in a significant increase in the exploration for, and production of shale gas.

Notwithstanding this, exploiting these resources within the constraints of the NT's limited infrastructure presents some significant challenges. In addition, the climate in the northern basins also precludes exploration for up to six (6) months of the year (November to April), limiting the time on ground compared to other jurisdictions.

The hydraulic fracturing technology used to release oil and natural gas from shale formations is not new and has been used globally since the 1950's. In the Territory it has been used safely for 50 years without environmental incident (albeit at modest scale in conventional oil and gas reservoirs). Since then, substantial improvements have been made to well integrity standards, which are the key pre-requisite in aquifer protection.

The petroleum industry has the potential to substantially increase its activity within a short space of time. Examples of this are evident in the United States. Following the Global Financial Crisis the shale boom quashed the outlook for 'peak' oil, substantially reduced the US reliance on foreign oil and cut greenhouse gas emissions by an impressive 30 percent while adding to the economic recovery. Closer to home, the increase in drilling activity for coal seam gas (CSG) took the Queensland government by surprise, forcing a regulatory system of 'adaptive management' developing legislation and regulation as the level of industry activity escalated. Effort should be made to ensure the regulatory framework and processes support industry development and address the socio- economic and environmental issues related to that industry in a well-coordinated and streamlined manner.

Northern Territory Petroleum Regulation and Resources

The Energy Division of the NT Government Department of Primary Industry and Resources (DPIR) leads the administration of petroleum titles management and regulation of petroleum activity in the NT, including coastal waters out to the 3 nautical mile limit. The Department continuously reviews the petroleum regulatory framework and over the last six years has introduced numerous mandatory risk mitigating requirements that operators must follow as a pre-condition to obtaining activity approval.

The NT Government is also investing $23.8 million over four years through the Department's NT Geological Survey (NTGS) Division to stimulate the exploration, discovery and development of new mineral and petroleum resources under its Creating Opportunities for Resource Exploration (CORE) initiative.

The focus is on research to maximise opportunities for the exploration and discovery of new mineral and petroleum resources. The intrinsic value of sound mineral and petroleum resource information is sometimes overlooked. It is this valuable information that builds the knowledge base of the NT's important mineral and petroleum assets and which is accessible to companies evaluating their prospectively. The Energy Division manages data generated from petroleum activities and assesses the technical quality, accuracy and comprehensive nature of that data before it is transferred to the DPIR data repository.

The Department of Trade Business and Innovation (DTBI) has the primary role in attracting investment to the NT. Promoting resources to domestic and overseas investors and explorers is the responsibility of the DPIR largely through NTGS Division, which promotes the prospectivity at national and international conferences and trade fairs and works closely with the DTBI on whole of government international trade missions.

The Energy Division keeps abreast of international leading practice in petroleum industry development, including regulatory and administrative matters. This is achieved through engagement with Commonwealth and inter-jurisdictional regulatory agencies, and regulatory agencies in the United States and Canada as well as expert advice from consultants.

Submission Context

The Department welcomes the opportunity to provide a submission to the inquiry which focusses specifically on hydraulic fracturing of unconventional shale. The submission is consistent with the Inquiry's "Background and Issues Paper", 20 February 2017. As discussed on page 5 of the Issues Paper, there are significant distinctions between the development of gas from coal seams and gas from deep shales. Not only are the geological formations clearly different, with shale gas deposits typically occurring at significantly greater depths, but the methods of extraction are materially different. Therefore, the risks and impacts associated with development of petroleum resources from shales cannot be compared as they are materially different from coal seam gas development.

This submission provides a detailed description of the administrative and regulatory framework for petroleum tenure and activities in the Northern Territory with an emphasis on hydraulic fracturing. Further, because the wellbore is the single pathway through which hydraulic fracturing occurs, along with all other well activities, a comprehensive description of well design, construction, and the Energy Division's assessment and compliance monitoring procedures is provided as the primary focus.

The submission also provides a brief history of petroleum development in the Northern Territory, of past hydraulic fracturing activities (both unconventional and conventional); together with an overview of the Northern Territory's petroleum resources and discoveries (conventional and unconventional) since 2010.

Known and potential environmental impacts are examined on the basis of local, national and international experience and knowledge. This is complemented with an analysis of areas of continued scientific research and the implementation of new technologies designed to reduce environmental impacts. A list of past operational and environmental incidents in the NT since 2007 is also presented.

This submission is consistent with the Inquiry's Terms of Reference and its "Background and Issues Paper", 20 February 2017. Those with relevant expertise within the Energy Division have provided input, information and advice across a range of issues. Every effort has been made to include all data and information available within the Energy Division, but should the Inquiry require further information, including the participation in any public hearings, the Department will assist wherever possible.

The submission makes extensive use of footnotes and attachments, and includes links to publicly available information on the agency's website.

Section 1: Existing Legislative and Regulatory Framework in the NT

This chapter provides a brief overview of the main aspects of the current regulatory framework. It is not exhaustive or comprehensive but clearly illustrates that petroleum operations are subject to a variety of legislation administered by several agencies. The Energy Division coordinates and consults with these agencies to ensure that all requirements are met in an efficient and timely manner.

The *Petroleum Act*

The *Petroleum Act* provides the regulatory framework for onshore petroleum exploration and production in the NT. *The Act* is supported by the Schedule and the PER which are given a statutory head of power under the *Petroleum Act* to impose specific management requirements. Additionally, the instrument (approval) by which the petroleum interest was first granted may include certain conditions that must be complied with. Under the *Petroleum Act* and the Schedule an interest holder is required to submit a work program, environment management plan, system integrity manual (SIM) and evidence of a land access agreement with the property owner and/or occupier among other requirements under the land access guidelines.

The *Petroleum Act* Part V, Division 2 deals with environmental offences and provides definitions for 'environmental harm', 'material environmental harm' and 'serious environmental harm' as well as environmental offences consistent with the *Environmental Offences and Penalties Act*. Accordingly, interest holders may be prosecuted for causing environmental harm.

Depending on the nature of the proposed activity and in addition to the statutory instruments (such as an approval by the Minister) above, the following additional Territory and Commonwealth legislation may be applicable:

Commonwealth

- *Aboriginal Land Rights (Northern Territory) Act 1976*
- *Australian Heritage Council Act 2003*
- *Environmental Protection and Biodiversity Conservation Act 1999*
- *Native Title Act 1993*

Northern Territory

- *Aboriginal Land Act 2010*
- *Aboriginal Sacred Sites Act 2004*
- *Bushfires Act 2009*
- *Control of Roads Act 2008*
- *Dangerous Goods Act 2012*
- *Environmental Assessment Act 1994*
- *Environmental Offences and Penalties Act 2011*
- *Fire and Emergency Act 2004*
- *Heritage Conservation Act 2008*
- *Information Act 2016*
- *Northern Territory Aboriginal Sacred Sites Act 2013*
- *Northern Territory Environment Protection Authority Act 2012*
- *Public and Environmental Health Act 2011*
- *Soil Conservation and Land Utilisation Act 2009*
- *Territory Parks and Wildlife Conservation Act 2011*
- *Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act 2016*
- *Waste Management and Pollution Control Act 2011*
- *Water Act 2011*
- *Weeds Management Act 2001*
- *Work Health and Safety (National Uniform Legislation) Act 2011*[1]

1 A list of government agencies with roles and responsibilities under NT and Commonwealth legislation is available at Attachment G.

The list above is not exhaustive and it is the responsibility of the petroleum interest holder to ensure compliance with all applicable laws. Having said that, Energy Division's compliance officers work with petroleum interest holders, and other government agencies, to ensure that all requirements are clearly understood to ensure that project assessments and approvals can be processed efficiently.

To clarify requirements and expectations, the Energy Division develops and maintains guidelines on specific areas of petroleum operations. The guidelines support the regulatory framework by identifying standards and best practices that will have a greater likelihood in assuring approval for projects can be obtained. Once projects are approved, the supporting documentation such as work programs and environment management plans become legally binding so that the government has certainty about the way in which projects are conducted.

Figure 1 illustrates the regulatory framework in the NT. The *Petroleum Act* and other Acts are primary legislation, supported by the Schedule and Regulations, which in turn are supported by policies, guidelines and codes of practice and so on.

Figure 1: Regulatory framework in the NT.

Environmental Assessment Act

Any proposed development in the Northern Territory that has the potential to have a significant environmental impact must be referred to the Northern Territory Environment Protection Authority (NT EPA) for assessment. The NT EPA consists of an independent board which provides recommendations and advice to the Minister for Environment.

Petroleum exploration typically has a small environmental footprint. Seismic surveys involve clearing of tracks for trucks but are rehabilitated as soon as the recording has finished. Petroleum exploration drilling is mostly limited to a handful of wells and may involve hydraulic fracture stimulation to test the potential of the rocks to flow petroleum to the surface. No exploration projects have thus far been assessed under the *Environmental Assessment Act* (*EA Act*) after having been referred under a Notice of Intent (NOI).

Any proposal that will involve petroleum production will be assessed under the *EA Act*. Similar to Jemena's Northern Gas Pipeline Project, a petroleum production project proposal will be required to submit an NOI to the Energy Division or the NT EPA directly. The NT EPA will then decide whether a Public Environment Report or an Environmental Impact Statement (EIS) is required. The NT EPA will then provide the proponent with terms of reference it must satisfy to prepare the Public Environment Report or EIS. The environmental assessment will involve public consultation and result in an assessment report from the NT EPA to the Minister for Environment. The Minister for Environment will consider the report's recommendations and provide the responsible Minister (Minister for Resources) with a copy of the report and his or her views about the proposal. If the responsible Minister agrees with all the recommendations, a notice to this effect must be provided to the NT EPA. If the decision is contrary to the report, a notice stating the reasons for this decision is to be tabled in the Legislative Assembly within six sitting days.

Environment Protection and Biodiversity Conservation Act

If any matters of national environmental significance (MNES) are potentially affected by the proposal the project will also be assessed under the *Environmental Protection and Biodiversity Conservation Act*. The NT EPA has a bi-lateral agreement with the Commonwealth that allows the NT EPA to perform the assessment however, any decision about conditions on the project and to allow it to proceed will remain the decision of the Commonwealth Minister for the Environment. The following nine matters are MNES:

- world heritage properties;
- national heritage places;
- wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed);
- nationally threatened species and ecological communities;
- migratory species;
- Commonwealth marine areas;
- the Great Barrier Reef Marine Park;
- nuclear actions (including uranium mining);
- a water resource, in relation to coal seam gas development and large coal mining development.

Petroleum (Environment) Regulations

If the project is approved to proceed, the proponent will then be required to complete an Environment Management Plan (EMP) that complies with the Petroleum (Environment) Regulations. The EMP is assessed by the Energy Division to ensure that all regulatory requirements and any conditions that may have been imposed on the project have been addressed appropriately. The EMP is an enforceable document under the PER and *the Act* and is made public on the Department's website (see p62, ***Links to NTG and DPIR webpages***).

Water Act

Petroleum projects are exempt from certain parts of the *Water Act*. A right conferred by an exploration permit is to use the water resources available on the permit for domestic use and petroleum exploration activities. Water use during exploration activities is rather small compared to existing use and therefore the exemption has not raised any cause for concern. Importantly, such a right is not conferred by a Petroleum Production Licence. Notwithstanding an exemption for mining and petroleum activities under section 7 of the *Water Act*, petroleum production projects are required to obtain a water extraction licence for their operations under the *Water Act*. The Energy Division works closely with the water branch in the Department of Environment and Natural Resources (DENR) to ensure that water use by petroleum companies is sustainable. The Energy Division is also working with DENR to review the *Water Act* to ensure there is an equitable distribution of water to sustain livelihoods, the environment and the economy.

Waste Management and Pollution Control Act

The *Waste Management and Pollution Control Act* (WMPC) is administered by the NT EPA. It applies to petroleum operations when waste including flowback water from hydraulic fracturing operations leaves the designated petroleum site. Any pollution that occurs on the petroleum lease site is dealt with under the *Petroleum Act*, whereas any waste or pollution that occurs outside the petroleum lease site triggers the *WMPC Act*. Notwithstanding petroleum interest holders are required to provide the Energy Division with a spill contingency plan (SCP) to deal with any hydrocarbon or chemical spill as a result of petroleum operations.

The environmental assessment and approval process is described in detail in the explanatory guide to the Petroleum (Environment) Regulations:

https://nt.gov.au/__data/assets/pdf_file/0005/295907/em-petroleum-environment-regulations.pdf

Schedule of Onshore Petroleum Exploration and Production Requirements

The Schedule is a prescriptive legislative instrument that is given force through a Direction from the Minister under section 71 of *the Act*. Non-compliance with the Schedule may result in fines. The Schedule includes detailed requirements for the management of seismic surveys, drilling, completing and testing of wells including hydraulic fracturing. It also sets out requirements for the reporting of incidents, daily reporting requirements and data collection and transfer. The Schedule is regularly reviewed to ensure it is reflective of contemporary best practice. It acts effectively as a comprehensive and binding Code of Practice. The Energy Division is considering whether some of the prescriptive aspects of the Schedule could be replaced with a Code of Practice while transferring the regulatory framework to regulations, similar to the environment regulations.

Work Health and Safety Act

In 2008, work health and safety regulation was transferred to NT WorkSafe. Consequently, in 2010 all work health and safety requirements were removed from the Schedule. Under the *Work Health and Safety Act*, petroleum interest holders have a duty of care to protect their workers and comply with *the Act*. Notwithstanding, as part of its approval process, the Energy Division requires that the petroleum interest holder submit a System Integrity Manual (SIM) as well as an Emergency Response Plan (ERP) to facilitate a rapid and effective response in the unlikely event that an emergency should occur during petroleum operations.

Section 2: Regulatory Processes for Petroleum Tenure and Activities in the NT

The following section provides a comprehensive description of the legislative and regulatory processes under the *Northern Territory Petroleum Act 2016* (*the Act*) that govern petroleum tenure and activity management, including hydraulic fracturing and well construction, in the Northern Territory.

2.1 Tenure Management and Administration

2.1.1 Background

The oil and gas exploration industry in the NT is in the very early stages. Of the 53 granted permits, only two titleholders are in advanced stages of exploration with the potential to prove up known resources within the next 5-10 years to reach retention or production licence status.

Tenure management and regulation in the current form has served the NT well in the past, albeit more suited to conventional exploration. The NTG recognises that substantial changes are required to meet current and future changes in technology for exploration and production. DPIR has commenced an ongoing review of *the Act* and is developing Resource Management Regulations.

As is with other jurisdictions for example, the Western Australian 2020 legislative reform review, the NT will be required to continually review legislation and processes to meet the changes in technology and ensure that there is a continual social, environmental, ecological and economic balance.

The application for, grant and maintenance of petroleum tenure onshore and within inland water of the Territory is administered under *the Act*[2]. *The Act* is the principal legislation dealing with petroleum tenure, exploration and production activities together with the Schedule[3] and the Petroleum (Environment) Regulations 2016 (PER)[4].

Section 3 provides the following Objective for *the Act*:

> **3 Objective**
> (1) The objective of this *Act* is to provide a legal framework within which persons are encouraged to undertake effective exploration for petroleum and to develop petroleum production so that the optimum value of the resource is returned to the Territory.
> (2) The legal framework provides for the following:
> (a) the granting of petroleum interests to persons for exploration, production and ancillary activities associated with exploiting petroleum, and the renewal or transfer of those interests
> (b) clear statements about the role of government following the grant of petroleum interests
> (c) the promotion of active exploration for petroleum, and of the development of petroleum production if commercially viable, by persons granted petroleum interests
> (d) the assessment of proposed technical works programmes for the exploration, appraisal, recovery or production of petroleum and of the financial capacity of persons proposing to carry out those programmes
> (f) the reduction of risks, so far as is reasonable and practicable, of harm to the environment during activities associated with exploration for or production of petroleum
> (g) the collection of information about petroleum exploration and production and the dissemination of that information
> (h) the efficient administration of this *Act* and collection of royalties
> (i) other matters in connection with exploration for and production of petroleum.

2 https://legislation.nt.gov.au/Legislation/PETROLEUM-ACT
3 https://nt.gov.au/__data/assets/pdf_file/0004/295906/schedule-of-petroleum-onshore-requirements-2016.pdf
4 https://legislation.nt.gov.au/en/Legislation/PETROLEUM-ENVIRONMENT-REGULATIONS

In 2010/11, the Territory experienced a significant increase in interest in onshore oil and gas exploration in the wake of the global shale gas boom, particularly in the United States. The interest included 'conventional' oil and gas plays and 'unconventional' plays such as shale gas, which relies on high volume hydraulic fracturing fluids to economically and effectively extract gas from shale.

The increase saw permit applications being submitted over 85% of the NT. In some cases applications were lodged over areas with high conservation values or considered having little to no prospectivity for oil or gas.

Additionally, at this time, there was a Government expectation that undercapitalised junior explorers would undertake first stage exploration for example: seismic surveys providing much needed structural geological data of the areas.

The three main categories of land in the NT that determine the process of an application are, Freehold, Aboriginal Freehold Land and Native Title affected land:

- Applications over freehold land are unencumbered by native title or aboriginal land rights claims
- Applications over Aboriginal Freehold Land are subject to sections 12 and 13 of *the Act* which provide for consent to negotiate under Part IV of the *Aboriginal Land Rights (NT) Act 1976* (Cwlth)[5]
- Applications over Native Title affected land (i.e. pastoral lease) are subject to section 29 of the *Native Title Act* (Cwlth)[6]

The NT currently administers the following onshore petroleum tenure:

- 135 exploration permit applications (permit application)
- 53 granted exploration permits (permit)
- 3 retention licences
- 5 production licences
- 1 pipeline permit
- 26 pipeline licences
- 14 reserved blocks

These are shown on the map *onshore petroleum titles and developments*[7].

The permit applications are at various stages of negotiation under the *Native Title Act* (NTA) or *Aboriginal Land Rights (NT) Act 1976* (ALRA). Natural justice must be provided so as to allow the negotiation process to be completed and to avoid risk of litigation and loss of opportunity for Traditional Owners (TOs) to reach an agreement with an applicant.

On 1 January 2014, the *Petroleum Amendment Act 2013* introduced an 'Acreage Release Regime' to allow for the strategic and controlled release of vacant land. This "bidding process regime" allowed for the acceptance of multiple applications for petroleum exploration permits over that vacant land. The amendments provide for a more competitive market allowing the NTG to select the most meritorious application for consideration of grant.

As a result, *the Act* is now more closely aligned with Commonwealth and neighbouring jurisdictions'. As well as introducing competition in the market this harmonisation approach assists international and Australian companies with their national portfolio activities.

As of November 2015, the NTG introduced a revised policy (see Attachment H) by which land for petroleum exploration would be assessed and released for oil and gas exploration or development, excluding areas such as:

- Urban living areas including rural residential areas
- Areas of intensive agriculture
- Areas of high ecological value
- Areas of cultural significance
- Areas that include assets of strategic importance to nearby residential areas.

5 Attachment C, p113 – Flowchart: ALRA.
6 Attachment C, p115 – Flowchart: Native Title.
7 Attachment C, p117 – Map: Onshore Petroleum Titles and Developments.

DPIR applies this policy on behalf of the NTG and the Minister; it will not approve existing applications, nor release for competitive bidding any areas assessed as exhibiting one or more of the above criteria. For example, on 21 November 2016, in accordance with Section 9 of *the Act* (Reservation of Blocks), a reserved block was declared over Nitmiluk National Park, and on 27 March 2017, a reserved block was also placed over Watarrka National Park. A reserved block provides assurance that no exploration permit or licence shall be granted over acreage for which a reservation is in place.

Moreover, *the Act* requires environmental consideration in relation to parks and reserves under section 15. The Minister must consider the opinion of the minister administering the *Territory Parks and Wildlife Conservation Act* and impose conditions and directions on exploration permits and production licences as required.

(1) In respect of land comprising the whole or a part of a park or reserve, the Minister shall not grant:
(a) subject to subsection (2), an exploration permit or retention licence, unless he has considered the opinions of the minister administering the *Territory Parks and Wildlife Conservation Act* in relation to the proposed grant; or
(b) a production licence, except in accordance with the conditions, if any, specified by the minister administering the *Territory Parks and Wildlife Conservation Act*.

(2) Notwithstanding subsection (1)(a), the Minister shall not grant an exploration permit or retention licence in respect of land comprising the whole or part of a wilderness zone except in accordance with the conditions, if any, specified by the minister administering the *Territory Parks and Wildlife Conservation Act*.

(3) A permittee or retention licensee shall not carry out his technical works programme, or any other exploration, which may cause substantial disturbance to the surface of land comprising the whole or a part of a park or reserve unless he has advised the Minister, in writing, of his intention to carry out the activity and he carries it out in accordance with such directions, if any, as the Minister thinks fit, or which are required under subsection (4) to be given, to protect the environment in or in the vicinity of the park or reserve.

(4) The minister administering the *Territory Parks and Wildlife Conservation Act* may require the Minister to give as directions under subsection (3) such directions in relation to the protection of the environment in the park or reserve as the minister thinks fit, and the Minister shall give those directions accordingly.

The Energy Division has commenced discussions with applicants (and titleholders) requesting that they review and where applicable, rationalise applications and tenure in areas now known as not prospective for oil and gas exploration. In 2016 this resulted in an exploration company withdrawing 22 permit applications.

There are a number of regulatory processes that must be undertaken before a permit application is granted.

The steps to the grant of a permit application are as follows:

- land release
- advertising / notification of successful permit application
- *Native* Title *Act* or *Aboriginal Land Rights (NT) Act* process
- permit grant.

Certain parties may lodge an objection to the grant of a permit which is described later in this chapter.

Land Access

In Australia, all resources below the topsoil are the property of the Crown to be exploited for the benefit of its citizens. However, private ownership or lease of land for a range of uses including agriculture, recreational and other uses, means coexistence is a fundamental principle that requires appropriate attention.

The NTG acknowledges that the pastoral industry has played an enduring role in the development of the NT and it is critical to the continuing stewardship of the NT's natural resource estate. The government also acknowledges that the oil and gas industry has been an important factor in the development of the NT economy.

Oil and gas companies and pastoralists have respective rights and obligations associated with access to pastoral land to undertake certain activities; as well as rights and obligations to carry out their respective activities with due regard for each other's needs.

Under the requirements of the newly enacted Petroleum (Environment) Regulations 2016 (PER), operators must carry out an extensive consultation process with all stakeholders before approval for a petroleum activity can be granted. Operators are expected to address all stakeholder concerns to a point where all parties are "reasonably satisfied". The issues raised by stakeholders and actions taken to address them must be included in the operators' Environmental Management Plan (EMP). If matters remain unresolved following the consultation process, the Energy Division can act as a facilitator until a common level of agreement is reached. Ultimately, the decision to accept an EMP rests with the Minister or delegate.

A Land Access Agreement requirement has also recently been introduced to guide both pastoral lessees and oil and gas proponents in developing a mutual understanding on land access issues. This agreement has the support of both the Australian Petroleum Production & Exploration Association (APPEA) and the Northern Territory Cattlemen's Association (NTCA). In respect of land subject to the Aboriginal Land Rights Act and the Native Title Act, land access negotiations and agreement form part of the application negotiation processes.

Both the pastoral industry and oil and gas industry depend on access to land in order to encourage investment and deliver outcomes for families, investors and the NT economy. In 2015, the government negotiated with the Northern Territory Cattlemen's Association (NTCA) and representatives of the oil and gas industry, to reach agreement on a series of principles under which oil and gas companies may obtain access to pastoral land for exploration.

These principles are based on a shared understanding of the mutual needs of the parties and take into account the need for collaborative approaches. The agreed mechanism by which exploration companies may gain access to pastoral land is through reaching a negotiated agreement.

DPIR introduced a number of changes to the procedures for permit applications that provide opportunities for effective stakeholder engagement between the oil and gas industry and the pastoralist before the grant of a permit. This is in addition to the engagement required before the commencement of activity. The changes prompt for a number of early opportunities to commence conversations and gain a better knowledge of what may be planned by the explorer, and to discuss appropriate shared land use arrangements. Respective activities then take place without undue inconvenience or disruption to the pastoralists.

DPIR now requires that a form of agreement is reached to ensure that land use and access requirements are clearly understood and agreed to by both parties. Stakeholder engagement between the oil and gas company and pastoralist must commence as soon as possible once a company has been notified that they are the preferred applicant following the Acreage Release assessment process.

An agreement must be reached within 60 days of starting negotiations. If no agreement can be reached, either party can refer to a decision making panel consisting of industry representatives and the chief executives of the following departments:

- Department of Primary Industry and Resources
- Department of Environment and Natural Resources
- Department of Infrastructure, Planning and Logistics.

The panel must make a recommendation to DPIR about access and conditions within 21 days. Both the explorer and the Landholder/Manager can ask the civil court to review the recommendation made by the panel.

Reservation of Blocks

As previously stated, another safe guard in *the Act* is the reserved block mechanism. The Minister may declare a reserved block under section 9 of *the Act*. A reserved block prevents any form of exploring or drilling for the recovery of petroleum resources (**Figure 2**).

When determining a reserved block DPIR in conjunction with other relevant government agencies will consider the environmental and ecological factors that may be impacted by exploration for or production of petroleum, including but not limited to:

- Municipality borders
- Parks and reserves
- Residential zones
- Water supply
- Waterways
- Stakeholder requests

Reserved Blocks in the NT are also represented on the *map of petroleum reserved blocks*[8].

2.1.2 Energy Tenure Team

The Energy Tenure Team within Energy Division of the Department administers the application for, grant and maintenance of petroleum tenure onshore and within inland waters of the Territory.

Responsibilities

The Energy Tenure Team's primary administrative responsibilities are to:

- administer competitive acreage releases
- manage the grant of all petroleum tenure (exploration permit, retention, production and pipeline licences) in accordance with relevant NT and Commonwealth legislation
- administer Part IV of the ALRA and the NTA on behalf of the Commonwealth
- maintain registers of all petroleum tenure in accordance with relevant NT legislation (Extracts and inspection of the registers are available to any person upon payment of the prescribed fee)
- process and register agreements relating to petroleum tenure with the aim of maintaining a comprehensive record of granted petroleum titles and related transfers and dealings affecting those titles i.e. Sale and Purchase Agreements, Joint Operating Agreements, Farm-out and Farm-in Agreements and associated Transfers
- monitor titleholder's compliance with grant conditions, reporting and legislative requirements, including the payment of annual fees, lodgement of securities and evidence of insurance
- implement government policies and develop procedures and guidelines relevant to petroleum tenure management including land access matters
- manage the Energy Division's electronic data base and spatial systems
- provide a customer service to industry and other stakeholders.

Attached is a summary of the types of petroleum tenure administered in the NT[9].

2.1.3 Petroleum Tenure Administration

The following section provides a comprehensive overview of the processes together with flow-chart representations for the application, grant and maintenance of onshore petroleum tenure in the NT[10].

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8 Attachment C, p119 – Map: Reserved Blocks.
9 Attachment C, p121 – Guideline: Summary of Titles.
10 Attachment D, p311 – Flowchart: Energy Titles.

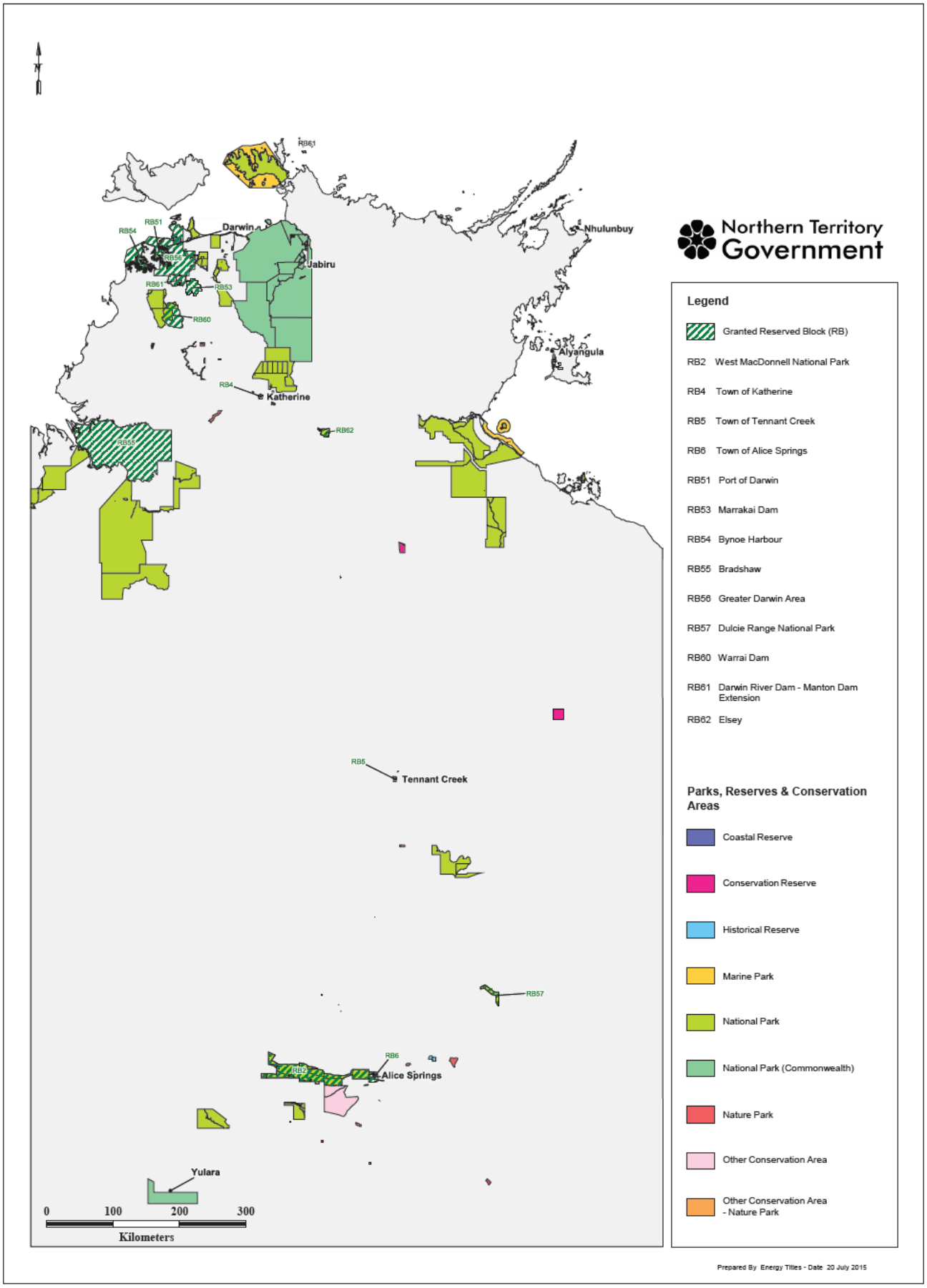

Figure 2: Northern Territory Reserved Blocks, Parks, Reserves and Conservation Areas.

Acreage Release Process to Grant of Exploration Permit

To commence exploration for oil and gas, industry must apply for a permit through the acreage release regime. NTG releases vacant land allowing industry to bid for a permit application. Areas are released as result of a request by industry, land becoming available via cessation, or the strategic release of land considered prospective for oil and gas exploration with no existing/previous petroleum tenure.

Assessment of Vacant Land for Acreage Release

Acreage is only released following consultation with key stakeholders and where it is considered prospective for oil and gas exploration.

Assessment of the underlying tenure is undertaken to ensure that acreage is not released over conflicting land tenure i.e. dual tenure (Aboriginal Freehold Land or Pastoral Lease).

The NTG will not release areas for petroleum exploration in areas such as:

- Urban living areas including rural residential areas
- Areas of intensive agriculture
- Areas of high ecological value
- Areas of cultural significance
- Areas that include assets of strategic importance to nearby residential areas.

See **Figure 3** for granted permits and shales resources in the NT.

Stakeholder Consultation Process for Acreage Release

DPIR through the Energy Division consults with Stakeholders that may be affected by the potential release of acreage. This is in the form of a letter of notification, map and description of area. Stakeholders are requested to provide comment on whether there are matters to be considered before the release of acreage e.g. future dam or proposed heritage site.

Stakeholders may include, but are not limited to:

- NT and Commonwealth Government Agencies
- Power and Water Commission
- Land Councils
- Local Government Councils
- Amateur Fishermen's Association of the Northern Territory
- Aboriginal Areas Protection Authority (AAPA)
- Parks and Wildlife Commission

All comments are taken into consideration when determining an area for release. Energy Division will undertake extensive discussions with stakeholders should there be any impact or conflict in regards to a release area.

Acreage Release Notification

Acreage Releases are notified in the NT General Gazette as per section 16(1) of *the Act*. The Minister may announce the acreage release at a national or international conference i.e. Australian Petroleum Production and Exploration Association (APPEA) or North America Prospectors Expo (NAPE).

The 'Notice of Invitation for a Petroleum Exploration Permit Application' (the Notice) includes the description of the area, open and close dates for receipt of applications, special instructions and details on the information to be provided by the applicant as per section 16(3) of *the Act*.

Energy Division notifies affected Landholder/Managers of the release of acreage. This is in the form of a letter, map and description of the area.

Energy Division publishes an *Acreage Release Kit* that includes the Notice, geological and geophysical data and the *Petroleum Exploration Permit Application and Conditions Guideline* (Section 21E – the Guideline)[11].

The Acreage Release Kit and submission details are also published on the Energy Division website.

11 Attachment C, p125 – Guideline: Petroleum Exploration Permit Application Process.

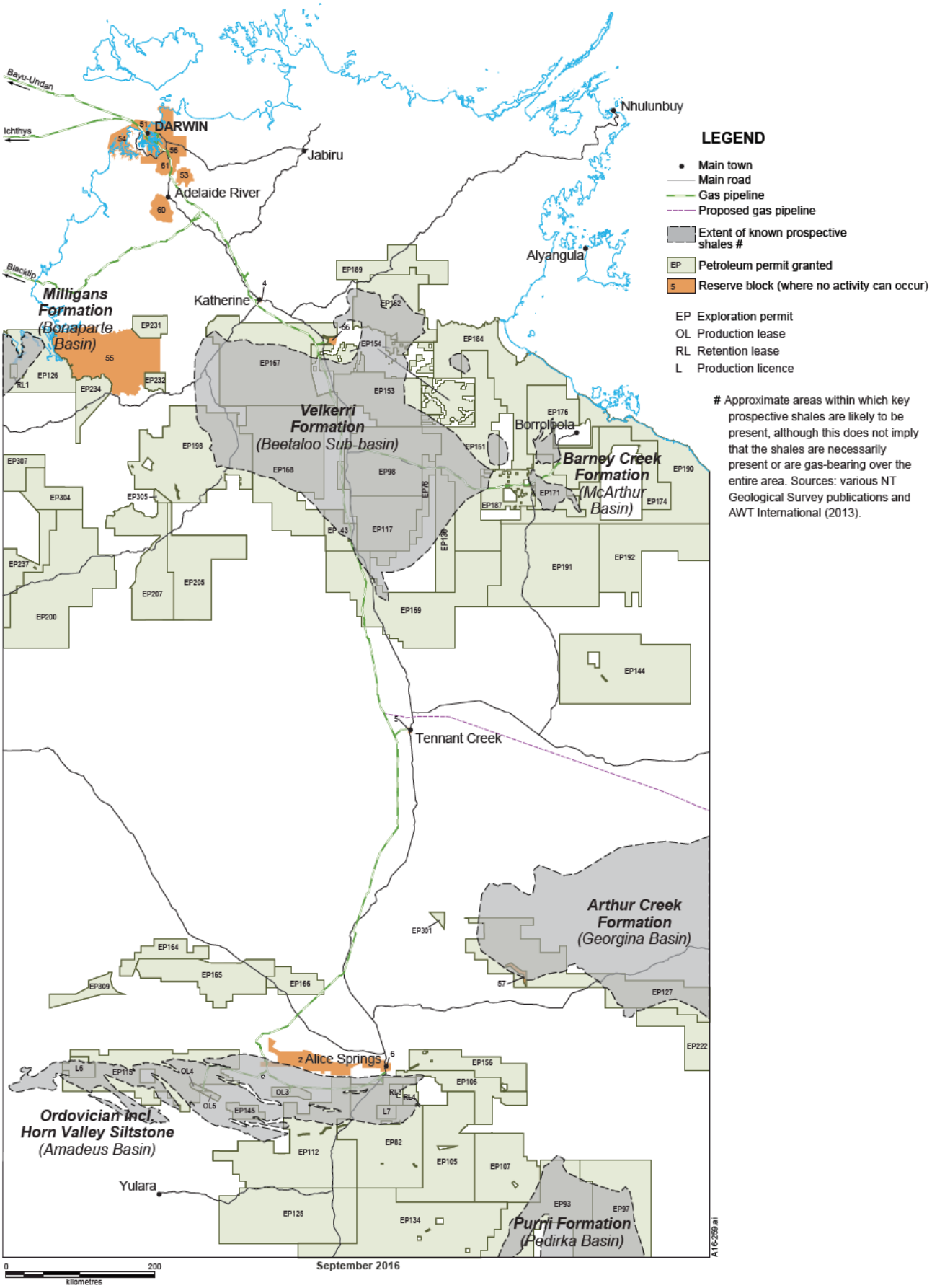

Figure 3: Granted Petroleum Titles and prospective shale areas.

Receipt and Assessment of Acreage Release Applications

Energy Division has developed procedures for the receipting, registering and assessment of bids for a permit application:

- Acreage Release Process for the Receipting and Registration of Petroleum Exploration Permit Applications[12]
- NT Acreage Release Assessment Process for Petroleum Exploration Permits[13]

Once assessment is complete, a recommendation is forwarded to the Minister to approve the most meritorious application for consideration of grant. Should the Minister agree with the recommendation, a letter of notification is sent to the applicant advising the outcome of the application.

The letter will seek confirmation that the applicant is willing to continue with the application and is aware of the requirements under ALRA/NTA. The applicant is required to respond within 14 days of receipt of letter.

If no response is received from the applicant, the offer expires and the next application with the greatest merit may be offered the area.

Permit Application

The permit application process commences once a successful bid has been awarded and the applicant has confirmed the intention to proceed through the application process[14].

The acreage release area is then issued with a permit number and the applicant commences the application process.

Following Grant of a Petroleum Exploration Permit (permit)

Section 29 of the Act states that a permit, while it remains in force, gives the titleholder, subject to the Act and in accordance with any conditions and directions, if any the exclusive right to explore for petroleum, and to carry on such operations and execute such works as are necessary within the permit area.

The maximum area allowed under the Act for a permit is 200 graticular blocks. A graticular block is approximately 80 km^2, therefore the largest permit could be 16 000 km^2.

Land Holder Consultation

Within 14 days of the acceptance of offer to proceed through the permit application process, the applicant is required to notify affected Landholder/Managers. The applicant is also required to provide regular updates to the landholder/managers.

The Stakeholder Engagement Guidelines for Land Access detail the timeframes expected to be adhered to by the applicant[15].

Advertising/Notification of Permit Application

Section 18 of *the Act* requires that a permit application is advertised (at the expense of the applicant) in the NT News, NT General Gazette and Koori Mail (if applicable). The advertisement provides:

- applicant details
- location map of the permit area
- size of the permit area
- a two month objection period for a person who has an estate or interest in relation to the permit area to lodge an objection under section 19 of *the Act*.

The Minister may issue a Consent to Negotiate (CTN) if a permit area includes ALRA land and no objections are received in the two month objection period.

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12 Attachment C, p148 – Guideline: Bids Receipting and Processing.
13 Attachment C, p157 – Guideline: Bids Assessment and Process.
14 Attachment D, p312 – Flowchart: Energy Titles – Land Release.
15 Attachment C, p180 – Guideline: Stakeholder Engagement.

Section 29 of the NTA requires a four month notification period of a permit application. This notification provides Native Title claimants or any person who is, or becomes a native title party, to register and or lodge an objection.

Objections – section 19 of the Act

Following the advertising of a permit application, interested parties may lodge an objection to the grant of the permit to the Minister within the two month objection period. An interested party is one who has an estate or interest in relation to land comprised in, or land contiguous with land comprised in the application area.

On receipt of an objection the Minister must give the applicant copies of the objection, together with a notice that within 30 days after the date of the notice, the applicant may lodge replies to or other comments about the objections with the Minister.

During this time the applicant may take the opportunity to meet with the objector/s and discuss the issues raised in the objection.

The Minister takes into account all objections and responses when making a decision on a permit application before progressing to the Right to Negotiate (RTN) or CTN process.

Energy Division will undertake extensive discussions with relevant agencies and stakeholders should there be any potential impact or conflict in regards to the permit application area. For example, Power and Water Corporation identified the Howard Borefield as an asset of strategic importance to nearby rural residential areas within Petroleum Exploration Permit Application 224 (EP224). The Howard Borefield was excised from the area and EP224 was later subsequently withdrawn following a full review of the objection/s.

Section 57AB of *the Act* gives rights to aggrieved person (the applicant) to apply for a review of the Minister's refusal to grant or renew of a petroleum application. However, there is no provision in *the Act* for the broader general public to apply for the review of the grant of a petroleum title. *The Act* gives rights to certain stakeholders to have their objections considered (among other matters) by the Minister before the decision to grant or refuse is made.

Under general law, administrative decisions (e.g. the grant of or refusal to grant a petroleum title) may be challenged if grounds exist for judicial review of the decision. Examples of grounds include where the decision maker:

- acted beyond their power;
- made an error of law;
- failed to take into account a relevant consideration;
- appeared to be affected by bias or was biased.

If a challenge was successful, the decision would likely be set aside and the decision maker would need to reconsider the decision, correcting any defect in the original decision.

To date, no permit has been granted in the NT that has been subject to objection/s. Generally, following extensive consultations applicants have withdrawn their permit application or the Minister has refused the permit application. In 2015 the NTG refused three permit applications that were over exclusion zones.

Processes under the *Aboriginal Land Rights (NT) Act*

Consent to Negotiate (ALRA)

The Minister may issue a CTN under section 13 of *the Act* for a permit application over Aboriginal Freehold Land post advertisement and objection period. (Attachment C.1 –Flowchart Aboriginal Land Rights Process)

An applicant may not enter into negotiations with a Land Council, (representative body for TOs), without the Minister's consent. The Minister may give or refuse consent to negotiations between the applicant and the relevant Land Council for the Council's consent to the grant of the permit. The Minister's consent to negotiation may be given conditionally or unconditionally and may be withdrawn at any time before the negotiations are concluded.

During the CTN process, the respective Land Council and applicant will attend meetings with the TOs for the purpose of explaining and discussing proposed exploration activities as required by section 42 of ALRA.

Once objections have been dealt with under section 13 of *the Act*, a letter is sent to the Applicant, Land Council and Federal Minister advising that a CTN has been issued.

In accordance with section 41(2)(a) of ALRA, the applicant has three months from the issue of CTN date to lodge a section 41(6) ALRA proposal/application with the relevant Land Council and a copy to the Minister. An applicant may request an extension of time in which to lodge a proposal/application. The request must be made in writing to the Minister before the end of the three month period.

The Minister must make a decision within six weeks of receiving a request for an extension, and notify the applicant in writing that the consent period will either be extended or refused. If extended, the period must not exceed three months.

The Minister may refuse the extension request; refusal is effective before the end of the period of seven days commencing on the day the person receives notice of the refusal.

When an applicant has failed to submit the section 41(6) ALRA proposal/application with the relevant Land Council within the three month period, the applicant may request a re-issue of CTN; departmental policy is to limit such requests to a maximum of three requests.

Consent by the Minister is *deemed to have been withdrawn*:

- if an applicant fails to lodge a proposal/application within the three month period
- if the respective Land Council rejects the proposals lodged by the applicant
- if a proposal is not lodged and accepted within the three month period.

Once a proposal has been lodged and accepted by the relevant Land Council, the Land Council notifies the Minister the acceptance date in writing, which in turn starts the 22 month standard negotiating period (SNP). The SNP may be extended in 24 month increments (agreed period) until an agreement is/is not reached. Future extensions to the agreed period of 12 months can be agreed by the applicant and the Land Council. The Land Council must notify the Minister of any agreed period extensions under section 42(13)(B) & (C) of ALRA.

Land Access Officers (LAOs) within DPIR's Native Title and Aboriginal Land Rights Unit establish relationships with applicants to ensure they are provided with every opportunity to actively negotiate with Traditional Owners (TOs) and Land Councils.

Following Land Council confirmation of receipt of a proposal/application a LAO contacts the applicant to confirm the process before the initial meeting with TOs (section 42 of ALRA). The early contact assists applicants with preparations for their initial meeting. The initial meeting is the first opportunity for an applicant to present the section 41 ALRA proposal to the TOs.

The Land Council is required to notify the applicant in writing to advise that pursuant to section 42(4) of ALRA a meeting of TOs to consider an application for the consent to grant of a permit application is to be held at a set venue on a set date.

Consent to Grant is given by the Land Council typically after a Full Council Meeting where a deed has been ratified by the TOs. The Land Council must then notify the Federal Minister and the Minister within seven days of a decision being made. Land use agreements are ratified at Full Council Meetings', which are held twice a year.

The Federal Minister then has 30 days after receipt of notification from the Land Council to

consent to the grant. Once the Land Council and the Federal Minister have consented to the grant of permit, the Land Council and applicant will enter into an agreement. The terms and conditions of an agreement would have been agreed during the negotiation period.

As a condition of the original issue of CTN by the NT Minister, an extract of this agreement must be lodged with the NT Minister prior to the grant of the permit. The Deed must be assessed for Stamp Duty under the NT *Stamp Duty Act* and the section 9(b) of the *Taxation (Administration) Act.*

Negotiated agreements for permits are as a rule conjunctive in nature; that is parties may negotiate both the exploration phase and potential future grant of a production licence.

Refusal of Consent to Grant (ALRA)

Refusal of whole area of permit application

At any time during the SNP or the agreed period, the Land Council (on behalf of the TOs) can 'refuse consent to grant' all or part of a permit application. The refusal results in the land under application going into moratorium for a period of five years. The land council will accept no further applications/ proposals under section 41(1) of ALRA during the period of the moratorium.

Should an applicant withdraw the application, new applications over all or any part of the land subject to the moratorium may not be accepted by DPIR. When an area comes out of moratorium an applicant is provided the opportunity to recommence the CTN process.

A moratorium will stay in place for a period of five years unless the Land Council (on behalf of the TOs), makes a request to the Minister to lift the moratorium; this is not a common occurrence.

Refusal of any part of an area of permit application

At any time during the SNP or the agreed period, the Land Council (on behalf of the TOs) can 'refuse consent to grant' to *any part of the land* that is subject to a permit application.

The refusal results in the non-consented land under application going into moratorium for a period of five year whilst the remaining area/s will either proceed to grant or continue negotiations.

Consent to Grant (ALRA)

Once an agreement has been successfully reached between the Land Council and the applicant, it is a requirement under ALRA that consent to grant be given by the Federal Minister.

Processes Under the *Native Title Act*

Right to Negotiate (NTA)

The RTN process is used for high impact mining ventures on Native Title affected land. The RTN public notification period of four months allows Native Title Claimants to register and if required, to lodge an objection with the National Native Title Tribunal. (NNTT)

After the four month notification period (and post two month objection period), the NNTT will email the Energy Division reports containing a schedule of applications, a register of native title Claims, Native Title Determinations and a register of Indigenous Land Use Agreements (ILUA). Should there be native title claimants, the applicant will be formally advised to commence the Right to Negotiate (RTN) process under the NTA[16].

The NTA requires applicants to negotiate in good faith to reach an agreement with the Land Council/ claimants. DPIR has an expectation that negotiations reach an agreement within certain timeframes however this may take a minimum of 12 to 24 months or longer. Once a Tripartite Agreement has been successfully reached between the applicant, Land Council, native title claimants and NTG the application can proceed to grant. The Tripartite Agreement has an underlying Ancillary Agreement between the Land Council representing the registered Native Title Claimants and the applicant.

If an agreement cannot be reached under the NTA, the applicant or the NTG may take the application to the NNTT for determination.

Applicants may negotiate an Indigenous Land Use Agreements (ILUA) under section 24AA(3) of the NTA. An ILUA may be negotiated over areas where native title has, or has not yet, been

16 Attachment C, p115 – Flowchart: Native Title Timeframe for Right to Negotiation Process.

determined to exist. They can be part of a native title determination, or settled separately from a native title claim. When registered with the NNTT, ILUAs bind all parties and all native title holders to the terms of the agreement.

Negotiated agreements for permits are as a rule conjunctive in nature, that is parties may negotiate both the exploration phase and potential future grant of a production licence.

DPIR is currently administering 135 permit applications that are in various stages of negotiations through the CTN or RTN processes. Both processes can take several years before a permit application is cleared for grant. For example a permit application was issued CTN in 1998 and then again in 2009 and 2012. Several other permit applications have been in negotiations since 2004 and onwards and are still awaiting finalisation of an agreement either under ALRA or the NTA.

Grant and Administration of a Permit

Due to the amount of time that has lapsed since receipt of the permit application, those applications received before the *Petroleum Amendment Act 2013*, that have been cleared for grant through the RTN or CTN process undergo a final administrative check. This is to ensure that the applicant has the financial and technical capacity to complete the proposed work program. This is not a mechanism for the applicant to change the work program in any substantial way.

Energy Division prepares an instrument, Notice of Conditions before Grant of Petroleum Exploration Permit (NOI), to be signed by the Minister. The NOI specifies the conditions placed on the titleholder and also includes minimum work program commitments and location of the permit area. The applicant has 28 days to accept the NOI and, in accordance with section 79 of *the Act*, submit a $10,000 security (for compliance with *the Act*). Should the applicant not accept the NOI or provide the security within 28 days, the permit application will lapse and the area reverted to vacant acreage.

On acceptance of the NOI, the Minister will grant the permit for a five year period (maximum of two renewals) subject to strict conditions and at the same time issue directions under section 71 of *the Act* requiring the titleholder to comply with the Schedule. Energy Division will notify the grant in the NT General Gazette in accordance with section 70 of *the Act* and publish on the Energy Division website.

The titleholder, within 14 days, is required to notify the landholder/manager that the permit has been granted. This does not however give the titleholder the right to commence exploration without obtaining relevant petroleum project approvals under *the Act*, the Regulations and the Schedule[17].

Change to Conditions

A titleholder must undertake the work commitments guaranteed for each permit year. A permit year may not always represent a calendar year (see Suspension and Extension).

The work program or its timing may need to change as geological knowledge is gained or if the timing of the work is impacted by Force Majeure events or circumstances (Force Majeure - any event or circumstance not within the reasonable control of the affected party).

A titleholder not complying with grant conditions would be in breach under section 74 of *the Act* and the permit may be at risk of cancellation.

Section 28 of *the Act* allows a titleholder to apply to the Minister for a variation to, suspension of, or extension to a work program commitment[18].

17 Attachment D, p316 – Flowchart: Energy Titles – Grant of Exploration Permit.
18 Attachment D, p318 – Flowchart: Energy Titles - Change to Conditions Exploration Permit.

Variation

A titleholder may apply to vary the granted work program commitment under the following circumstances:

- Alternative work program is similar to or of a superior technique that meets or exceeds the objective of the original commitment.
- There is substantial and compelling evidence that the work program should be varied on technical grounds.

The approval of a variation is subject to the discretion of the Minister and is considered on a case by case basis. Work program values cannot be reduced. The titleholder is encouraged to present the technical reasoning for the variation.

Suspension, Suspension and Extension

A titleholder may need to change the timing of the work program if impacted by Force Majeure events or other constraining circumstances. Depending upon the circumstance either a suspension (of the work program) or a suspension with and corresponding extension (of time) may be required.

A suspension only application will apply to the current year of the permit (i.e. Year 1, 2 or 3 etc.). This will provide additional time for the titleholder to undertake the work commitment obligations for that specific year, in parallel with the subsequent year.

Where a suspension and extension is approved, the end date of the permit year will be suspended by that period, and all subsequent start and end dates including the expiry date of permit years will be extended by that period.

Renewal of a Permit

A titleholder may apply to renew the permit for a further five years (maximum of two renewals) in respect of a reduced number of blocks in accordance with section 24 of *the Act*. An application for renewal must be submitted prior to the date of expiry of the permit.

Section 25 of *the Act* requires the Minister to renew a permit where a titleholder has complied with all the permit conditions and directions issued under *the Act*.

Section 24A – Exemption from Requirement to Reduce Permit Area

Section 24A of *the Act* allows, at the time of renewal, a titleholder to apply to retain all of the permit area for an additional 12 month period with a possibility of extending the exemption by further 12 month increments.

Titleholders exploring unconventional gas plays may require larger areas of land for longer periods in order to fully explore, identify and prove up viable reservoirs that can then be economically extracted.

Section 24A of *the Act* provides the flexibility to accommodate unconventional methods of exploration that target different types of rocks over larger areas and take longer.

An application under section 24A of *the Act* must provide reasons as to why an exemption is being sought. An exemption may be provided for a deferral of the reduction in area, or a reduction of the permit area by a lesser number of blocks than otherwise would be required under *the Act*.

In making a decision to grant an exemption, the Minister must be satisfied that the applicant: has satisfactorily complied with its obligations as a permit holder under *the Act*; has satisfactorily complied with any conditions of the previously granted or renewed permit; and has followed any other lawful directions. The Minister must also be satisfied that the exemption will assist the titleholder to more effectively carry out its work program[19].

19 Attachment D, p323 – Flowchart: Energy Titles - Notice of Intent to Renew and Renewal.

Notice of Discovery

A titleholder must notify and report a discovery of petroleum within the permit or licence area to the Minister within three days after the discovery.

A titleholder has the right to convert a discovery area into a retention or production licence. *The Act* also allows the Minister, if satisfied there is a commercially exploitable accumulation of petroleum, to direct a permit or retention licence holder to apply for a production licence.

Petroleum Retention and Production Licence

Retention Licence

Section 42 of *the Act* – a retention licence gives the titleholder the exclusive right to carry out such works in the licence area as are reasonably necessary to evaluate the development potential of the petroleum believed to be present in the licence area (eg geological, geophysical activites and other operations and works, including appraisal drilling).

The maximum area allowed under *the Act* for a retention licence is 12 graticular blocks. A graticular block is approximately 80km^2.

If a discovery is deemed to have development potential, but is not currently commercially viable, a permit holder may apply for a retention licence under section 32 of *the Act*.

A retention licence is granted for an initial term of five years and can be renewed for further five year periods provided the resource is still not commercially viable.

A retention licence holder is expected to actively work towards making the discovered resource commercially viable. The Minister may issue special conditions under section 40 of *the Act*.

Production Licence

Section 56 of *the Act* – a production licence gives the titleholder the exclusive right:

a) to explore for petroleum and recover it from the licence area

b) to carry out such operations and execute such works in the licence area as are necessary for the exploration and recovery of petroleum.

The maximum area allowed under *the Act* for a retention licence is 12 graticular blocks. A graticular block is approximately 80km^2.

If a discovery is deemed to have development potential and is commercially viable, a permit or retention licence holder may apply for a production licence under section 45 of *the Act*. A petroleum production licence gives the titleholder the right to explore, test for and produce hydrocarbons from within a licence area. The Minister may issue special conditions under section 54 of *the Act*.

A production licence is granted for an initial term of 21 or 25 years and may be renewed for further 21 or 25 year periods.

Administration of Retention and Production Licences

Annual and Application Fees

In accordance with section 26, 39 and 53 of *the Act* a titleholder must pay an annual fee per block. Payment is required at the time of grant and in advance of the title anniversary for the term of the title. (Attachment C.10 – Energy Titles and Fees).

Annual Fees for titles granted over Aboriginal Freehold Land must be transferred to the applicable Land Council on behalf of the TOs in accordance with section 16 of ALRA.

Annual Fees for titles granted over Pastoral Lease are retained by the NTG as part of consolidated revenue.

The NTG collects revenue in regards to applications for petroleum tenure, dealings and transfers, search requests and applications requiring assessment by Energy Division. The amount of revenue varies and is heavily dependent on the current oil and gas market, which impacts on the amount of activity being undertaken in the NT and the opportunity for commercial joint ventures.

In the last four years, $568 000 in revenue has been collected. These funds are generally allocated

to DPIR to support the Energy Division in its capacity to regulate the oil and gas industry within the NT. The figure highlights that the NT oil and gas exploration industy is still in its infancy.

Annual Report

All titleholders are required to submit an Annual Report within 28 days of the end of the title year as per section 59 of *the Act*.

The annual report must provide a comprehensive description and review of activities during the year, future commerciality of the interest and must clearly identify the titleholder's performance against the agreed minimum work program and provide explanations for any variations.

Dealings and Transfers

A transfer or dealing relating to a petroleum title has no force until approved and registered.

Titleholders may apply to the Minister to register a dealing or transfer under *the Act* and as such Energy Division is required to assess record and register those dealings and transfer. The registration maintains a comprehensive record of titles granted and related transfers and dealings.

A dealing is a legal instrument that affects, creates, assigns or deals with an equitable interest in an application or granted title such as a Sale and Purchase Agreement, Joint Operating Agreements, Farm-out and Farm-in Agreements.

An application for approval of a transfer of a title may be made by any of the parties to the transfer. If any of the transferees are not already a party to the title, they must provide details of the following:

- technical qualifications of that transferee(s)
- details of the technical advice that is or will be available to that transferee(s)
- financial resources available to the transferee(s)

All dealings and transfers are assessed by the Territory Revenue Office for stamp duty prior to lodgement. Although transfers of a permit are exempt under the *Stamp Duty Act* assessment is still required.

Dealings and transfers between Australian and International Companies will require supporting evidence of approval from the Foreign Investment Review Board.

All dealings and transfers attract an application fee payable per title under *the Act* and Petroleum Regulations[20].

Cessation of a Petroleum Title

Surrender

Section 73 of *the Act* allows a titleholder to apply to the Minister for the consent to surrender all or part of the title. The approval of the consent to surrender is subject to the discretion of the Minister and is considered on a case by case basis.

The Minister is required to accept an application for surrender if a titleholder has met all the conditions, undertaken restoration and/or rehabilitation and complied with any directions issued under *the Act*.

The surrender process includes a requirement for the titleholder to restore and rehabilitate any disturbance in the title area. The title will be formally surrendered two months after the Minister has accepted the application for consent to surrender and all securities held in trust will be released.

Expiry

If a titleholder does not apply to renew the title before the end of the title term, the title will expire. The titleholder must undertake restoration and/or rehabilitation and comply with directions issued by the Minister under section 77 of *the Act*.

20 Attachment D, p321 – Flowchart: Energy Titles - Dealings and Transfers.

Cancellation

Section 74 of *the Act* allows the Minister to cancel all or part of a title as an alternative to instituting a prosecution.

The following are justification for a cancellation:

- non-compliance with a condition of the permit or licence
- non-compliance with a provision of *the Act*
- non-compliance with a direction lawfully given by the Minister
- non-payment, within three months after the date on which it became due, an amount payable under *the Act*
- found guilty of an offence against *the Act*[21].

2.2 Activity Assessment and Compliance

2.2.1 Project Approval Process

A grant of tenure provides only the right to access to land to explore for hydrocarbons. Before any activity can commence on that land, a Petroleum Project Approval must be sought in accordance with *the Act*, the PER and the Schedule[22]. The full process and documentation package is represented in the Guideline - Assessment Process for Onshore Petroleum Drilling, Work-over and Simulation Applications[23]. A flowchart of the process is presented in **Figure 4**. It should be noted that even where approval has been given for a Project to commence, Operational Applications will also need to be lodged to carry out particular activities within the Project.

As part of its formal assessment process, and prior to granting approval, the Energy Division requires particular operational documents to be submitted. These documents include the work program and several management plans. To obtain approval, the work program must include details relating specifically to well design, standards, controls and operational safety and well integrity ratings.

As part of this process the mandatory documents include:

- Particular work program (eg: Drilling, Flow Testing, Stimulation)
- Environment Management Plan (EMP)
- Emergency Response Plan (ERP)
- Spill Contingency Plan (SCP)
- System Integrity Manual (SIM)

Under the Schedule[24], the operator must submit an application to carry out petroleum activities within the granted tenure[25]. As per Regulation 6 of the Petroleum (Environment) Regulations 2016[26], the applicant must lodge an Environment Management Plan (EMP) for each activity. At the same time, the operator needs to determine whether a self-referral to the Commonwealth Government for assessment under the *Environment Protection and Biodiversity Conservation Act* is required. In assessing the EMP, the Energy Division provides it to the NT EPA for comment and consideration. The Energy Division may also determine that the EMP needs to be provided to other relevant government agencies such as DENR and NT Parks and Wildlife for comment. The Energy Division applies rigour and scrutiny in assessing EMP's that it approves before hydraulic fracturing or, any other petroleum activities can occur. An inadequate EMP will not be accepted until the operator makes the required changes.

The complete EMP assessment process is represented in **Figure 5**, noting that there are a number of feedback loops and that the NT EPA has the capacity to provide comments that need to be addressed by the applicant, or the NT EPA can advise that a NOI is required under the *Environment Assessment Act.* The entire process for environmental approvals is described in the explanatory guide to the Petroleum (Environment) Regulations[27].

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21 Attachment D, p325 – Flowchart: Energy Titles – Exploration Permit Cessation Cancellation Surrender and Expiry.
22 Attachment B, p89.
23 Attachment C, p187- Guideline - Well Drilling, Work-over or Simulation Application Assessment Process.
24 https://nt.gov.au/__data/assets/pdf_file/0004/295906/schedule-of-petroleum-onshore-requirements-2016.pdf
25 Attachment B, p90 - Clause 301.
26 https://legislation.nt.gov.au/en/Legislation/PETROLEUM-ENVIRONMENT-REGULATIONS
27 https://nt.gov.au/__data/assets/pdf_file/0005/295907/em-petroleum-environment-regulations.pdf

The Energy Division provides Guidelines for Applications for Drilling or Workover Rig Activities (copy provided at Attachment C[28]). As part of the assessment, the operator must submit an EMP and a copy of Guidelines for Environmental Plan Requirements is included in Attachment C.[29]

The formal Energy Division approval process by the Energy Division's Petroleum Operations Team includes assessing the EMP in accordance with the Checklist - Onshore Environmental Management Plan" (copy provided at Attachment C[30]).

The integrity of wells is a particular focus of the Energy Division's assessment and Part III, Division 1, Clauses 301 to 342 of the Schedule address the well design, construction standards, control and operational safety and well integrity ratings for well construction including well activities such as well suspension, decommissioning, flow testing and hydraulic fracturing (full extract provided at Attachment B[31]).

To ensure inclusion in the operator's drilling program, specific reference is made to the above in the Energy Division's Onshore Drilling Program Assessment Checklist (copy provided at Attachment C).[32]

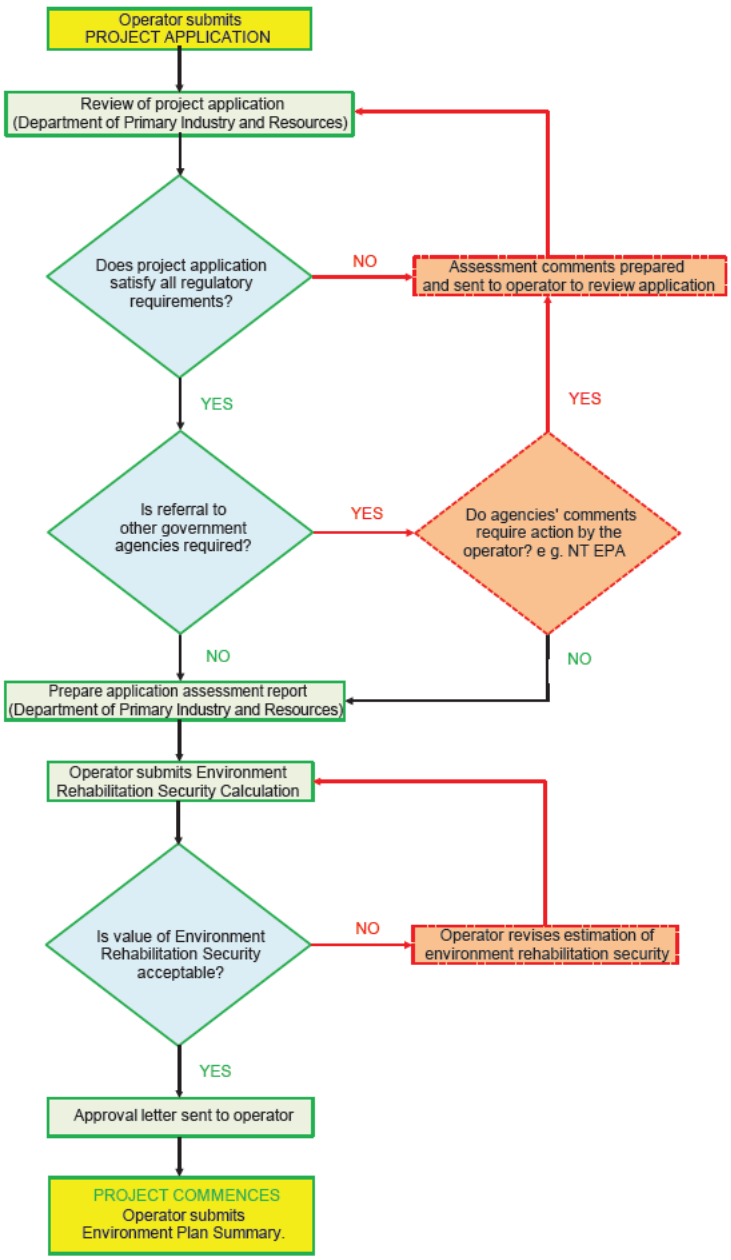

Figure 4: Approval Process up to 'Project Commences'

28 Attachment C, p191 – Guideline: Well Drilling, Work-over or Stimulation Activities Applications.
29 Attachment C, p195 – Guideline: Environmental Management Plan Requirements.
30 Attachment C, p202 – Checklist: Environmental Management Plan Assessment.
31 Attachment B, p89.
32 Attachment C, p221 – Checklist: Well Drilling Program Assessment.

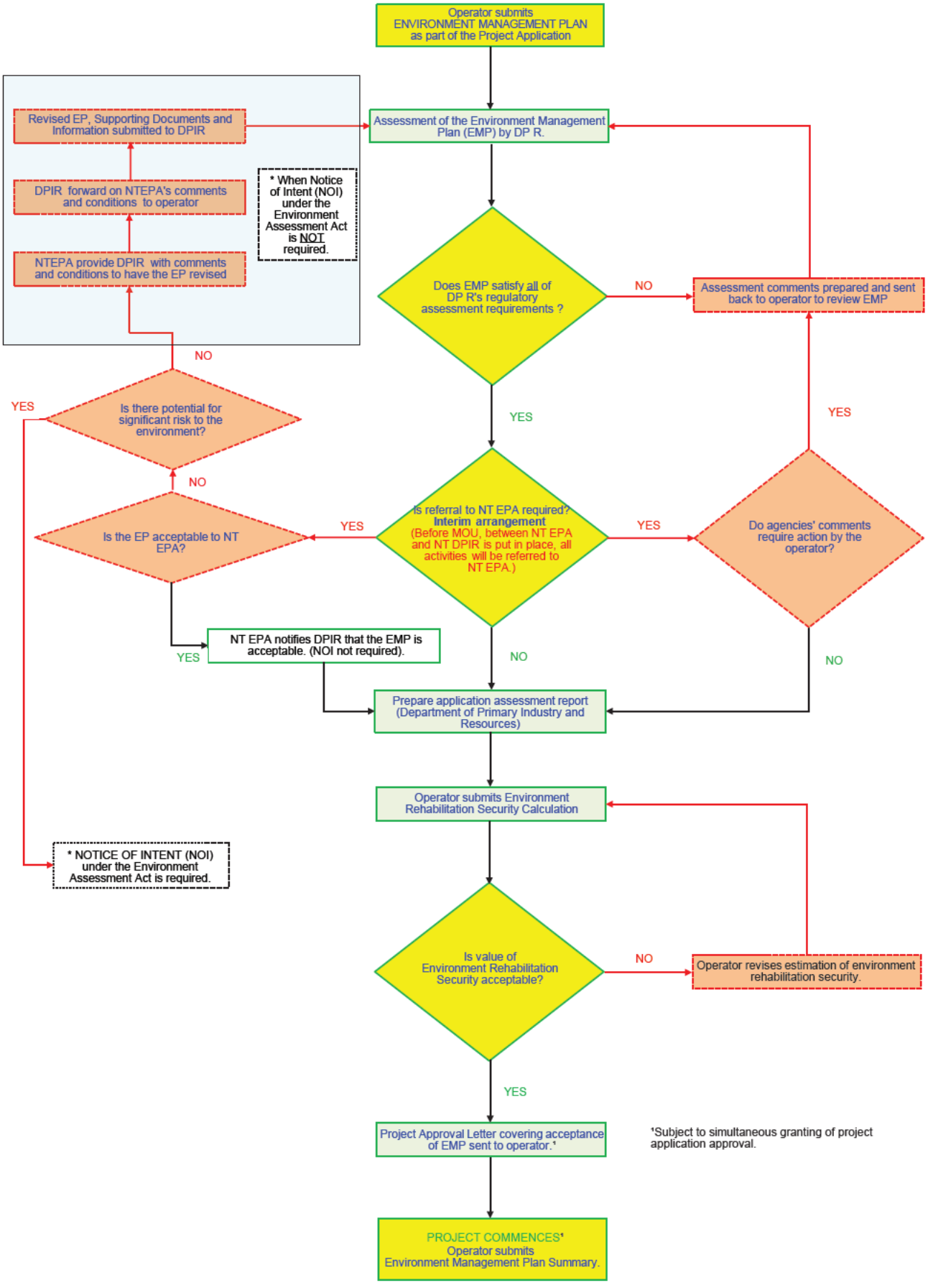

Figure 5: EMP Assessment Process to 'Project Commences'.

The above checklist also ensures that the operator has addressed the following critical, operational and well safety issues:

- All activities and material to meet or exceed the American Petroleum Institute (API) standards
- Blow-out Prevention (BOP) Systems and BOP drills
- Methods of mandatory reporting
- Well control requirements
- Cementing of all casing strings to surface
- Casing design as per API standards
- Mandatory water quality testing; before during and after the hydraulic fracturing
- Safe separation, through impermeable formations, between shallow aquifers and the hydrocarbon target zone (section to be fractured)
- Submission of fracture modelling confirming maximum fracture height and length, hence confirming safe separation
- Chemicals list for public disclosure on DPIR's website
- Mandatory validation of casing and cement using Cement Bond Logs
- Mandatory validation of all barriers by pressure testing
- Mandatory Formation Integrity Testing and/or Leak-off tests
- Evidence of adequate insurance
- Payment of adequate Rehabilitation Environment Security
- Evidence of Cultural Clearances
- Evidence of comprehensive stakeholder consultation
- Submission of Environment Management Plan for public disclosure on DPIR's website
- Pressure safety trip-out systems utilised during fracture stimulation activities that prevent exceedance of allowable pressure limits of surface pipework and down-hole casing
- Pressure monitoring confirming that well integrity has not been impacted by fracture stimulation activities
- Installation and testing of a Completion Tubing String (additional barrier)

If the well has already been drilled and constructed, then the work program might include remediation or stimulation which could include hydraulic fracturing. The Energy Division's Checklist - Well Work-over and Stimulation Program[33] ensures all critical, operational and well safety issues relating to well stimulation is addressed by the operator before approval will be granted.

Concurrently with the Energy Division's assessment, the EMP is referred to the NT EPA for comment and consideration – all NT EPA comments must be addressed by the operator as a condition of activity approval. It is also possible that the NT EPA may determine that there is sufficient environmental risk to require the lodging of a NOI under the *Environment Assessment Act* thereby triggering a formal environmental impact assessment process.

In July 2016, the *Petroleum (Environment) Regulations* came into force in relation to the protection of the environment with the mandatory requirement for all activities to have an approved environment management plan.

Further, the Schedule includes Clause 325 specifically in relation to the protection aquifers:

> **325 Protection of Aquifers**
> All reasonable steps shall be taken during well construction and any other well or production operations to prevent communication between, leakage from or the pollution of aquifers.

33 Attachment C, p235 – Checklist: Well Work-over and Stimulation Program Assessment.

All environmental issues need to be addressed through the EMP lodged as part of the project approval process, which is then assessed against the Energy Division Checklist: "Onshore Environmental Management Plan" (copy provided at Attachment C[34]) – noting also that the EMP is referred to the NT EPA.

Where applicable, fugitive emissions will need to be addressed under the EMP. Note also that Clauses 326, 327, 331 and 340[35] of the Schedule also provide requirements to deal with fugitive emissions. Further, for production activities, Clause 419 of the Schedule[36] requires that gas will not be flared or vented without approval, and this needs to be addressed in the operator's Reservoir Management Plan, which is required by Clause 406 of the Schedule as follows:

> **406 Reservoir Management Plan**
> (1) Subject to Sub-Clause (2) and Clause 407, 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.
> (3) The Minister may require that a reservoir management plan be revised from time to time.

An important point to note is that as part of the Energy Division's Checklist for the approval of the EMP, responsibilities are placed upon operators for the establishment of appropriate monitoring systems as part of their implementation strategy.

Although not the Energy Division's legislative responsibility, as per its Guideline; "Well Drilling, Work-over or Simulation Application Assessment Process" (see Attachment C, p192), Cultural Clearances must be addressed through the operator's stakeholder consultation process and reported in the activity EMP for assessment.

The operator gains approval to carry out the activity in accordance with all materials and details submitted in relation to its work program – therefore, any change to its approved programs, including its EMP, must be disclosed to the Energy Division for re-assessment.

Where project approval is granted to an operator, an EMP must be lodged for full public disclosure on DPIR's website.[37] To ensure that information is also easily accessible to the public, the operator is also required to submit an EMP Summary for uploading on DPIR's website.

2.2.2 Operational Approvals

Even where a Project Approval has been granted, Operational Approvals are required in order to carry out a particular activity within a project that has already commenced – that is, an activity where Project Approval has already been granted. Operational activities are those leading to a specific change to the wellbore geometry and so for this reason, are activities that go outside the already approved work program.

Examples of well activities requiring separate operational approvals are:

- Any activity that goes outside the already approved work program
- Side tracking a well
- Suspension of a well
- Decommissioning of a well (Plug & Abandonment)
- Flow testing
- Any form of stimulation including hydraulic fracturing
- Well Completion

The Guideline – Well Drilling, Work-over or Stimulation Activities Applications Activities (p195) outlines the process for Operational Approvals. This is normally submitted as an addendum or amendment to the Project Plan.

It is important to note that the Energy Division's letter of Project Approval to an operator explicitly includes the following:

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34 Attachment C, p202 – Checklist: Environmental Management Plan Assessment.
35 Attachment B, p89.
36 Attachment B, p89.
37 https://dpir.nt.gov.au/mining-and-energy/public-environmental-reports/reports-for-petroleum-operational-activities

Clause 301 (5) of the NT Schedule of Onshore Petroleum Exploration and Production Requirements 2016 states: "An approved program shall not be varied without approval and shall be carried out in accordance with any conditions to which the approval is subjected and specified on any approval instrument".

2.2.3 Compliance and Monitoring

As part of its formal process, the Energy Division grants approval for the operator to carry out its activities in accordance with its approved work program (for whatever the activity may be), its approved EMP and all other supporting documents that are required to be submitted. In accordance with its approved Work Program and Part II, Division 4 of The Schedule[38], the operator is legally obliged to report a range of incidents to the Energy Division – these include injuries and death; property damage; hazardous events; and emergencies. To ensure inclusion in the operator's approved work programs, specific reference is made to the above reporting responsibilities in the Energy Division's Well Drilling Program and Well Work-over & Stimulation Program Assessment Checklists, which are available in Attachment C[39, 40]. Emergency contacts for the Energy Division Officers, including 24 hour contact numbers are provided to operators in the Guideline: Incident Reporting Requirements for Operators[41]. Further, Regulations 33, 34 & 35 of the Petroleum (Environment) Regulations 2016, stipulate a titleholder's responsibility to provide notice of reportable and recordable (environmental) incidents. Failure to report in accordance to the above requirements may result in some form of punitive measure.

During the life of the project, compliance measures in place include mandatory self-reporting, inspections and audits. Further, as an overlay to self-reporting requirements, under Clause 110 of the Schedule the powers of an Inspector (*a person appointed an Inspector under the Act*) are specified:

110 Inspectors

(1) Where an Inspector considers -
  (a) that any plant is in an unsafe condition; or that the integrity of any operating system 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 directions, or any additional conditions imposed by the Director;
    (ii) is unsafe; or 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.

(3) An Inspector may -
  (a) direct that no further work be carried out until the matter referred to in the notice is remedied, or until an Inspector otherwise approves the resumption of work;
  (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.

In accordance with Clause 110 of the Schedule, the Energy Division inspectors have the ability to carry out operational and environmental site inspections. Checklists for site inspections cover Drilling Operations, Environment, Fracturing, Completion and Testing Operations and Well Testing Operations.[42]

38 Attachment B, p89.
39 Attachment C, p221 - Checklist: Well Drilling Program Assessment.
40 Attachment C, p235 - Checklist: Well Work-over & Stimulation Program Assessment.
41 Attachment C, p245 - Guideline: Incident Reporting Requirements for Operators.
42 Attachment C, p250 - Checklist: Operational and environment site inspections.

Compliance Monitoring is carried out to ensure that activities take place in accordance with the approved work program and EMP. The Energy Division's Petroleum Operations Team conducts daily desktop audits of operator's activities by assessing daily drilling, stimulation and testing reports. It also performs well-site and field audits and also inspections during critical activities.

The desktop audit process that requires the completion of the Well Integrity Verification Form was developed by the Petroleum Operations Team following the Montara Inquiry. The process requires the assessor to respond to specific well integrity and barrier validation triggers which will ultimately confirm that the well has been constructed to levels exceeding API standards. A copy of a typical Well Integrity Verification Form[43] can be found in Attachment C. The final assessment is peer reviewed by a second petroleum engineer before sign-off from the technical authority in the position of Senior Director Petroleum Technology and Operations.

At the completion of the work program, all well suspension and/or decommissioning (Plug and abandonments) must be undertaken in accordance with Clauses 328, 329 and 330 of the Schedule and also the Energy Division's Guidelines; Well Suspension Applications[44] and Well Decommissioning Application[45]. Further, Clause 336 requires that an operator submit a basic well completion report in accordance with Section 76 of *the Act* and also, that a final or interpretative well completion report must be submitted within twelve months of rig release.

2.2.4 Environmental Rehabilitation and Close- out

As part of the project approval process, the operator must include an Environmental Rehabilitation Strategy that forms part of its approved EMP. This forms the basis for calculating the Environmental Rehabilitation Security that must be paid by the operator to the Energy Division as a mandatory step in the project approval. At the conclusion of a project, the operator must demonstrate that rehabilitation of the site has been carried out in accordance with its Environmental Rehabilitation Strategy in order to become eligible to receive the Environmental Rehabilitation Security Bond. The assessment template illustrating the method of calculation can be found at the following link:

https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/environmental-management/environmental-rehabilitation-security-bond

Clause 332 on the Schedule provides the requirements that must be satisfied for exploration activities:

> **332 Rehabilitation of Site**
> A well site area shall be rehabilitated in accordance with a current environment management plan.

And Clauses 425, 426, 427 and 428 of the Schedule provide the requirements for production activities:

> **425 Decommissioning Plans**
> Clauses 426, 427 and 428 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.
>
> **426 Plugging of Wells**
> (1) Unless otherwise approved, on completion of production activities and prior to the surrender of a production licence all wells shall be 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.

43 Attachment C, p284 - Well Integrity Verification Form.
44 Attachment C, p290 – Guideline: Well Suspension Applications.
45 Attachment C, p294 – Guideline: Well Decommissioning Application.

427 Removal of Facilities

(1) Upon completion of production activities and within 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 425 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 following 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 time-frame.
(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.

428 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.

At the completion of the project the operator must submit a 'Close-Out' report to the Energy Division that satisfies the requirements of the approved EMP – including the full environment rehabilitation works. The environmental close-out procedure is illustrated in **Figure 6**.

The Close-out process includes the review of all the rehabilitation documentation submitted to the Energy Division by the operator. Once reviewed, a site inspection will be undertaken to confirm that rehabilitation is progressing as per the approved EMP. Any subsequent Energy Division authored reports are shared with relevant NTG departments for comment and are subsequently passed onto the operator for action. The environmental rehabilitation security bond will not be returned until all reviews confirm that the rehabilitation has progressed as per the approved EMP and to the satisfaction of all parties.

The Energy Division provides a Guideline for Environment Rehabilitation Reporting[46], and it also has a checklist for operational and environmental audits[47] that can be used to ensure full compliance with rehabilitation requirements. In addition, the Energy Division also produces a photographic record of the progress in rehabilitation using a field data collection system.

46 Attachment C, p287 – Guideline: Environment Rehabilitation Reporting.
47 Attachment C, p250 – Checklist: Operational and environmental site inspections.

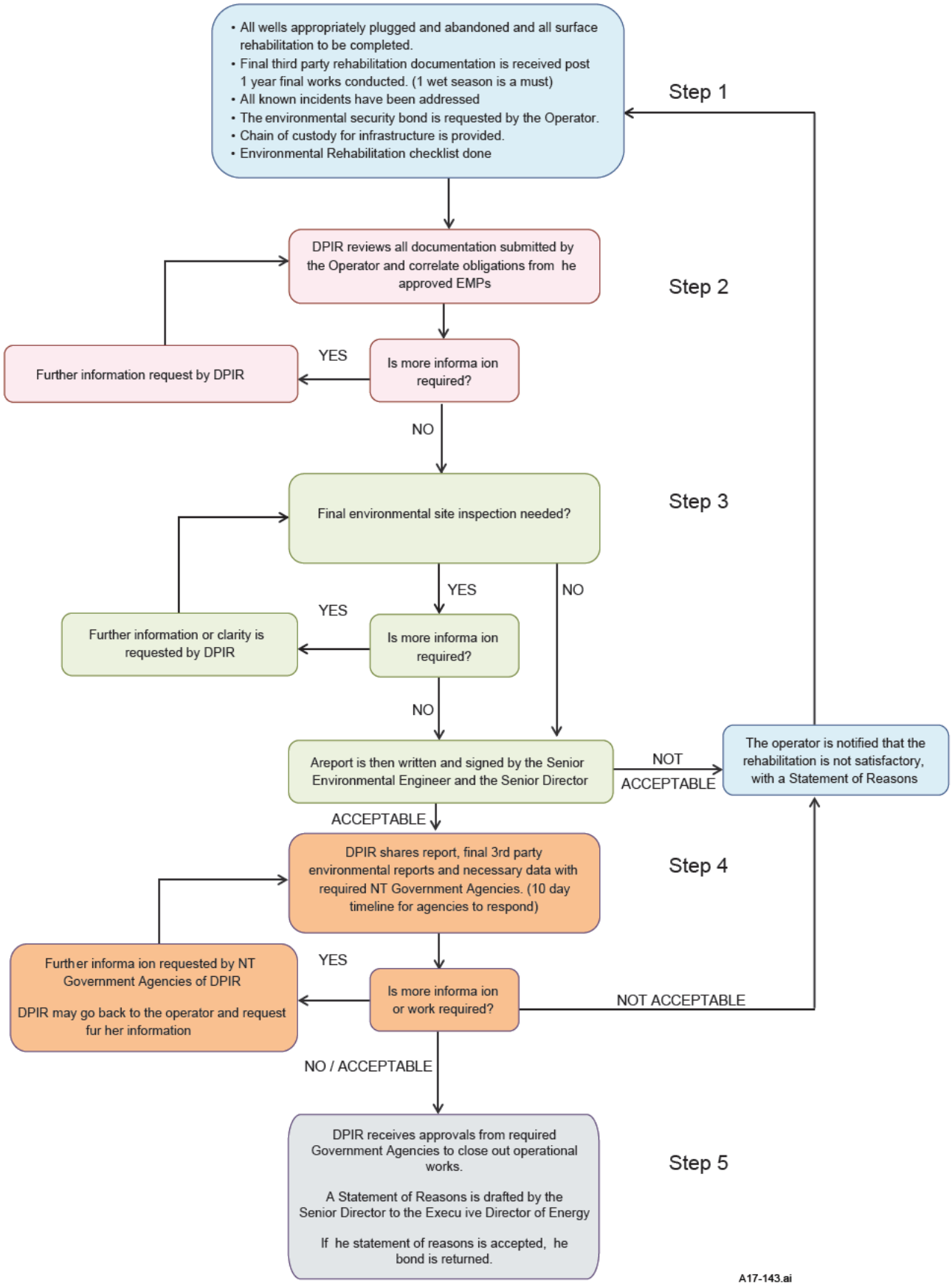

Figure 6: 'Project Completed' to 'Project Closed out'.

Section 3: Legislative and Regulatory Reforms

The safe, sustainable and effective development of petroleum requires the integration of many disciplines that all involve a high level of uncertainty and risk. It is also an industry that is subject to volatility in commodity prices and disruptive technological innovation. Oil and gas production has been the lifeblood of many Western economies particularly the United States, Norway, UK and the Netherlands.

The development of petroleum requires the technical disciplines of geosciences (including geology, geophysics and reservoir engineering) to integrate with mechanical and chemical engineering (such as well construction, process engineering, facilities engineering etc.) often in harsh environments that may be ecologically sensitive.

Oilfield workers may be exposed to extreme heat, cold, extended periods from home and family, an intensive working environment, chemicals, heavy equipment etc. It therefore is a highly specialised industry governed by specialist skills, standards and experienced personnel. An appreciation of the multi-disciplinary nature for the safe, efficient and environmentally sustainable development of petroleum resources is important in the regulatory context to ensure that regulators have an understanding of industry practices when assessing risk. The assessment of risks requires an understanding of many factors that include; human factors (culture, workforce maturity, training and competence for example), technical (new technology, environmental factors, complexity), scientific (available science, hypotheses) etc. It is therefore imperative in a risk-based and outcome-focussed regulatory regime to bring together the collective experience of a multi-disciplinary team of regulators to assess the risks and proposed mitigation measures by proponents of petroleum projects.

> *"Safety and pollution prevention programs are more effective if a single agency is responsible and accountable for the regulation of operations. Unfortunately, legislative bodies do not always comprehend the safety and environmental risks associated with fragmented or compartmentalized regulatory regimes. These risks include regulatory gaps, overlap, confusion, inconsistencies, and conflicting standards. Also, a sufficient number of competent regulatory personnel may not be available to staff multiple agencies. Ideally, one agency would be responsible for all regulatory aspects of drilling and production operations. Safety and pollution prevention are inextricably linked and both should be regulated by this agency."*
> ***Elmer P Danenberger: Submission to Montara Inquiry Former Chief Technical at US Mining and Mineral Service with 38 years' experience in regulation of the oil and gas industry in the Gulf of Mexico***

3.1 Current Regulatory Framework

Onshore petroleum is regulated under the *Petroleum Act 2016* and the Schedule of Onshore Petroleum Exploration and Production Requirements 2016. Historically all aspects of petroleum activities were regulated under this legislation.

In 1994 the *Environmental Assessment Act* was introduced in the Northern Territory with the intent to provide independent environmental assessment for projects that have the potential to cause material environmental harm, administered by the NT EPA.

In 1999 the Commonwealth introduced the *Environmental Protection and Biodiversity Conservation Act* (*EPBC Act*) that now provides federal environmental oversight for nine Matters of National Environmental Significance (MNES) and is administered by the NT EPA under a bi-lateral agreement with the Commonwealth Department of the Environment and Energy (DoEE).

In 2008 the NT Work Health and Safety legislation took over responsibility of Work Health and Safety of petroleum activities and the Schedule was amended in 2010 to clearly indicate the aspects of petroleum activities, the then Department of Resources was not responsible for and were transferred to NT WorkSafe (**Table 1**).

Table 1: Current Regulatory Framework			
	Assessments	Approvals	Compliance & Enforcement
Resource Management (*Petroleum Act*)	DPIR	DPIR	DPIR
Process Safety (Schedule)	DPIR	DPIR	DPIR
Work Health & Safety (WH&S Legislation)	NT WorkSafe	NT WorkSafe	NT WorkSafe
Environment (Regulations)	DPIR	DPIR	DPIR
Environmental Impact Assessment (*EA Act*)	NT EPA	DPIR	DPIR
Matters of National Environmental Significance (*EPBC Act*)	DoE/ NT EPA	DoE	DoE

Regulatory Principles

The Northern Territory Government has embraced the principles of Best Practice regulation as proclaimed by the Council of Australian Governments (COAG) in the Best Practice Regulation Handbook and the Northern Territory Regulation-Making Framework: Principles and Guidelines 2007 including;

- establishing a case for action before addressing a problem;
- a range of feasible policy options must be considered, including self−regulatory, co−regulatory and non-regulatory approaches, and their benefits and costs assessed;
- adopting the option that generates the greatest net benefit for the community;
- in accordance with the Competition Principles Agreement, legislation should not restrict competition
- providing effective guidance to relevant regulators and regulated parties in order to ensure that the policy intent and expected compliance requirements of the regulation are clear;
- ensuring that regulation remains relevant and effective over time;
- consulting effectively with affected key stakeholders at all stages of the regulatory cycle; and
- government action should be effective and proportional to the issue being addressed.

Principally, DPIR is adopting a risk-based and outcome-focussed approach to regulation of the onshore oil and gas industry, which is premised on the implementation of a robust and enforceable risk management framework. This requires a phasing out of the Schedule, which is rule-based, intensive on regulators and proponents and lacks the flexibility to regulate the technologically complex and evolving petroleum industry.

The proposed regulatory framework that DPIR has begun to implement commenced with the implementation of Petroleum (Environment) Regulations (PER) in July 2016. The regulations set out a clear risk management framework for environmental aspects of petroleum activities and require the Minister to consider the principles of ecologically sustainable development (ESD), publish approved EMPs in full and ensure that risks and impacts are reduced to as low as reasonably practicable (ALARP) and acceptable levels. This requires that risks and impacts are identified and assessed, that stakeholders are engaged in setting objectives and outcomes as well as the elimination or mitigation of risks and impacts, with specific performance standards around the controls put in place and measurement criteria and reporting commitments of those performance standards.

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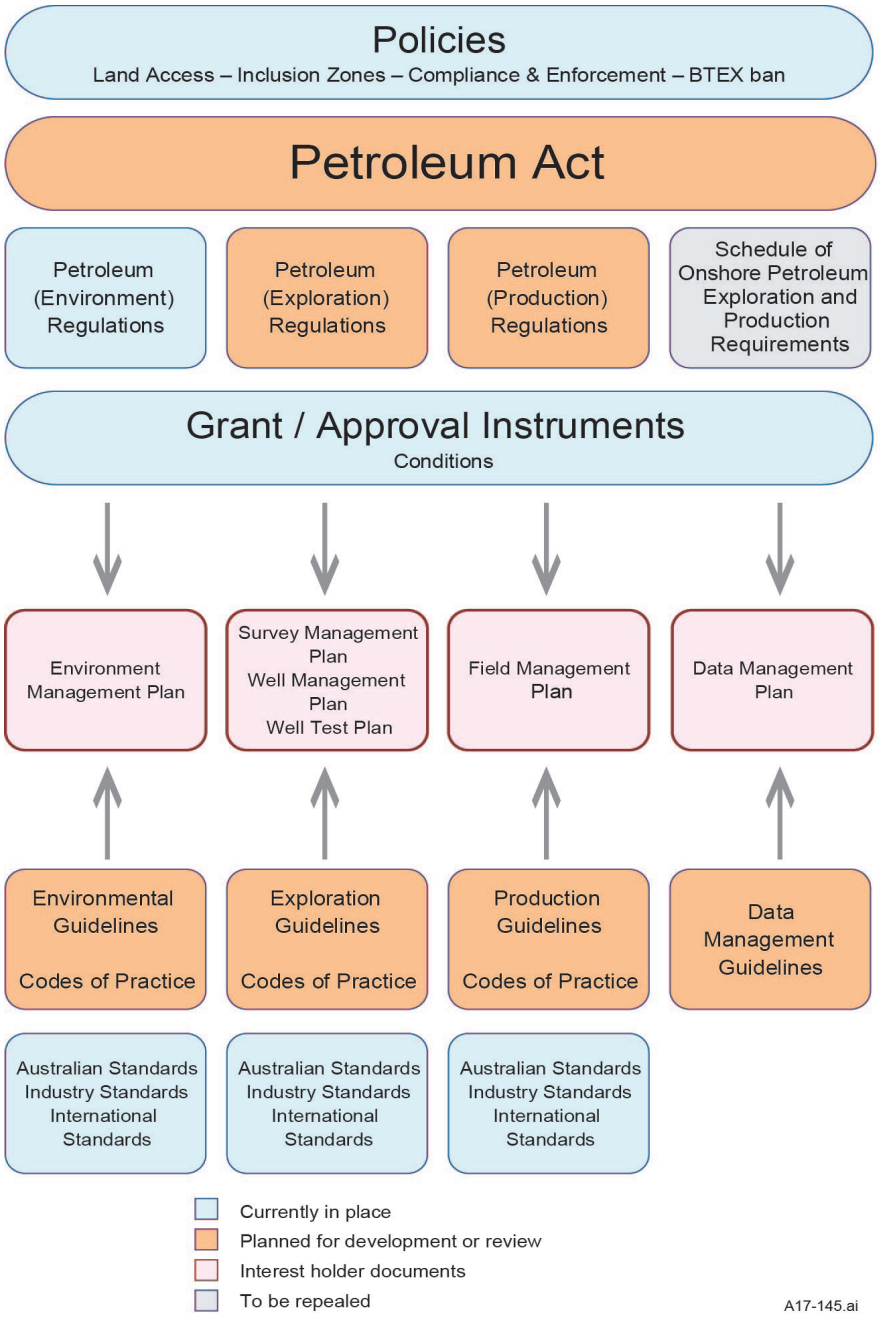

Figure 7: NT proposed legislative framework for onshore petroleum activities.

An approved EMP does not provide activity approval but it is a pre-requisite for any regulated activity to be approved among other requirements. An approved EMP is enforceable under the regulations in that non-compliance may result in an infringement notice, a stop work order or revocation of the EMP and therefore the approval to conduct all or part of a regulated activity.

DPIR is proposing to continue the development of risk management frameworks for the various aspects of petroleum development building on the PER (**Figure 7**). The Schedule will be phased out with the implementation of exploration regulations, which will require risk management plans for surveys, drilling wells and testing including activities such as work-overs, re-entries, well suspensions and abandonment and all forms of well stimulation including hydraulic fracturing. Following the implementation of exploration regulations the department plans to implement production regulations specifically dealing with field management plans, reservoir management plans and field decommissioning among other matters.

Importantly, the regulations are not rule-based. This allows the regulations to be robust in that the fundamental principles of the regulations do not change over. However, as the industry develops it will be necessary for government to develop guidance materials, codes of practice and

directives to ensure that minimum standards are upheld and evolving best practices are adopted in the regulatory framework. The development of these guidelines, codes of practice and directives requires a dedicated team of regulators with in-depth industry expertise to ensure that they are current, effective and practical in the industry context. While the guidelines may not be enshrined in legislation DPIR envisages that plans that do not comply with and refer to relevant guidelines will not be approved and that compliant plans that are approved are enforceable, closing the loop on a comprehensive legislative framework.

Notably, the guidelines etc. must go through a rigorous stakeholder engagement process to ensure effectiveness and practicality. Government may consider elevating the legal standing of certain guidance material by raising them as a disallowable instrument in parliament and/or implement them as directions under section 71 of *the Act*.

The use of national and international industry standards is encouraged and subject to assessment and acceptance by regulatory professionals. Industry standards from recognised classification societies such as Det Norske Veritas (DNV_GL), Bureau Veritas (BV), Lloyds and others are accredited by in Australia by Standards Australia and/or the international standards organisation (ISO) through technical committee (ISO/TC67). Highly regarded standards in the oil industry are developed by the American Petroleum Institute (API) and the Norwegian standards organisation (NORSOK) for example. These standards are regularly updated and amended and therefore it is important to keep up to date with standards development in order to maintain a best practice and continuous improvement framework. For this reason, the Department chooses not to write the use of particular standards into legislation but rather requires the demonstration of the ALARP principle, which requires that companies demonstrate through the use of the latest standards that best practice is being implemented. **Figure 8** illustrates the level of government intervention through the optimum use of industry standards as utilised by the Energy Division.

Figure 8: Standards Australia use of Standards in Regulatory Frameworks.

Efforts are underway to harmonise standards in the oil and gas industry. Australia is represented by National Energy Resources Australia (NERA) and the effort is led by the International Association of Oil and Gas Producers (IOGP), which is one of the workstreams under the World Economic Forum (WEF) Future of Oil and Gas Project.

Compliance and Enforcement

The Energy Division in DPIR adopted a comprehensive Compliance and Enforcement Policy in 201650. The policy focusses on the prevention of non-compliance rather than prosecution (**Figure 9**). There are many ways in which governments can promote compliance including; screening of potential title holders prior to granting exploration permits, providing clear and effective legislation and guidance material, working with operators to explain legislative requirements, rejecting sub- standard plans, sharing of best practices and providing visible leadership through frequent site visits and audits.

The quality of legislation in delivering robust, fair and effective regulation relies on competent regulators with relevant industry experience, effective legislation and guidance material and efficient processes and systems to keep accurate and up to date records for successful prosecution should it be necessary.

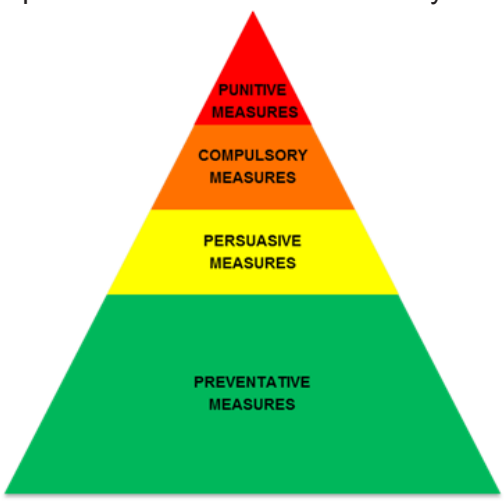

Figure 9: Compliance and Enforcement Policy.

Staffing and resourcing

The Energy Division is headed by an Executive Director, supported by the Energy Tenure team, the Assessment and Compliance team and two administration officers.

The Director of Energy Tenure is supported by the Petroleum Registrar and 3 Titles Officers.

The Assessment and Compliance team is headed by the Senior Director Petroleum Technology and Operations and is staffed with the following positions;

- 4 X Senior Petroleum Engineers (covering core disciplines of; Well Construction, Production, Resource Management and Pipelines)
- 1 X Environment Engineer

DPIR has spent considerable time, effort and resources into the attraction and upskilling of staff to meet these requirements. Officers in DPIR are trained CERT IV Government investigators and are assigned as Inspectors under the Act with powers to stop work and seize documents. Training has also included on the job field experience for environmental staff, frequent audits and field visits, online courses and sharing of information between agencies and operators. Increased competency and experience has led to improved awareness of regulatory gaps and focus areas to implement continuous improvement.

Petroleum (Environment) Regulations

The Petroleum (Environment) Regulations 2016 are consistent with Commonwealth environmental legislation and incorporate the following six (6) principles that were established by the Council of Australian Governments (COAG):

Certainty: The regulatory objectives are uniform, clear, and predictable for all stakeholders
Openness: Stakeholders are appropriately consulted on the establishment of the regulatory objectives
Transparency: The regulatory decision making processes are visible and comprehensible to all stakeholders and industry performance in terms of compliance with the regulatory objectives is clear to all stakeholders
Flexibility: The level of regulatory scrutiny, surveillance and enforcement needed to ensure compliance is determined on the basis of individual company compliance capability and the outcomes to be achieved
Practicality: The regulatory objectives are achievable and measurable
Efficiency: The compliance costs imposed on both government and the licensee by the regulatory requirements are minimised and justified. Negative impacts on communities are minimised, and licensees remain liable for the cost of their impacts. Furthermore, an appropriate rent (Royalty) is paid to the community from the value realised from the development and production of its natural resources.

Importantly, the NT Government has embraced the principles of ecologically sustainable development (ESD) and requires that the risks and impacts to the environment must be managed such that they are as low as reasonably practicable (ALARP) and acceptable1. The NT is the first jurisdiction to include the ESD principles in the decision-making of the Minister for petroleum projects. The ALARP principle is widely accepted as prudent for regulation. The principle is well established in case law and finds its origins in the 1949 UK case of Edward vs National Coal Board. In Australia, it is central to nationally harmonised work, health and safety legislation and means that the petroleum interest holder has a duty of care to do everything reasonable and practicable to prevent or mitigate harm. The NT has now applied the same principle to preventing and mitigating environmental harm from petroleum activities. The Energy Division also requires that risks and impacts from petroleum activities are acceptable after all reasonable steps have been taken to prevent or mitigate them. This may mean that in some cases the risks are too great and the activity is not worth undertaking until those risks can be mitigated to an acceptable level. These principles are further explained in the Explanatory Guide to the Petroleum (Environment) Regulations.

The Energy Division also engages across government departments to ensure that proponents of petroleum activities understand their obligations and are able to satisfy all regulatory requirements in a timely fashion. Notwithstanding this, at all times the petroleum interest holder is responsible to ensure all legislative requirements are met. Non-compliance may result in directions and/or enforcement action being taken.

Subsequent to the Montara Commission of Inquiry, the Energy Division introduced numerous regulatory and operational reforms to its assessment and compliance monitoring procedures. Further, the Department supports and has acted on the conclusion of the Australian Council of Learned Academies (ACOLA) that in relation to hydraulic fracturing:

> A large number of impacts are possible, but the likelihood of many of them occurring is low and where they do occur, other than in the case of some biodiversity impacts, there are generally remedial steps that can be taken. Nonetheless it is important that the shale gas industry takes full account of possible adverse impacts on the landscape, soils, flora and fauna, groundwater and surface water, the atmosphere and on human health in order to address people's concerns. This will require improved baseline studies against which to measure future change and to compare natural change and change resulting from industry activities. The footprint and regional scale over which shale gas operations may occur can be minimised by measures such as drilling multiple wells from one drill pad, but nonetheless there will be some cumulative regional, ecological and hydrological impacts, including fragmentation of habitats and overall landscape function. These will need to be carefully assessed and managed using best practice.[48]

3.2 Regulatory Reforms Resulting from the Montara Inquiry

This section provides an overview of the reforms introduced by the Energy Division's Petroleum Operations Team in Assessment and Compliance Procedures following the Montara Inquiry.

Prior to the Montara Commission of Inquiry in 2010, before NOPSEMA was created, each State and the Northern Territory was responsible for the regulation of its offshore exploration and production while NOPSA was responsible for the work health and safety matters. Also, as well as its own onshore responsibilities, the Energy Division of the then Northern Territory Department of Resources (DoR), was the Commonwealth's delegated Designated Authority for the offshore area of Ashmore and Cartier Islands.

At the time of the Montara uncontrolled hydrocarbon release, there was just one petroleum engineer in the DoR, with technical expertise in the oil and gas industry.

Although the Montara Commission of Inquiry found that the root cause of the incident resulted from short comings in the operator's procedures and reporting to the regulator, it also highlighted concerns in the performance of DoR. As a direct result of those concerns, DoR introduced several immediate changes:

The Northern Territory DoR:

- Recruited petroleum engineers to address the gap in technical expertise; and
- Reviewed and implemented more robust approval assessment processes; and
- Implemented a well operation activity approvals co-assessment system with the Western Australian Designated Authority.

The recruitment of additional engineers then led to the planning for a complete review and overhaul of the Petroleum Operations Team's Assessment and Compliance Monitoring procedures. The outcome of this review resulted in the following initiatives:

48 Australian Council of Leaned Academies (ACOLA), 2013a.

Assessment Procedures

1. Introduction of a triple signatory assessment and approval system – a double technical assessment layer that precedes final approval (see Attachment C – Checklists 14 to 16).
2. Introduction of new prescriptive mandatory requirements that operators must follow as a precondition of approval. Requirements include but are not limited to; cementing all casing strings to surface, submission of all fracture modelling illustrating safe separation between target zone and groundwater aquifers, full disclosure of estimated water consumption and chemicals, water monitoring before, during and after any hydraulic fracturing activities.
3. Introduction of assessment checklists, revised with increased rigour by adding particular trigger questions that ensures the operator has addressed particular critical items as a pre- condition of approval.
4. Introduction of more than 8 new Guidelines and Factsheets (see Attachment C – Guidelines and other Energy Division assessment documents)
5. Introduction of the mandatory requirement for operators to complete an Environment Rehabilitation Calculation Spreadsheet followed by payment of the Security Bond.

Compliance and Monitoring Procedures

1. Development and introduction of the Well Integrity Verification Form. This Form includes particular trigger questions that ensure the assessor, by performing a desk-top audit of all available reports, can determine if the operator has tested and validated every new well barrier that has been installed (See Attachment C22, p284 - Well Integrity Verification Form). This too follows the double technical assessment layer, before final well close-out approval will be granted by the technical authority vested in the position of Senior Director Petroleum Technology and Operations.
2. Greater transparency with the requirement for operators to submit an EMP Summary for uploading on the department's website. (This has since been further strengthened by the mandatory requirement to provide the approved EMP for uploading on the website).
3. Introduction of new Inspector Audit Checklists for Well Drilling Operations, Site Environment Inspections, Well Hydraulic Fracturing Operations and Well Testing Operations (see Attachment C – Checklists 18 to 21).
4. Introduction of new Environment Close-out Procedures ensuring rehabilitation has taken place in accordance with the approved EMP's Rehabilitation Strategy before the Security Bond will be returned to the operator.
5. Officer training specific to well integrity and process safety with a mandatory CERT IV in Government Investigations.

3.3 Regulatory Reforms Following the Hawke Inquiry

The continuous review of the onshore petroleum legislative framework is necessary to ensure legislation and regulations meet contemporary best practice and supports government policy.

An important achievement for the Energy Division was the enactment and release of the risk/ outcomes based Petroleum (Environment) Regulations (PER) 2016 that effectively superseded the environment requirements of the Schedule to the Petroleum Act. Over the last two years, the Energy Division has undertaken considerable work in its legislative reform through the following:

- The 2016 implementation of the Petroleum Environment Regulations
- A comprehensive explanatory guide for the Petroleum (Environment) Regulations including an explanation of the legislative context for petroleum activities and the environmental assessment and approval processes applicable under the following:
  - o Environmental Protection and Biodiversity Protection Conservation Act
  - o Environmental Assessment Act
  - o Petroleum (Environment) Regulations including details about the requirements for Environment Management Plans (EMPs) that require:
    - detailed activity and environmental descriptions
    - risk identification and assessment
    - stakeholder engagement
    - the setting of objectives
    - identifying controls
    - setting performance standards and measurement criteria
    - an implementation plan for those controls to demonstrate that objectives are continuously met and that risks and impacts are as low as reasonably practicable and acceptable.
- A 2016 full review and update of the Schedule of Onshore Petroleum Exploration and Production Requirements
- A discussion paper for the comprehensive review of the regulatory framework for onshore petroleum exploration and development
- A discussion paper on the optimum level of regulatory intervention for the Northern Territory's oil and gas industry
- Research and development of new Petroleum Exploration Regulations (PExR)
- Development of a Code of Practice for the construction and decommissioning of petroleum wells in the NT
- Development of a Compliance and Enforcement Handbook
- Review and update of all Operational and Environmental Guidelines
- Significant investment in the development of capability through formal training (ie. CERT IV Government Investigations, Lead Environmental Auditor Training, Process Safety Training etc.) and the development of business intelligence and process automation
- An improved web-portal and up-to-date information to the Spatial Territory Resource Information Kit for Exploration (STRIKE) and the Geoscience Exploration and Mining Information System (GEMIS) with access to detailed tenure and well information in the NT
- Enhanced transparency through the publication of full environment management plans and chemical use in petroleum activities.
- Commenced development of several high priority guidelines on water monitoring, chemical use, stakeholder engagement and assessment of ESD, ALARP and acceptable level of risk determination.
- Identified a comprehensive list of guidelines for development through 2018 pending the outcome of the Inquiry and government policy in relation to the unconventional oil and gas industry
- Identified high priority proposed amendments to the Petroleum Act

The Energy Division also developed the Onshore Oil and Gas Guiding Principles. The Guiding Principles set out the minimum expectations of how industry will conduct itself throughout the

comprehensive review of the NT's existing Regulatory framework. These were prepared to ensure that effective environmental outcomes were achieved in the lead up to the enactment of the PER and ultimately guided the development of the regulations. The PER were developed with intensive community and stakeholder consultation with reference to feedback received during the Hawke Inquiry, the draft onshore oil and gas guiding principles and the draft PER supported with workshops, presentations and engagement in public forums.

Future work will focus on the eventual release of the reviewed Petroleum Act; the new Petroleum Exploration Regulations (PExR) followed by planning and development of Petroleum (Production Management) Regulations (PPrR) incorporating the findings from the Inquiry as directed by government.These will eventually replace the Schedule of Onshore Petroleum Exploration and Production Requirements 2016 (the Schedule).

The Energy Division's ongoing regulatory reform is consistent with Dr Allan Hawke's recommendations, findings and main conclusion from the 2014 Hawke Report:

> This Inquiry's major recommendation, consistent with other Australian and International reviews, is that the environmental risks associated with hydraulic fracturing can be managed effectively subject to the creation of a robust regulatory regime.

The current regulatory system enforced by the Energy Division is robust and accords with leading practice for the level of activity experienced in the NT to date. The Department also considers that the current "lead agency" framework that is in place has to date been an effective model, with high levels of co-ordination and cooperation between relevant government agencies. Nevertheless, the Energy Division recognises the need to maintain a continuous regulatory review and improvement process to ensure the framework evolves with new knowledge, emerging technologies and associated risks. In this context, the Energy Division is currently reviewing its entire regulatory framework and operational processes.

Section 4: General Matters Relating to the Potential Impacts from Hydraulic Fracturing in the Northern Territory, Australia and International

4.1 Petroleum development history in the Northern Territory

The onshore petroleum industry has had a presence in the Northern Territory since 1959 when the first exploration well was drilled. Although commencing more than 50 years ago, for onshore NT, the industry is still in its infancy with only 236 wells drilled so far. Out of the total wells drilled, 145 have been decommissioned (plugged and abandoned), 26 have been suspended, possibly for future data gathering or production, and 65 are current producing wells. At the present time, the NT has four fields that are in production under a NT Production Licence. All four production fields are extracting petroleum from conventional reservoirs only (**Figure 10**).

4.2 Hydraulic fracturing history in the Northern Territory

4.2.1 Introduction

Australia has significant potential to become one of the next countries with commercially viable shale gas production. Basins in the Northern Territory, such as the McArthur Basin (including the Beetaloo Sub-basin) and Georgina Basin host some of the oldest potentially recoverable unconventional gas resources in the world.[49]

In Australia, drilling for hydrocarbons has over a 50-year history and hydraulic fracturing has been undertaken throughout most of this period[50]. For example, since 1958, in Western Australia, more than 600 petroleum wells in the State have undergone stimulation activities of various types, with no observed or reportable adverse consequences[51].

In the Northern Territory, hydraulic fracturing has been taking place since 1967 but mainly as a process to enhance hydrocarbon production from conventional reservoirs in vertical wells. Only since 2011 has Hydraulic fracturing of unconventional formations taken place in the NT (see section 4.2.6).

4.2.2 Hydraulic fracturing in the West Mereenie area (Conventional)

Of the 22 wells drilled in the area, between 1991 and 1994, hydraulic fracturing was applied to 7 wells to stimulate production. Santos (originally, the wells may have been previously drilled by a different operator) targeted various zones in the Pacoota Sandstone between 4300 and 4800' (1310.6 – 1463m) with a fracture zone generated of 78 to 245' (23.8 – 74.7m) maximum. The same treatment chemicals were used in each of the fracture stimulations and no adverse issues were reported.

In 2014, Santos drilled the production sections, fracture stimulated and completed its new West Mereenie wells: WM 20, WM 23 and WM 24 ST1.

4.2.3 Hydraulic fracturing in the East Mereenie area (Conventional)

Santos drilled 43 wells in East Mereenie with fracturing processes carried out on 20 wells to stimulate production. The first fracturing activity was in 1967 but generally took place between 1992 and 1996. The Pacoota Sandstone was targeted at depths between 4600 and 5000' (1402.4 – 1524.4m) and fractures zones of 93' to 245' (28.4–74.7m) maximum were produced. The same treatment chemicals were used as in the West Mereenie stimulations and no problems were reported.

In 2014, Santos re-entered, conducted workovers and hydraulic fracture stimulations on its existing East Mereenie wells: EM 12, EM 26, EM 35.

4.2.4 Hydraulic fracturing in Palm Valley (Conventional)

Magellan Petroleum operated 11 wells in Palm Valley and used hydraulic fracturing to stimulate production in about 5 wells, between 1973 and 1985. The Stairway, Horn Valley and Pacoota Formations were the targets at depths between 5700 and 7200' (1737.4–2194.6m). No major issues were reported.

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49 EIA/ARI World Shale Gas and Shale Oil Resource Assessment, 2014.
50 Australian Council of Learned Academies (ACOLA), 2013a.
51 http://www.dmp.wa.gov.au/Petroleum/Drilling-projects-1597.aspx

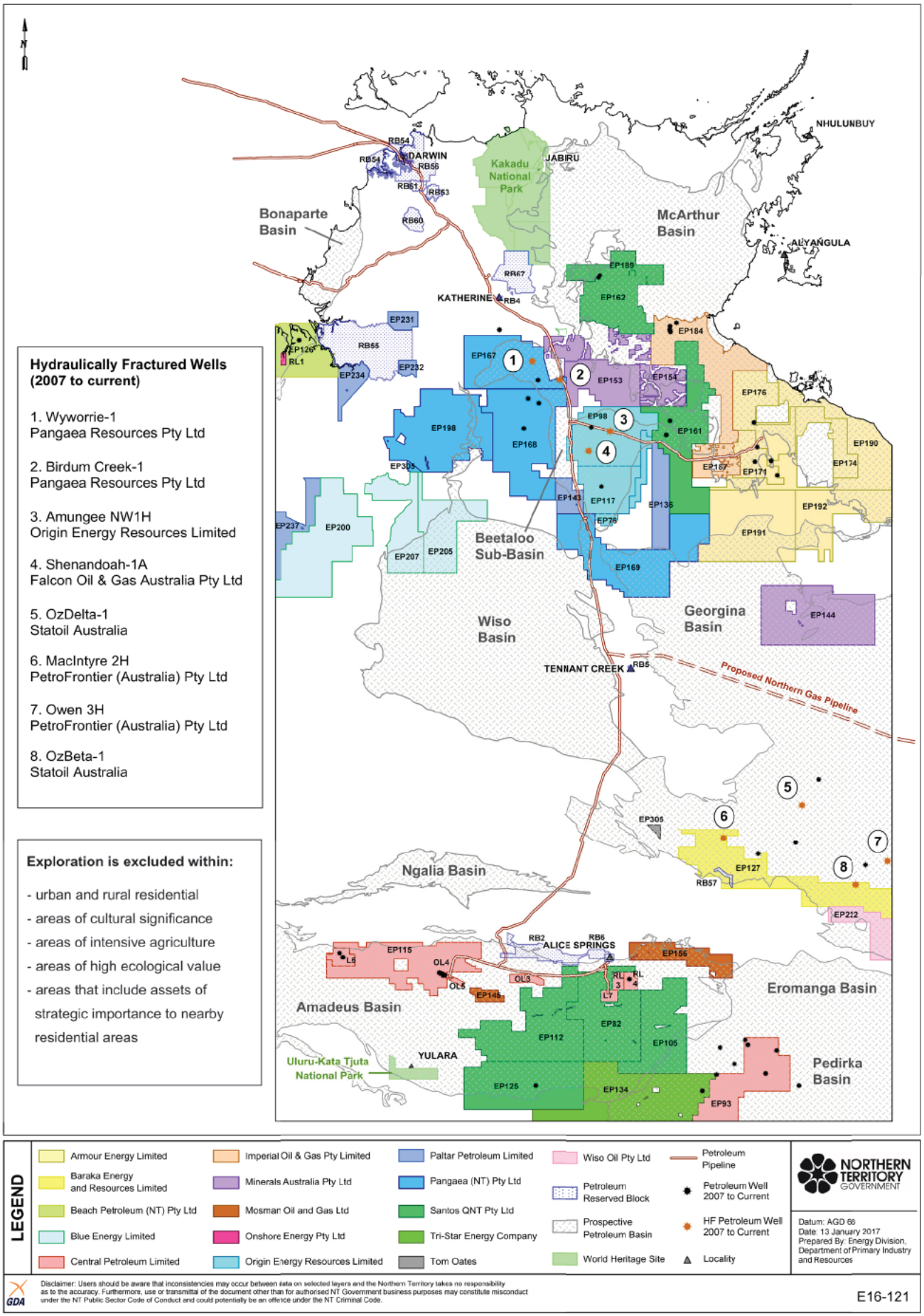


Figure 10: Petroleum wells in the NT, including active Titles.

4.2.5 Hydraulic fracturing in the Dingo area (Conventional)

Pancontinental fractured one well in the Dingo area, Dingo-2 in 1984. The Arumbera Sandstone was the target. Pre-fracturing evaluations records only are available.

4.2.6 Hydraulic fracturing activities of unconventional formations

In 2011, Falcon Oil & Gas undertook a fracturing program during the re-entry and deepening of the vertical well Shenandoah-1A in the Beetaloo sub-basin (McArthur Basin). A detailed fracture and environmental report is available[52] and no problematic issues were reported.

In 2012 PetroFrontier undertook a horizontal drilling program for wells Owen 3H, Baldwin 2HST 1 and MacIntyre 2H in the southern Georgina Basin. Hydraulic fracturing was applied to the horizontal sections of the well bores. During the hydraulic stimulation program of the Baldwin-2HST1 well, a shallow casing failure occurred and as a result, PetroFrontier was unable to complete the program. The hydraulic fracturing programme for the other two wells was successful, although hydrogen sulphide was detected in both. The hydraulic fracturing program highlighted that slickwater[53] only will be adequate to stimulate wells in future. All three wells were decmissioned (plugged and abandoned) by the new operator, Statoil, in 2014.

Statoil commenced its campaign for the stimulation of unconventional hydrocarbons in 2014 with the drilling, fracture stimulation and testing of its OzBeta 1 and OzDelta 1 wells. Both wells were subsequently decommissioned (plugged and abandoned).

In 2015, Pangaea commenced its campaign for the stimulation of unconventional hydrocarbons with the drilling, fracture stimulation and testing of its Birdum Creek 1 and Wyworrie1 wells. Both wells were subsequently decommissioned. Pangaea also drilled and conducted a Diagnostic Fracture Injection Test (DFIT) on its Tarlee 1 well which was also decommissioned.

In 2015, Origin Energy also commenced its campaign for the stimulation of unconventional hydrocarbons with the drilling and DFIT of its Kalala South 1 well. The well was subsequently suspended.

In 2016, Origin Energy continued its campaign for the stimulation of unconventional hydrocarbons with its Amungee NW-1H well. The horizontal well was cased followed by a DFIT. The well was subsequently fracture stimulated and flow tested. The well was then suspended for pressure build-up and recording.

4.3 Petroleum Resources in the Northern Territory

4.3.1 Background

The Energy Division is responsible for Petroleum Resource Management in the NT. The role and responsibility of Petroleum Resource Management is to administer the regulations pertaining to the full cycle of petroleum exploration and production with a priority of returning the optimum value of the petroleum resources to the Territory. In support of this objective, regulatory requirements have been developed for discovery notification, reporting preliminary resource estimates, reporting the upgrade of resources and Reservoir Management Plans.

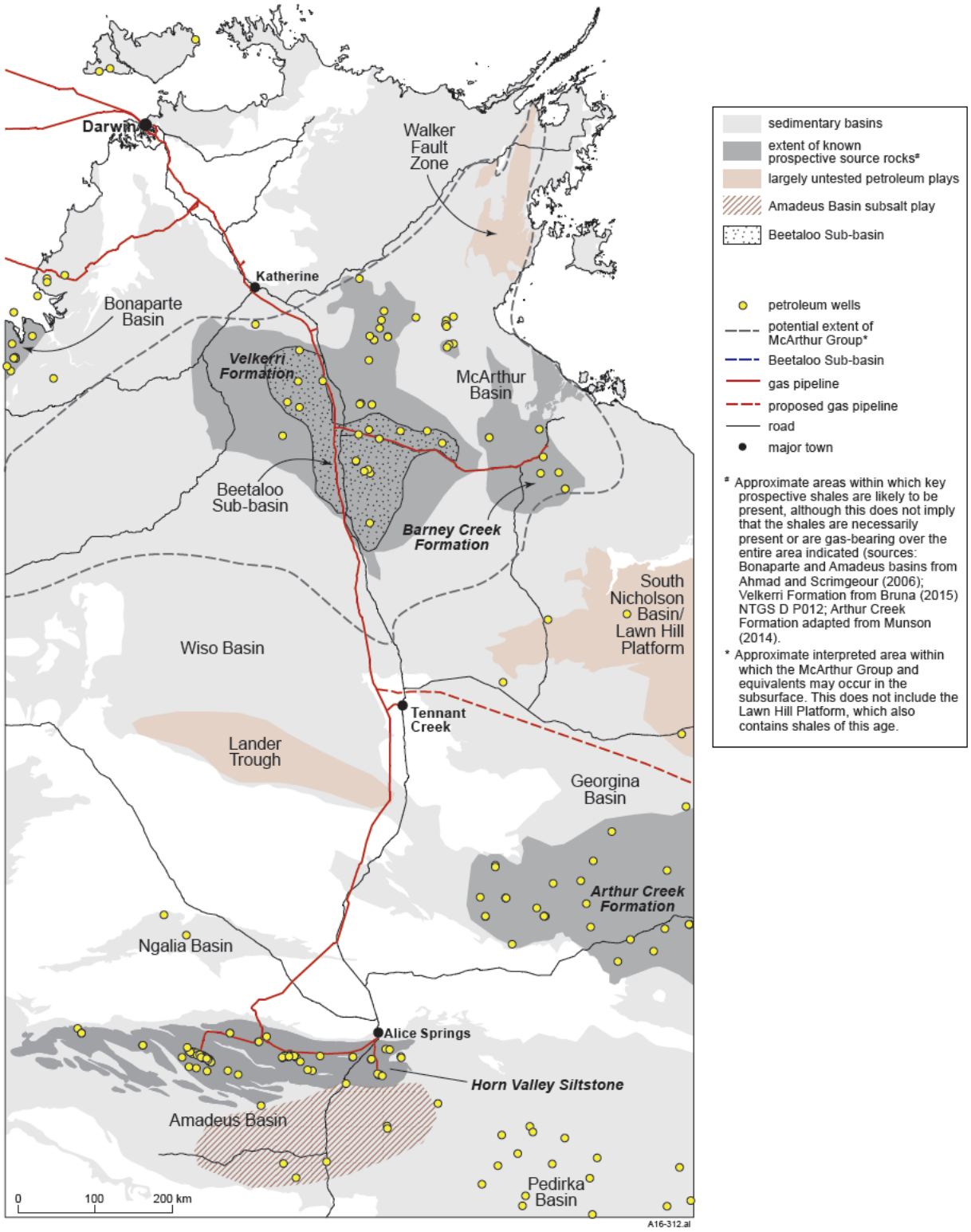
4.3.2 Petroleum Discoveries in the Northern Territory since 2010

Table 2 reflects the publicly announced petroleum discoveries in the NT since 2010:

Table 2: Publicly announced petroleum discoveries in the NT since 2010

Discovery	Basin	Conventional/Unconventional
Amungee NW 1H	McArthur	Unconventional
Mt Kitty 1	Amadeus	Conventional
Lamont Pass 3	McArthur	Unconventional
Cow Lagoon 1	McArthur	Unconventional
Glyde 1 ST1	McArthur	Conventional
Surprise 1 Re-entry H ST1	Amadeus	Conventional
Ooraminna 2	Amadeus	Conventional

52 PR1985-0134, Northern Territory Government.
53 Slickwater is a fracture fluid with some chemicals but without a proppant.



Dec 2016

Northern Territory Geological Survey
Department of Primary Industry and Resources

AUSTRALIA'S NORTHERN TERRITORY

Figure 11: Northern Territory petroleum potential.

4.3.3 Northern Territory's Oil and Gas Resource Estimates

The Northern Territory's onshore oil and gas reserves and contingent resources are summarized in the below table. Current estimates indicate that the Northern Territory has more than 260 trillion cubic feet (Tcf) equivalent to 275,211 petajoule (PJ) of prospective unconventional natural gas resources. The estimates are for both unconventional and conventional resources and reserves. Reserve and resource estimates in **Table 3** are based on public non-confidential reports provided by oil and gas companies in the Northern Territory. See also **Figure 11**.

Table 3: Northern Territory's onshore oil and gas reserves and contingent resources

Oil/Gas	Reserves (2P)	Contingent Resources (2C)
Oil (MMBbl)	10.3	20.25
Gas (PJ)	207	7217

The estimates of the reserves and contingent resources are in accordance with SPE-PRMS[54] (Society of Petroleum Engineers-Petroleum Resource Management System). SPE-PRMS is the most common petroleum classification system worldwide; ASX disclosure rules are based on SPE-PRMS and Australian jurisdictions, including the Energy Division of Northern Territory Government, have adopted this classification system for the resource/reserve estimate reporting. In the SPE-PRMS resources are categorized as Reserves, Contingent Resources or Prospective Resources.

Reserves are those quantities of petroleum anticipated to be commercially recoverable from known accumulations by application of development projects from a given date forward under defined conditions. Reserves must be discovered, recoverable and, as of the evaluation date; deemed as commercial for planned development.

Contingent Resources are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations, but the applied projects are not yet considered mature enough for commercial development due to one or more contingencies.

Prospective Resources are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective resources have both an associated chance of discovery and a chance of development.

These categories can be further sub-categorized based on uncertainty as 1P, 2P, 3P (for reserves) or 1C, 2C, 3C (for Contingent Resources) or low, best and high (for Prospective Resources) reflecting the uncertainty of hydrocarbon volume presence and recovery. These categories can also be classified based on likelihood of commerciality, a risk factor is assigned to each sub-class. The 2-axis PRMS system is illustrated in **Figure 12**.

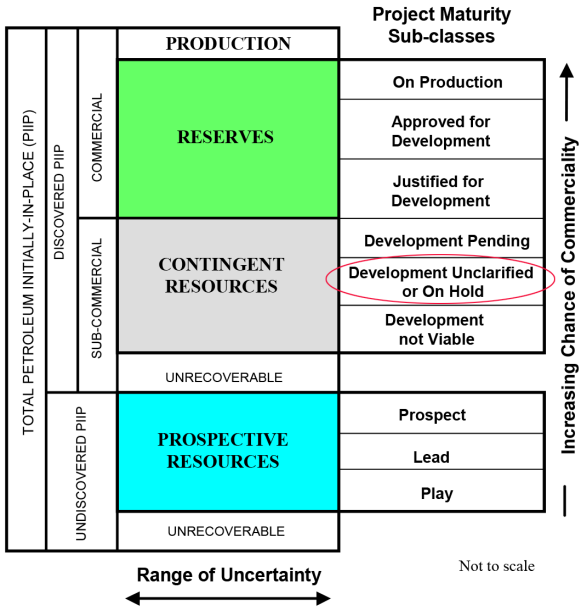


Figure 12: 2-axis PRMS system.

54 Society of Petroleum Engineers, 2011. Guidelines for Application of the Petroleum Resource Management System.

The current classification of contingent resources in the Beetaloo Basin is “Development Unclarified or On Hold”. This is due to the moratorium that is in place on hydraulic fracturing of unconventional reservoirs. If the moratorium is lifted, further exploration and appraisal work will be required to move the classification from Development Pending into a Reserves classification.

4.4 Potential environmental impacts from hydraulic fracturing in the Northern Territory, Australia and International

Issues that could potentially be caused by hydraulic fracturing include induced seismicity and groundwater contamination of which none have been reported in the Northern Territory. Issues that are unavoidable but controllable parts of unconventional drilling (and hydraulic fracturing) include landscape impacts, water consumption, the makeup of fracture fluids and waste water disposal. The activities of operators in the Northern Territory are regulated to such a level that potential impacts on the environment are brought to ALARP ('as low as reasonably practicable') whilst also recognising the principles of ecologically sustainable development (ESD).

4.4.1 Water consumption

An estimate of water consumption in the Northern Territory and other parts of Australia was carried out by ACOLA[55]. It is important to point out that this estimate is purely theoretical because it assumes that all basins are simultaneously in full production. Figures are presented in **Table 4** to highlight the absolute maximum amount of water which would be required in this hypothetical scenario.

Table 4: Estimate of water consumption in the Northern Territory

Basin	Basin Area (km^2)	Number of shale gas wells	Water needed for fracturing (GL)	Water needed per year (GL)	Groundwater sustainable yield (GL/year)	Groundwater abstraction (GL/year)	Water footprint compared to gas footprint
Amadeus	162,294	12,679	190.2	7.6	142	14	26
Georgina	362,638	28,331	425	17	241	64	34
McArthur	198,480	15,506	232.6	9.3	749	9	6
Wiso	138,586	10,827	162.4	6.5	106	4	30

Shale gas basins in the Northern Territory showing the potential number of wells (assuming well space of 800 metres and fairways making up 5% of the basin).

- The estimated volume of water needed to fracture these wells assumes 15ML/well.
- The volume of fracture fluid per year assumes a 25 year lifespan of the field.
- Water footprint is the factor by which the area of land needed to sustainably withdraw 15ML of water for fracturing exceeds the area of land (640,000 m^2) covered by each gas well.

The water footprint figures are much lower than those of other parts of Australia such as the Cooper Basin (139) and Arckaringa Basin (167) but higher than the Sydney Basin (2) and Otway Basin (0.5)[56]. As groundwater will in most cases be the sole resource available, alternatives such as the use of recycled water or waterless methods of fracturing are being developed.

During the hydraulic fracturing of the Shenandoah-1A well, the re-use of flowback water as a fracture water source for future wells was investigated. Five of the eight water storage tanks contained flowback water as overflow. It was found that the effectiveness of the friction reducers in the original fracture fluid was not compromised by the use of the flowback water.[57]

55 Australian Council of Learned Academies (ACOLA), 2013b.
56 Australian Council of Learned Academies (ACOLA), 2013b.
57 PR2012-0011, Northern Territory Government.

In 2014, Santos accessed the Mereenie Aquifer for operational use on site. Water demand for future fracturing varied for each fracture stimulation but was in the order of 50 m^3 (0.5 ML) per stimulation. The impact on the aquifer of one-off extraction is expected to be short-term and localized. Water use and the anticipated volume of water was assessed and found to avoid impact on other groundwater users[58].

Pangaea's 2015 stimulation campaign application estimated water use of 2.0 ML for the stimulation and testing of each well. This amount was confirmed as actual consumption plus an additional 0.5 ML for camp operations (cooking, cleaning).

Origin's 2016 stimulation campaign application[59] estimated 15.0 ML of water use for the stimulation and testing of the Amungee NW-1H. Eleven stages were pumped and about 10ML was used for the full fracture stimulation program. Actual consumption varied between fracture stages due to the nature and level of activity but ranged between 0.7 and 1.4 ML per stage for the 11 stage fracture stimulation activity.

Origin Energy's Groundwater Monitoring Plan[60] had a Conceptual hydrogeological model that assessed the local Cambrian Limestone Aquifer (CLA) focussing on the area within the Georgina basin and included all the relevant regional aquifer systems that form the principle water resources in the Beetaloo Basin. The plan estimated that the CLA contains a significant, but largely undeveloped groundwater resource with a sustainable yield, sourced within the Georgina Basin, estimated to be in the order of 100,000 ML/year. Existing groundwater use in the Beetaloo Basin is currently estimated at 6,000 ML/year. Origin estimated that the water volume required to develop a potential gas resource on its permits would be about 1,000 ML/year over the development phase. Combined, current groundwater extraction and projected demand for gas development in the Beetaloo Basin represents 7% of the estimated water resource available from the CLA in the Georgina Basin[61].

Putting water use in perspective is important in order to make informed decisions about the gas industry. While water usage for agriculture is well documented it may still be a surprise to many that it requires 24,000 litres of water to produce 1 kg of chocolate. A calculation of water usage for hydraulic fracturing to unlock the gas required to produce the energy consumption of an average Australian home would conservatively be as follows:

Water used for drilling and hydraulic fracturing of one well	30 million litres
Gas recovered from one well over its entire lifecycle	6 PJ
Average daily electricity use per Australian household	16 kWh
Conversion of 1 PJ to millions of kWh	multiply by 278
Water used for drilling and hydraulic fracturing to extract gas for 1 day's electricity use for the average Australian household	0.3 litres

The average daily water consumption for a Darwin household is 1,300 litres. This is only the water used around the house such as garden watering, showers, dishwashers, washing machines and toilets. Estimates suggest that this water use accounts for only 3 percent of a family's overall water use when taking account of water used to produce clothes, food, packaging etc. More information about the water footprint of our modern standard of living can be found here: http://waterfootprint.org/en/

The department strongly supports responsible use of water resources and will work with proponents of gas development projects to reduce the water footprint to a level that is as low as reasonably practicable and acceptable. In any case, proposals for the development of unconventional petroleum resources will be subject to the *Environmental Assessment Act* and the *Water Act* and must obtain a water extraction licence which will be assessed by the Department of Environment and Natural Resources to ensure that water use is sustainable.

58 Santos, 2013.
59 Rev 1 1 Stimulation and Well Test Environmental Plan, 2016.
60 NT-2050-15-MP-0011 Beetaloo GMP Rev2.
61 NT-2050-15-MP-0011 Beetaloo GMP Rev2.

4.4.2 Water contamination

Potential groundwater or surface contamination could result from spills of fracture fluid prior to injection into the well; flowback of fracture fluid; leaking fluid from waste-water pipes or ponds; leaks from inadequate cementing of wells; and leaks through geological structures via natural or artificial fractures.[62]

In 2004 and again in 2015, research into the impact by hydraulic fracturing of CBM (CSG in Australia) on groundwater by the US Environmental Protection Agency (US EPA) could find no confirmed cases that could link hydraulic fracturing to well contamination.[63] In its 2016 report[64], the US EPA, "identified impacts generally occurred near hydraulically fractured oil and gas production wells and ranged in severity, from temporary changes in water quality to contamination that made private drinking water wells unusable" and that; "significant data gaps and uncertainties in the available data prevented us from calculating or estimating the national frequency of impacts on drinking water resources from activities in the hydraulic fracturing water cycle (**Table 5)**. The data gaps and uncertainties described in this report also precluded a full characterization of the severity of impacts". Other investigations have determined that these impacts are low in comparison to other pollution factors including natural seeps.[65]

Table 5: Research into the impact by hydraulic fracturing on groundwater by the US EPA

State	Study period	# Wells producing	# Cases investigated	Site related	D&C Related	Fracture related	Production related	Orphan Well related	Waste Disposal related	P&A related	Unknown
Ohio	26yrs	65,000	185	0	74	0	39	41	26	5	0
Texas	16yrs	250,000	211	0	10	0	56	30	75	1	39

D&C - Drilling and Completion - in Ohio and Texas, due to cement isolation problems
57 of 75 waste disposal-related incidents in Texas were legacy issues with disposal pits that were outlawed in 1969
Orphan well – abandoned upstream oil and gas wells with improper P&A and reclamation
P&A – plugging and abandoning

Of 16,000 multi-fractured horizontal wells in this study, no groundwater contamination was found at any stage of drilling, well construction, hydraulic fracturing or production operations.[66]

Groundwater contamination by methane has been raised as a possible consequence of the fracturing process. However, ACOLA notes that methane occurs naturally in groundwater due to slow migration from deeper gas-bearing strata or from microbial activity. The original source of methane (biogenic or thermogenic) can be distinguished by analysing the isotopic signature of the gas. The Moomba gas field in South Australia was identified in part as a result of the presence of gas shows in the Great Artesian Basin aquifers.[67]

Besides methane contamination, most concern with hydraulic fracturing is water pollution by fracture fluids. In the Northern Territory, no groundwater issues have been recorded from fracturing or other unconventional drilling operations, including those from PetroFrontier's Baldwin 2HST1 well in 2012. Activities in this well were halted after a single shallow casing failure occurred. Wells are required to be constructed with multiple redundant barriers. The multiple casing design protected the shallow aquifers noting that the fracture fluid was slickwater only.[68]

The relatively low level of structural complexity in the McArthur Basin is recognized as a factor that reduces the risk of fractures affecting groundwater.[69] Even so, the groundwater aspect of environmental protection displayed during the drilling of Shenandoah-1A (McArthur Basin, Beetaloo sub-basin) by Falcon Oil & Gas in 2011 is one example of the additional measures needed to prevent water pollution. This was a vertical well drilled to target unconventional hydrocarbons in three geological horizons – the Lower Kyalla, Middle and Upper Velkerri Formations.[70]

Environmental protection procedures put in place included surface casing and cement to isolate the Tindall Limestone Aquifer, which prevented possible contamination by drilling fluid and fracture fluids.

62 EU Directorate-General for Internal Policies, 2011.
63 United States Enviromental Protection Agency, 2016.
64 United States Enviromental Protection Agency, 2016.
65 King GE, 2012.
66 King GE, 2012.
67 Australian Council of Learned Academies (ACOLA), 2013.
68 http://www.petrofrontier.com/
69 Australian Council of Learned Academies (ACOLA), 2013a.
70 PR2012-0011, Northern Territory Government.

The surface casing and cement was extended to include the Antrim Volcanics below the Aquifer. The volcanics themselves would have acted as an additional barrier to any upward fracture propagation and fluid escape from below.[71] The intermediate and production casings at depth were proven by cement bond logs to have provided good cementation, zonal isolation and fluid containment.[72]

The separation distance between the uppermost fracture zone and an aquifer is regarded as another essential component in preventing water contamination.[73] In the case of Shenandoah-1A the separation distance between the Lower Kyalla fracture zone and the Tindall Limestone Aquifer measures over 1300 metres.[74] Based on a survey in 2013 of fracture propagation – both natural (due to igneous activity) and artificial (due to hydraulic fracturing), the recommended minimum separation zone is 500 metres. This is especially so in areas where fracture data is incomplete or absent. Upward propagation of fractures is unlikely to exceed 350m[75] and for US shales a figure of 90m has been quoted.[76]

Water studies were carried out on behalf of Falcon Oil and Gas by international environmental consultant AECOM. To date there are no indications that the Shenandoah-1A drilling, re-entry, stimulation or water reinjection has impacted the ground water in any way.[77]

Santos' subsequent 2014 drilling/environmental plan commented on the risk to groundwater and the following steps that were put in place to reduce the risk to ALARP (as low as reasonably practicable):

- Well design and construction will provide mechanical integrity to reduce the risk to ALARP
- Pressure testing will confirm if production casing exceeds the maximum allowable operational pressure
- Cement bond logs will confirm the integrity of the cement between the casing
- Pressure safety trip-out systems will be used during fracturing to prevent excess pressure on surface pipework and down-hole casing equipment
- Pressure monitoring will confirm that well integrity is not impacted by fracturing
- Installation of a tubing string post-fracture will provide further isolation of production fluids from aquifers[78]

Concerning any possible fracture propagation into the overlying Mereenie Aquifer, the separation distance between the target formations and the aquifer is over 500m, and the modelled fracture propagation is a maximum of 70m (refer also to Section 4, parts 2.2 and 2.3). Fracture propagation into the aquifer is therefore unlikely. A water bore baseline assessment, a mandatory requirement of the Energy Division, was undertaken and this assessment formed the basis of ongoing monitoring of the Mereenie Aquifer in the project area.[79] No problems have been reported.

4.4.3 Chemical use in fracture fluids

Fracturing fluid typically consists of 99.5% water and proppant, and 0.5% chemical additives. To protect commercial confidentiality, the composition of the additives is not fully disclosed to the public.[80] However, in the United States, the FracFocus Chemical Disclosure Agency provides public access to reported chemicals used for hydraulic fracturing. The chemical data presented on this site has been submitted on a voluntary or regulatory basis by the participating oil and gas companies.[81]

In the NT, all chemicals used are assessed by the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) and must have a Chemical Abstract Service (CAS) number with all Material Safety Data Sheets (MSDS) provided to the Energy Division. All MSDS are uploaded on DPIR's website[82].

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71 Cornell University City and Regional Planning, 2010.
72 PR2012-0011, Northern Territory Government.
73 Australian Academy of Technological Sciences and Engineering, 2013.
74 PR2012-0011, Northern Territory Government.
75 Davies RJ *et al*, 2013.
76 Australian Council of Learned Academies (ACOLA), 2013a.
77 PR2012-0011, Northern Territory Government.
78 Santos, 2013.
79 Santos, 2013.
80 EU Directorate-General for Internal Policies, 2011.
81 http://fracfocus.org/
82 https://dpir.nt.gov.au/mining-and-energy/public-environmental-reports/chemical-disclosure-reports

4.4.4 Waste-water disposal

Fracturing fluids are injected into geological formations at high pressure. Once pressure is released, fracture fluid, methane, compounds (possibly including NORMs – naturally occurring radioactive materials) and interstitial water from the deposit flow back to the surface. This waste needs to be properly handled.[83] The Energy Division's EMP assessment process requires that the end point of all waste products be recorded in the EMP as a condition of approval.

In the United States, some issues have been identified but an assessment by the European Union is that these incidents are due to improper handling practices.[84]

Waste water from Pangaea's 2015 Stimulation campaign was stored in appropriately lined ponds to evaporate. Post-evaporation, the pond/pit liners were removed and transferred (via licenced transporter) to a licensed waste disposal facility for final treatment and disposal[85,86]. The pond and pit remained exposed until evaporation was complete, before being backfilled to return the areas to an appropriate slope (considering the landscape's 'pre-drilling' characteristics)[87,88]. A waste register, outlining appropriate disposal of all hydraulic fracturing fluid[89], was provided to the Energy Division.

Waste water from Origin's 2016 Stimulation and Well Testing program was pumped into above ground flexiponds allowing evaporation to occur. The remaining liquid and/or solids were transferred to a licensed waste facility prior to commencement of the wet season. The liners from the flexiponds were also transferred to (via licenced transporter) and disposed of by a licensed waste facility.

4.4.5 Landscape impacts

Unconventional drilling and hydraulic fracturing processes require well pads and storage for technical equipment, trucks, chemicals, proppant, water and waste-water containers. An additional area will be required for the campsite, including kitchens, sleeping quarters, car parks and ablution block. A typical pad size in Pennsylvania can reach about 2 ha or 0.02 km^2 and, there can be multiple wells per pad with well spacing dependent on state regulations. Additionally, as production has an initial high rate and a steep decline profile, gas is often stored on site at the well pad.[90] Total land clearing, required for exploration activities in the NT, for well pad and accommodation camp, is typically between 1 and 2 ha. Large stimulation activities may require up to 4 ha for total land cleared.

For its 2015 exploration drilling campaign, Origin Energy's well pads and associated infrastructure required an area not exceeding 2 ha[91]. In 2016 this was increased to approximately 3 ha for the hydraulic stimulation campaign with an additional 1.4 ha for the drilling camp[92].

In 2015 Pangaea's Birdum Creek-1 and Wyworrie-1 well sites were both hydraulically fractured using the pre-existing well pads. Both well pads were approximately 1.4 ha[93].

The impact on the landscape by unconventional hydrocarbons exploration and production can be viewed as having a similar impact as any industrial activity. However due to the nature of the exploration and production process, multiple wells are needed. The impact on the landscape and the environment can be minimized by grouping wellheads together in clusters with 10–30 horizontal wells being drilled from a single site.[94]

Santos identified the possible impact on stock, wildlife and vegetation in the Amadeus Basin. All activities conducted during the 2014 drilling program were confined to the cleared well lease with signs and appropriate fencing installed to delineate approved and restricted areas. Where flora of conservation significance was found to be present within the area of the well lease, it was flagged and/or fenced off to prevent disturbance.[95]

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83 EU Directorate-General for Internal Policies, 2011.
84 EU Directorate-General for Internal Policies, 2011.
85 EZ15401-C0301-MMP-R-0018 Wyworrie-1 Rehab Report_RevEcOz_A.
86 151204_Stimulation&Testing_RehabReport_Rev1.
87 150710_NT2015_EP167_Stimulation_EMP_Rev1.
88 EZ15401-C0301-MMP-R-0017 Birdum Creek-1 Rehab Report_RevEcOz_A.
89 151204_Stimulation&Testing_RehabReport_Rev1.
90 EU Directorate-General for Internal Policies, 2011.
91 60330225_FinalEP_Rev3_20150428_Part1.
92 E2016 0027~0003 60480548_2016 Drilling EP Rev 1 - Hand-delivered by S.Stonier - 5 Jul-16.
93 150710_NT2015_EP167_Stimulation_EMP_Rev1.
94 Total SA, 2012.
95 Santos, 2013.

4.4.6 Induced seismicity

There is no evidence to suggest that hydraulic fracturing can produce measurable signals in non-faulted systems. When a fracture engages a typical formation fault and waste water is injected in the vicinity of the fault, the magnitude can be recordable. The creation of a moderate magnitude seismic event is regarded as a very remote possibility due to the ease of identifying larger faults on seismic surveys[96].

A study by Durham University states that there are only 3 recorded incidents of felt seismicity that are possibly induced by hydraulic fracturing – in the USA, Canada and in the UK. The largest was in Canada's Horn River with a 3.8 magnitude. It also notes that the most felt seismicity from human activity (198 recorded incidents) was due to activities such as conventional oil/gas field depletion, waste-water injection and geothermal energy processes[97].

The Australian Academy of Technological Sciences and Engineering (ATSE) concurs with these findings but notes that currently in Australia, no seismic risk data for shale gas operations exists. It suggests that to minimise the potential of induced seismicity, it is important to follow best practice mitigation through monitoring the volume and pressure of reinjected produced water and gaining better knowledge of fault structures near shale gas operation sites.[98] It should be noted that hydraulic fracturing is currently taking place in the CSG industry in in Eastern States of Australia (the current PA does not support CSG) with no reports of induced seismicity.[99] (Note that CSG – coal seam gas – is also known as coal bed methane or CBM in overseas jurisdictions.)

Several fracture monitoring technologies including microseismic arrays and tiltmeter surveys are currently in use and under development. Sonic tools loaded into the production casing along which fractures are generated can be used to monitor the growth of fractures. These were employed by Santos as noted in its 2014 drilling/environmental plan for the Northern Territory. Santos also stated that given the low population density and lack of infrastructure in the area of its operations in the Amadeus Basin, the induction of seismic events is not considered a plausible risk to well integrity.[100]

In November 2015, Pangaea undertook a Tiltmeter Survey Operation during the hydraulic stimulation of the Wyworrie 1 and Birdum Creek-1 wells. The Survey included use of sixty (60) tiltmeter stations, twenty eight (28) at Wyworrie-1 and thirty two (32) at Birdum Creek-1, with the overall objective of monitoring and characterising the hydraulic fracture treatments to be performed on the two Appraisal Wells[101]

96 King GE, 2012.
97 Davies R, 2013.
98 Australian Academy of Technological Sciences and Engineering, 2013.
99 Australian Council of Learned Academies (ACOLA), 2013b.
100 Santos, 2013.
101 151204_TiltmeterSS_RehabReport_Rev1.

4.4.7 Past Onshore Operational and Environmental Incidents in the NT since 2007

Table 6 reflects past operational and environment incidents that have occurred from either exploration or production operations in the last ten years in the NT.

Table 6: Past onshore operational and environment incidents from the last ten years in the NT		
YEAR	**INCIDENT**	**Safety Environment**
2008	10–15 m^3 of liquid hydrocarbons and water spill due to sump overflowing in heavy rain.	Environment: limited to lease, clean up by operator
2010	Crude transfer pump leak, volume unknown.	Environment: limited to lease, clean up by operator
2012	Near surface casing failure led to 25 000 l (157 bbls) of fracture fluid (pre-flush), less than 100 l of chemical, entering surface formation and cellar deck.	Environment: limited to lease, clean up by operator
2014	Uncontrolled hydrocarbon release (150 l of liquid hydrocarbon and approximately 6,250 m^3 of gas) due to a failed insulation gasket on flowline.	Environment: limited to lease, clean up by operator
2014	Unauthorised release of mast guy wire led to mast collapse. Well integrity was not compromised at any time before, during or after incident.	Safety: high potential incident, well made safe, operations discontinued
2015	Rig mast loose bolt incident.	Safety: high potential incident
2015	Diverter failure while rig drilling surface hole.	Safety: high potential incident
2016	Incorrect design of mud sumps and inadequate monitoring led to overflow of sump with 30 000 l of water spilling onto well pad.	Environment: limited to lease, water only

4.5 Other factors addressed by the Energy Division in mitigating potential environment impacts from hydraulic fracturing

4.5.1 The selection of sites of wells

The granting of a permit or licence over a particular parcel of land is subject to the provisions of *the Act*.[102] Once tenure has been granted, as a result of its seismic survey and other related data, it is the operator that will make the selection of sites for its planned wells. Nevertheless, as part of the process of approving a new project plan, the Energy Division assesses specific well site selections and this includes the requirement to submit an Environment Management Plan (EMP) which must include an environmental rehabilitation plan – which is referred to the EPA for comment.

The Energy Division grants approval for an operator to carry out a specific activity in accordance with the approved work program – during the course of an activity, no variation of the selection of well sites is permitted without another approval process. Self-reporting, audits and inspections provide the compliance framework.

4.5.2 Well design, construction, standards, control of operational safety and well integrity ratings (See also Section 1 for further detail).

The Schedule addresses the well design, construction, standards, control and operational safety and well integrity ratings in Part lll, Division 1, Clauses 301 to 342.[103]

As part of its formal assessment process the Energy Division requires particular operational documents to be submitted including the work program. These must include details relating specifically to well design, construction, standards, control of operational safety and well integrity ratings.

Internal Energy Division checklists ensure that the operator has addressed the specific critical, operational and well safety issues (for details see Section 1).

The Energy Division grants approval for the operator to carry out its activity in accordance with its approved work program, which includes all supporting documents. No variation is permitted (without approval), and self-reporting, audits and inspections provide the compliance framework.

In accordance with Clause 110 of the Schedule, the Energy Division or third party inspectors are responsible for carrying out operational and environmental inspections and audits. These can be undertaken with or without prior notification to the operator. Compliance monitoring is carried out by the Energy Division to ensure that activities take place in accordance with the approved work program and EMP. Desk top auditing requires the assessor to respond to specific well integrity and

102 Attachment A, p63.
103 Attachment B, p89.

barrier validation triggers that will ultimately confirm that the well was constructed to levels exceeding API standards.

All well suspensions, completions and abandonments must take place in accordance with Clauses 328, 329 and 330 of the Schedule.[104]

4.5.3 Water use

The Schedule does not explicitly address water use; however this has now been addressed through the new PER. Regulation 6(1)[105] requires that, as part of its application, an operator must submit an environment management plan for approval. To satisfy this requirement, the operator's EMP must include details relating to water use.

Also, Clause 325 of the Schedule provides for the protection of aquifers.[106]

The Energy Division Checklist: "Onshore Environmental Management Plan"[107], ensures that the operator is required to address the following water use issues:

- Anticipated consumption
- Source
- Groundwater salinities
- Whether independent groundwater monitoring will be taking place (mandatory if hydraulic fracturing is planned)
- Treatment and disposal options and timing for operational works i.e. before wet season
- Frequency of testing before, during and after the hydraulic fracturing
- All reasonably foreseeable risks

No variations to the EMP and other plans are permitted without re-approval, and compliance is managed through site visits and self-reporting.[108]

4.5.4 Chemical use

The Schedule currently has no explicit reference to chemical use – Clause 315 of the Schedule covers well control properties of drilling fluid only. However, this is now addressed through the PER. Also, the Energy Division Checklist: "Onshore Environmental Plan" provides that an operator must address the following issues in relation to chemical use:

- All chemicals used must be assessed by NICNAS, the National Industrial Chemicals Notification and Assessment Scheme
- Must have a Chemical Abstract Service (CAS) number
- Submission of all Material Safety Data Sheets for public disclosure on DPIR's website
- Energy Division retains copies of all chemicals used including Material Safety Data Sheets (MSDS) that must also be available on site
- At the completion of any hydraulic fracturing operations Energy Division requires a reconciliation report with all chemicals actually pumped including concentrations and actual quantities
- The operator is responsible for fluid testing, which is done at two independent laboratories
- BTEX and Oil Based fluids are banned
- All reasonably foreseeable risks
- The Energy Division has released a chemical disclosure factsheet[109] for hydraulic fracturing and will be proposing that regulation of chemical use be addressed explicitly for future activities
- A draft guideline, that will be issued for public comment, has been prepared to support the industry in complying with requirements

104 Attachment B, p100.
105 https://legislation.nt.gov.au/en/Legislation/PETROLEUM-ENVIRONMENT-REGULATIONS
106 Attachment B, p99.
107 Attachment C, p195 – Guideline: Environmental Management Plan Requirements.
108 Attachment C, p263 – Checklist: Site Environment Inspections.
109 Attachment C, p298 – Factsheet: Disclosure of Chemicals.

4.5.5 Disposal and treatment of waste water and drilling muds

To obtain project approval, the operator's EMP must include details relating to the disposal and treatment of waste water and drilling muds. Specific reference to this is made in the Energy Division Checklist: "Onshore Environmental Plan".

The checklist requires that the operator must address the following:

- Anticipated waste type and volumes
- Methods of treatment and disposal
- End delivery points of all produced fluids and waste products
- Waste Management Plan in place
- All reasonably foreseeable risks

Site visits and assessment of the completion of the environmental rehabilitation plan provide the compliance framework.

4.5.6 Fugitive emissions

The level of fugitive emissions that might occur before or after a petroleum exploration activity such as fracture stimulation is negligible. As fugitive emissions can be naturally occurring, DPIR takes no account of emissions that occur before or after a well has been suspended or decommissioned. This is on the basis that the close-out will be undertaken in accordance with the Energy Division approval. The Energy Division only has a role in regulating fugitive emissions that might take place during exploration or production activities.

For both exploration and production activities fugitive emissions need to be addressed as part of the project approval in the operator's EMP.

In particular, Clauses 326, 327, 331 and 340 of the Schedule require that exploration operators undertake drill stem tests and the associated disposal of flammable vapours, and Clause 419 requires that during production, gas will not be flared or vented without approval.

4.5.7 Noise

All petroleum operations in the NT take place in remote rural locations. Further, the levels of noise are not considered to be any more than typical urban construction sites or normal city traffic. Nevertheless, details relating to noise must be included in the operator's EMP. To ensure its inclusion it is referred to in the Energy Division's Checklist: "Onshore Environmental Plan".

4.5.8 Monitoring requirements

The operator's EMP must address its responsibilities for monitoring its activities as part of its Implementation Strategy.[110] During the drilling of wells, Clauses 310 and 311[111] of the Schedule require that the appropriate monitoring system is installed and operational during the drilling of wells. For production wells, Clauses 401 to 435 stipulate the levels of monitoring and safety systems required. To ensure full well integrity so that well fluids are contained without escaping, operators are required to monitor well pressures to detect any change of pressure.

During hydraulic fracturing activities, operators are required to constantly monitor surface and down-hole pressures. Pressure monitoring provides confirmation that well integrity has not been impacted by the activities. Safety trip-out systems utilised during hydraulic fracturing prevents pressures from exceeding the pressure rating of surface pipework and down-hole casing.

Micro-seismic monitoring is a technique using earthquake seismology methods to determine details about the level of fracturing and deformation associated with hydraulic fracture. The new regulatory framework now addresses through the PER.

110 Attachment C, p195 – Guideline: Environmental Management Plan Requirements.
111 Attachment B, p95.

As part of the project approval process, the operator's EMP must include details of groundwater monitoring to be undertaken and this includes:

- Disclosure of salinities for all aquifers previously drilled through
- Baseline water monitoring to commence during drilling
- Water monitoring to continue during and after fracture stimulation activities
- The submission of a final monitoring report which can then be referred to the EPA and the Department of Environment and Natural Resources (DENR)

4.5.9 The use of single or multiple well pads

The current NT legislation does not recognise the use of single or multiple well pads – however, this can be addressed in the development of the future Petroleum Exploration Regulations (PExR) that will ultimately lead to the replacement of the Schedule.

At this point in time, given the relative low level of exploration and associated discoveries in the NT, activities have included only one well and so have been confined to the use of a single well pad. If future development should warrant it, the Energy Division would support these pads being converted to servicing multiple wells, because of the reduced environmental footprint associated with multiple well pad use.

4.5.10 Environmental Rehabilitation and closure of wells (exploratory and production) including issues associated with corrosion and long term post closure

Rehabilitation and closure of wells is addressed fully in Section 2. In relation to the specific issue of corrosion and long term post closure; this is addressed by Clause 329 (9) of the Schedule, which provides that: "Any intervals of cased hole between cement plugs shall be filled with fluid that is of an appropriate density and suitably inhibited to prevent corrosion of the casing."

4.5.11 Environmental rehabilitation for areas where hydraulic fracturing activities have occurred

Environmental rehabilitation issues are covered in detail in Section 2. That said, of fundamental importance is that the Environmental Rehabilitation Security, paid by the operator at the beginning of a project, is not returned unless and until the environmental rehabilitation has been completed in accordance with the approved EMP and endorsed by a third party environment group.

Please forward questions or comments to; petroleum.operations@nt.gov.au

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Links to NTG and DPIR webpages

1. Petroleum Environment Regulations Explanatory Guide:
   https://nt.gov.au/__data/assets/pdf_file/0005/295907/em-petroleum-environment-regulations.pdf
2. *Petroleum Act*:
   https://legislation.nt.gov.au/Legislation/PETROLEUM-ACT
3. Schedule of Onshore Petroleum Exploration and Production Requirements:
   https://nt.gov.au/__data/assets/pdf_file/0004/295906/schedule-of-petroleum-onshore-requirements-2016.pdf
4. Petroleum Environment Regulations:
   https://legislation.nt.gov.au/en/Legislation/PETROLEUM-ENVIRONMENT-REGULATIONS
5. Environment Management Plans:
   https://dpir.nt.gov.au/mining-and-energy/public-environmental-reports/reports-for-petroleum-operational-activities
6. Chemical Disclosure Reports:
   https://dpir.nt.gov.au/mining-and-energy/public-environmental-reports/chemical-disclosure-reports

Attachment A – Extracts from the *NT Petroleum Act (2016)*

ATTACHMENT A – EXTRACTS FROM THE NT PETROLEUM ACT (2016)

CONTENTS

1. Sections 11-15 – Grant of Tenure

11 Land subject of exploration permit or licence

Subject to this Act, an exploration permit or licence may be granted in relation to any land within the Territory.

12 Grant of mining interest

Subject to this Act and the Land Rights Act, a corporation or a person who has attained the age of 15 years, may apply for and be granted an exploration permit or licence, being a mining interest as defined in the Land Rights Act, in relation to Aboriginal land.

13 No negotiations without Minister's consent

(1) A person must not enter into negotiations with a Land Council for the consent of the Council to the grant of an exploration permit over Aboriginal land without the Minister's consent.

(2) The Minister's consent to negotiations may only be given to a person who has lodged an application for an exploration permit over Aboriginal land with the Minister.

(3) When the Minister receives an application for an exploration permit over Aboriginal land, the Minister must give written notice to the relevant Land Council that the application has been received.

(4) The Minister may give or refuse consent to negotiations between the applicant and the relevant Land Council for the Council's consent to the grant of the exploration permit to the applicant.

(5) However, if the Minister has previously consented to negotiations between another applicant and the Land Council for the Council's consent to the grant of an exploration permit over the same land, the Minister must not give a further consent until the antecedent negotiations are concluded.

(6) The Minister's consent to negotiations may be given conditionally or unconditionally.

(7) Although the Minister has consented to negotiations between an applicant and a Land Council, the Minister may exercise either or both the following powers:

(a) the Minister may withdraw the consent at any time before the negotiations are concluded;

(b) the Minister may refuse the application for an exploration permit (in which case the consent, if not explicitly withdrawn, is taken to be withdrawn).

(8) If the Minister refuses or withdraws consent to negotiations between an applicant and a Land Council (without contemporaneously refusing the application for an exploration permit):

(a) the refusal or withdrawal of consent is not to be taken to be a refusal of the application for an exploration permit; and

(b) the Minister may later give (or again give) consent.

(9) In this section:

ALRA means the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth).

concluded – negotiations with a Land Council are concluded between an applicant for an exploration permit and the Council:

(a) if the applicant withdraws its application – on the day the application is withdrawn; or

(b) if the Minister withdraws consent to negotiate – on the day the consent is withdrawn; or

(c) on the day the Council notifies the applicant, in writing, of its decision to consent or refuse to consent to the grant of the exploration permit.

consent to negotiations means the Minister's consent to an applicant for an exploration permit entering into (and proceeding with) negotiations with a Land Council for the Council's consent to the grant of the exploration permit.

Minister means the Northern Territory Mining Minister as defined in ALRA.

Note

This section should be read in conjunction with Part IV of ALRA which governs negotiations between the applicant for the exploration permit and the Land Council. This vests certain powers in relation to the negotiations in the Commonwealth Minister but it should be noted that some of these may be delegated to the NT Minister under section 76 of ALRA.

14 Applicant for licence to hold exploration permit

(1) Subject to subsection (2), a person shall not apply for or be granted a licence in relation to Aboriginal land unless, at the time of the application for that licence, he was the holder of an exploration permit in relation to that land.

(2) Subsection (1) shall not apply to or in relation to a person who:

(a) is, in relation to that land, a traditional Aboriginal owner within the meaning of the Land Rights Act;

(b) had made an application for a licence over the land before it became Aboriginal land; or

(c) made an application under the repealed Act for a lease in respect of Aboriginal land which application, by virtue of section 119, is deemed to be an application for a licence under this Act.

15 Environmental consideration relating to certain parks and reserves

(1) In respect of land comprising the whole or a part of a park or reserve, the Minister shall not grant:

(a) subject to subsection (2), an exploration permit or retention licence, unless he has considered the opinions of the minister administering the *Territory Parks and Wildlife Conservation Act* in relation to the proposed grant; or

(b) a production licence, except in accordance with the conditions, if any, specified by the minister administering the *Territory Parks and Wildlife Conservation Act*.

(2) Notwithstanding subsection (1)(a), the Minister shall not grant an exploration permit or retention licence in respect of land comprising the whole or part of a wilderness zone except in accordance with the conditions, if any, specified by the minister administering the *Territory Parks and Wildlife Conservation Act*.

(3) A permittee or retention licensee shall not carry out his technical works programme, or any other exploration, which may cause substantial disturbance to the surface of land comprising the whole or a part of a park or reserve unless he has advised the Minister, in writing, of his intention to carry out the activity and he carries it out in accordance with such directions, if any, as the Minister thinks fit, or which are required under subsection (4) to be given, to protect the environment in or in the vicinity of the park or reserve.

(4) The minister administering the *Territory Parks and Wildlife Conservation Act* may require the Minister to give as directions under subsection (3) such directions in relation to the protection of the environment in the park or reserve as the minister thinks fit, and the Minister shall give those directions accordingly.

2. Divisions 2, 3 & 4 – Administration and conditions of permits and licences

Division 2 Exploration permits for petroleum

16 Application for exploration permit

(1) The Minister may, by notice published in a newspaper circulating throughout Australia and in any other way the Minister considers appropriate, invite applications for the grant of an exploration permit for any of the blocks specified in the notice.

(2) The notice must include the following information:

(a) the period during which applications may be made (the application period);

(b) the designated number of each block specified in the notice;

(c) if Part IIA or IIB applies to the grant of an exploration permit for any of those blocks – a statement to that effect;

(d) the place at which copies of the guidelines in relation to the making of an application are available for inspection;

(e) any other information the Minister considers appropriate.

(3) An application for the grant of an exploration permit must contain: (a) the name and address of the applicant; and

(b) the designated number of each block the subject of the application; and

(c) a map clearly delineating:

(i) the application area, which must not exceed 200 adjoining blocks; and

(ii) the boundaries of existing exploration permit or licence areas in the immediate vicinity of the application area; and

(d) a proposed technical works programme for exploration of the blocks during each year of the term of the proposed exploration permit; and

(e) evidence of the technical and financial capacity of the applicant to carry out the proposed technical works programme and to comply with this Act; and

(f) if the application is made by 2 or more persons, the proposed sharing arrangements between the applicants; and

(g) the name of the designated operator and evidence of the technical capacity of the operator to carry out the proposed technical works programme; and

(h) the prescribed application fee; and

(i) other relevant information in support of the application.

(4) A person may apply for the grant of one or more exploration permits.

(5) The Minister may, by written notice to an applicant, request:

(a) further information relevant to the applicant or application; or

(b) an amendment or variation of the application.

17 More than one application for same block or blocks

(1) This section applies in relation to 2 or more applications for the grant of an exploration permit if: (a) the application period has ended; and

(b) the Minister has completed the procedures relevant to any requests under section 16(5); and

(c) the application areas cover all or some of the same blocks.

(2) The Minister must decide, in accordance with the guidelines, which application has the greatest merit to be given consideration for the grant of an exploration permit.

(3) The Minister must, as soon as practicable after making the decision, give each applicant whose application was unsuccessful a notice stating the reasons for the decision.

18 Notice of application for exploration permit

(1AA) This section applies in relation to an application for the grant of an exploration permit as soon as practicable:

(a) after the end of the application period; or

(b) if the Minister has made a request under section 16(5)(a) – after the Minister has received all relevant information; or

(c) if the Minister has made a request under section 16(5)(b) – after all matters relevant to the amendment or variation have been completed in accordance with the guidelines; or

(d) if the Minister has made a decision under section 17(2) – after giving notice under section 17(3).

(1) The Minister must cause to be published, at the expense of the applicant, in a newspaper circulating in the part of the Territory in which the application area is situated, or in any other publication that the Minister thinks fit, a notice containing: (c) the name of the applicant; and

(d) a description of the application area sufficient to enable it reasonably to be identified or a map upon which the proposed boundaries of the application area are indicated by reference to named geographical features; and

(e) a statement to the effect that a person who has an estate or interest in relation to land comprised in, or land contiguous with land comprised in, an application area may, within 2 months after the notice is published in the newspaper or other publication, lodge in writing with the Minister an objection to the grant.

(1A) If Part IIA or IIB applies, the relevant registered native title claimants, registered native title bodies corporate and representative Aboriginal/Torres Strait Islander bodies are to be served with notice in accordance with section 57F or 57T, as the case requires.

(2) The Minister may direct an applicant to serve a copy of a notice under subsection (1) on a person named in the direction.

(3) A person who does not have an estate or interest in relation to land comprised in, or land contiguous with land comprised in, an application area is not entitled to lodge an objection to the granting of an exploration permit in respect of the application area.

19 Objections

(1) Subject to section 18(3), objections to the grant of an exploration permit may be lodged in response to a notice published under section 18(1) in accordance with the statement referred to in section 18(1)(e).

(2) The Minister must give to the applicant copies of the objections (if any) lodged under subsection (1), together with a notice to the effect that, within 30 days after the date of the notice, the applicant may lodge with the Minister replies to or other comments about the objections.

(3) Any native title objection lodged in accordance with this section by a registered native title claimant or registered native title body corporate is to be dealt with under Parts IIA or IIB as applicable.

20 Determination of application for exploration permit

(2) After the date specified in the notice given under section 19(2), the Minister must consider the following:

(a) the application;

(b) any objections to the grant of the exploration permit;

(c) any replies or other comments of the applicant;

(d) any other information supplied to the Minister as requested under section 16(5)(a);

(e) any other matter the Minister considers relevant to the application.

(3) The Minister must then, subject to section 57L, determine whether to grant the exploration permit in respect of some or all of the blocks to which the application relates or refuse to grant the exploration permit.

(4) If the Minister determines to grant the exploration permit, the Minister must give the applicant a notice stating the following:

(a) the conditions subject to which the Minister is prepared to grant the exploration permit;

(b) the date, which must be at least 28 days after the date of the notice, when the application will lapse if the Minister has not received the applicant's written acceptance of those conditions.

(5) If the Minister receives the applicant's written acceptance of the conditions within the specified time, the Minister must grant the applicant the exploration permit subject to those conditions.

(6) If the Minister determines to refuse to grant the exploration permit, the Minister must, as soon as practicable, give the applicant a notice of the determination stating:

(a) the reasons for the determination; and

(b) the applicant may apply for a review of the determination under Division 6.

21C No grant of exploration permit for area if permit etc. already granted

The Minister must not grant an exploration permit in relation to an area that is the subject of another exploration permit or a licence.21E Guidelines

(1) The Minister must issue guidelines relating to the making, and consideration and determination of, an application for the grant of an exploration permit.

(2) The Minister must give notice in the Gazette of the issuing of guidelines and specify in the notice the place at which copies of the guidelines may be inspected during normal business hours.

(3) The Minister must make the guidelines available for general inspection free of charge.

22 Term of exploration permit

(1) Subject to sections 28(3), 30(3), 73 and 74, an exploration permit remains in force for 5 years commencing on the day on which it was granted or last renewed.

(2) The Minister may not renew an exploration permit more than twice.

23 Application for renewal of exploration permit

(1) Subject to sections 24 and 24A and to Parts IIA and IIB as applicable, a permittee may apply to the Minister to renew the permittee's exploration permit in relation to the blocks specified in the application.

(2) For the purposes of subsection (1), an application for the renewal of an exploration permit shall be:

(a) in an approved form;

(b) made in an approved manner;

(c) accompanied by the prescribed fee; and

(d) accompanied by a report of the action taken by the permittee to restore and rehabilitate the land comprising the blocks that are part of the permittee's exploration permit area, but are not specified in the application, and the areas adjacent to that land which are or may be affected by the permittee's operations on those blocks.

(3) In relation to an application for a renewal of an exploration permit, the Minister: (a) shall, where the application is received not earlier than 6 months before, but not later than 3 months before, the expiration of the exploration permit;

(b) may, where the application is received later than 3 months before the expiration of the exploration permit; and

(c) shall not, where the application is received after the expiration of the exploration permit,

accept the application.

24 Application for renewal of exploration permit to be in relation to reduced area

(1) Subject to subsection (3) and section 24A, the number of blocks in relation to which an application for the renewal of an exploration permit may be made shall not exceed: (a) where the number of blocks in respect of which the permit is in force is a number that is divisible by 2 without remainder – one-half of that number; or

(b) where the number of blocks in respect of which the permit is in force is a number that is not divisible by 2 without remainder – one-half of the number arrived at by increasing the number of blocks by one.

(2) In an application for the renewal of an exploration permit: (a) the blocks specified in the application shall constitute a single area, or a number of discrete areas each comprised of 2 or more blocks; and

(b) each block, in a discrete area referred to in paragraph (a), shall have a side in common with at least one other block in the area.

(3) Subject to subsection (4), where the number of blocks in respect of which an application for the renewal of an exploration permit may be made is 12 or more, each area constituted by blocks in respect of which the application is made shall be constituted by not less than 12 blocks.

(4) The Minister may accept an application for the renewal of an exploration permit notwithstanding that it does not comply with subsection (3).

(5) Where the maximum number of blocks in respect of which an application for the renewal of an exploration permit may be made is less than 12, the Minister may, by notice served on the permittee:

(a) inform the permittee that he will accept an application only in respect of the number of blocks, not exceeding 12, as is specified in the notice; and

(b) give such directions as he thinks fit concerning the blocks in respect of which the application may be made.

24A Exemption from requirement to reduce permit area

(1) A permittee who applies under section 23 for the renewal of the permittee's exploration permit may also apply to the Minister for an exemption, for a period not exceeding 12 months, from the requirement to reduce the number of blocks as required by section 24(1).

(2) An application for an exemption must give reasons why the permittee seeks the exemption.

(3) An exemption may provide for:

(a) a deferral of the reduction of the permit area; or

(b) a reduction of the permit area by a lesser number of blocks than would otherwise be required or permitted under section 24.

(4) The Minister may grant an exemption and accept the application for renewal of the permittee's exploration permit only if satisfied: (a) with the extent to which the permittee has complied with this Act, the conditions to which the exploration permit is subject, and any directions lawfully given by the Minister; and

(b) that, if the exploration permit is renewed, the exemption:

(i) will assist the permittee to more effectively carry out the permittee's technical works programme, or other exploration of the permit area, for the discovery of a commercially exploitable accumulation of petroleum; and

(ii) will be in the best interests of the Territory.

(5) An exemption granted under subsection (4) must be in writing and specify the period, not exceeding 12 months, for which the exemption is granted.

(6) Before the end of a period of exemption, the permittee may apply for an extension of the exemption and, if the Minister is satisfied about the matters mentioned in subsection (4), the Minister may extend the exemption for a period not exceeding 12 months.

25 Grant or refusal of renewal of exploration permit

(1) Where a permittee makes an application for the renewal of the permittee's exploration permit and the Minister accepts the application, subject to Parts IIA and IIB as applicable, the Minister:

(a) shall, where the permittee has complied with the conditions to which the exploration permit is subject, the directions, if any, lawfully given to the permittee by the Minister and with this Act; or

(b) may, where the permittee has not so complied and the Minister is satisfied that, although the permittee has not so complied, circumstances exist that justify the renewal of the exploration permit, by notice, inform the permittee that:

(c) the Minister is prepared to renew the exploration permit on the permittee lodging a security for compliance with the conditions to which the permit will from time to time be subject, the directions, if any, lawfully given to the permittee by the Minister and with this Act.

(2) Where a permittee has not complied with the conditions to which the permittee's exploration permit is subject, the directions, if any, lawfully given to the permittee by the Minister or with this Act and the Minister is not satisfied that circumstances exist that justify the granting of the renewal of the permit, the Minister shall, subject to subsection (3), by notice served on the permittee, refuse to renew the permit.

(2A) A notice of the Minister's refusal to renew an exploration permit must include the reasons for the refusal and a statement that the permittee may request a review of the determination under Division 6.

(3) The Minister shall not refuse to renew an exploration permit unless the Minister has:

(a) by notice served on the permittee, given not less than 28 days notice of the Minister's intention to refuse to renew the exploration permit;

(b) in the notice:

(i) given particulars of the reasons for the intention; and

(ii) specified a date on or before which the permittee may, by notice served on the Minister, submit any matters that the permittee wishes the Minister to consider; and

(c) considered any matter so submitted by the permittee to the Minister on or before the specified date.(4) A notice under subsection (1) shall contain: (a) a statement of the conditions to which the exploration permit on its renewal is to be subject; and

(b) a statement to the effect that the application will lapse if the permittee does not make a request under subsection (5) and lodge with the Minister the security referred to in the notice.

(5) A permittee who has been served with a notice under subsection (1) may, within 28 days after the date of service of that notice on the permittee or any other longer period agreed to by the Minister: (a) by notice served on the Minister, request the Minister to renew the exploration permit; and

(b) lodge with the Minister the security referred to in the notice served under subsection (1).

(6) Where a permittee who has been served with a notice under subsection (1) has: (a) made a request under subsection (5); and

(b) lodged with the Minister the security referred to in the notice, within the period referred to in subsection (5), the Minister shall renew the exploration permit.

(10) Where a permittee has been served with a notice under subsection (1) and has not, within the period referred to in subsection (5), made the request and lodged with the Minister the security referred to in that subsection, the application lapses on the expiration of that period.

(11) Where:

(a) an application for the renewal of an exploration permit has been accepted; and

(b) the exploration permit expires before:

(i) the Minister renews, or refuses to renew, the permit; or

(ii) the application lapses as provided by subsection (10),

the permit shall be deemed to continue in force in all respects until:

(c) the Minister renews or refuses to renew the permit; or

(d) the application so lapses, as the case may be.

26 Annual fee

(1) The annual fee payable in relation to an exploration permit is: (a) the prescribed amount per block per annum; or

(b) the prescribed annual amount, whichever is greater.

(2) Subject to section 63, the annual fee for an exploration permit: (a) is payable in advance; and

(b) is calculated on the number of blocks held, by the permittee on the anniversary of the commencement of the permittee's exploration permit or its last renewal.

27 Conditions of exploration permit

Subject to this Part and to Parts IIA and IIB as applicable, an exploration permit may be granted or renewed subject to such conditions as the Minister thinks fit and specifies in the permit document.

28 Variation etc. of condition of exploration permit

(1) Subject to Parts IIA and IIB as applicable, a permittee may apply to the Minister to vary, suspend or waive a condition of the permittee's exploration permit.

(2) Subject to Parts IIA and IIB as applicable, on receiving an application under subsection (1), the Minister may, by notice served on the permittee, vary, suspend or waive a condition of the exploration permit, in accordance with the application.

(3) Where a condition of an exploration permit which places an obligation on the permittee is suspended under subsection (2), the Minister may, in the notice of suspension or by a later instrument served on the permittee, extend the term of the permit by a period not exceeding the period of the suspension.

(4) Where an extension under subsection (3) of the term of an exploration permit is expressed to have effect from a date earlier than the date on which the notice by which it is extended is signed, it shall have and be deemed to have had effect as if the notice had been signed on that earlier date.

29 Rights conferred by exploration permit

(1) An exploration permit, while it remains in force, gives the permittee, subject to this Act and in accordance with the conditions to which the permit is subject and the directions, if any, lawfully given by the Minister, the exclusive right to explore for petroleum, and to carry on such operations and execute such works as are necessary for that purpose, in the exploration permit area.

(2) Without limiting the generality of subsection (1) but subject to this Act and any condition or direction referred to in that subsection, a permittee or, if there is more than one, the permittees jointly and his agents and employees may:

(a) at any time, enter and remain in the exploration permit area with such vehicles, vessels, machinery and equipment as are necessary or convenient for carrying out the technical works programme or other exploration of the permit area;

(b) carry out the technical works programme and other exploration for petroleum in the exploration permit area;

(c) extract, remove or allow the release from the exploration permit area for sampling and testing, an amount of material reasonably necessary for the purpose of establishing the presence of petroleum, or such greater amount as is approved; and

(d) subject to any prior lawful activity and to the directions, if any, of the Minister, use the water resources of the exploration permit area for his domestic use and for any purpose in connection with his approved technical works programme and other exploration.

(3) Where a permittee has: (a) complied with the conditions to which the permittee's exploration permit is subject, the directions, if any, lawfully given to him by the Minister and with this Act;

(b) discovered a commercially exploitable accumulation of petroleum within the permittee's exploration permit area; and

(c) under section 45, applied for a production licence in relation to the blocks where the accumulation occurs, the Minister shall, subject to Division 4, to Parts IIA and IIB (as applicable) and to such conditions as the Minister may think fit, grant to him a production licence.

30 Notice to apply for production licence

(1) Subject to subsection (6), where the Minister is satisfied that a commercially exploitable accumulation of petroleum may occur in an exploration permit area, the Minister may, by notice served on the permittee, require the permittee to show cause why the permittee should not apply for a production licence in relation to the blocks where the accumulation may occur and specify a date, being not earlier than 6 months after the date of the notice, before which the permittee should show cause.

(2) Subject to subsection (5), where a permittee has been served with a notice under subsection (1) and he fails to show cause to the satisfaction of the Minister, before the date specified in the notice, the Minister may, by notice served on the permittee, direct him to apply for a production licence and specify a date, being not earlier than 6 months after the date of the notice under this subsection, before which he shall apply for the production licence.

(3) Subject to subsection (5), where, under subsection (2), a permittee has been directed to apply for a production licence before the date specified in the notice and he has failed to so apply, the Minister may, by notice served on the permittee, cancel the exploration permit in relation to the blocks specified in the notice under subsection (1).

(4) The Minister may, by notice served on the permittee, vary the date in a notice under subsection (1) or (2) so as to allow a longer period for the permittee to show cause or apply for the production licence as required by the notice under subsection (1) or (2), as the case may be.

(5) Where a notice under subsection (1) or (2) has been served on a permittee and he has made an application to the Minister for a retention licence in relation to the blocks to which such a notice relates, the Minister may not exercise his powers under this section until the application for a retention licence has been determined.

(6) The Minister may not exercise his powers under this section:

(a) during the first term of the exploration permit; or

(b) if the blocks where the commercially exploitable accumulation of petroleum may occur are, in whole or part, Aboriginal land and no agreement has been reached under the Land Rights Act either between the permittee and the Land Council or as otherwise permitted under that Act, in relation to the production of petroleum in that area.

Division 3 Retention licences

31 Entitlement to apply for retention licence

Where a permittee has:

(a) by drilling operations in the permittee's exploration permit area, established the presence of petroleum;

(b) given notice, under section 64, to the Minister of the presence of the petroleum in the permittee's exploration permit area; and

(c) satisfied the Minister that the petroleum present in the permittee's exploration permit area is potentially of a commercial quality and quantity, the permittee may apply for one or more retention licences in relation to the whole or part of the permit area.

32 Application for retention licence

(1) Subject to this Act, including Part IIA if applicable, a permittee may apply for a retention licence by lodging with the Minister: (a) a statement containing the name and address of the applicant;

(b) a statement containing the designated number of each block the subject of the application;

(c) a map clearly delineating the application area and the boundaries of the existing exploration permit area from which the application area is to be excised;

(d) evidence, satisfactory to the Minister, that:

(i) the applicant is the permittee of the application area;

(ii) the applicant has established the presence of petroleum within the application area and notified, under section 64, the Minister of the presence of petroleum; and

(iii) although the petroleum present is potentially of a commercial quality and quantity, production from the application area is not, at the present time, commercially viable;

(e) a proposed technical works programme for the exploration, appraisal and development of petroleum within the application area, including an economic appraisal in relation to the presence of petroleum, during the period of the proposed licence;

(f) evidence of the technical and financial capacity of the applicant to carry out the proposed technical works programme and to comply with this Act;

(g) where the application is made by 2 or more persons, the proposed sharing arrangements between the applicants;

(j) the prescribed application fee;

(k) a statement of the reasons why the applicant:

(i) believes that an appraisal of the application area cannot be carried out during the unexpired term of the exploration permit; and

(ii) has not applied for a production licence in relation to the application area; and

(m) such other information in support of the application as the applicant thinks fit. (2) Where the Minister has received an application for a retention licence, the Minister may, by notice served on the applicant, request further information in relation to the applicant or the application.

33 Size of retention licence area

(1) A permittee shall not apply for a retention licence in respect of an area which is constituted by more than 12 blocks.

(2) A permittee shall not apply for a retention licence in respect of an area which is constituted by more than one block unless the blocks form a discrete area which conforms to an approved shape.

34 Grant or refusal of retention licence

(1) Where the Minister:

(a) has received an application under section 32;

(b) is satisfied that the applicant has complied with the requirements of this Act relating to an application for a retention licence; and

(c) is satisfied that the applicant, as a permittee, complied with the provisions of this Act relating to the exploration permit and the exploration permit area and the lawful directions, if any, given to him by the Minister, subject to Parts IIA and IIB as applicable, the Minister may determine to grant the retention licence, subject to such conditions as he thinks fit, or refuse to grant it.

(2) Where the Minister determines under subsection (1) to grant a retention licence, he shall give notice to the applicant of: (a) the conditions subject to which he is prepared to grant it; and

(b) the date, not being earlier than 28 days after the date of the notice, upon which the application shall lapse unless the Minister has received from him an acceptance of the conditions specified in the notice.

(3) Where the Minister receives from an applicant, within the time specified, a written acceptance of the conditions specified in a notice under subsection (2), he shall grant to the applicant a retention licence, subject to those conditions.

(4) Where the Minister determines not to grant a retention licence he shall, as soon as practicable after he has so determined, serve notice of his refusal on the applicant.

(5) A notice of the Minister's refusal to grant a retention licence must include the reasons for the refusal and a statement that the applicant may request a review of the determination under Division 6.

35 Exploration permit not affected

The term and area of an exploration permit are not affected by:

(a) an application for a retention licence; or

(b) the determination of the Minister not to grant a retention licence.

36 Term of retention licence

Subject to sections 43(3), 73 and 74, a retention licence remains in force for a period of 5 years commencing on the date on which it was granted or last renewed.

37 Application for renewal of retention licence

(1) Subject to Part IIA if applicable, a retention licensee may apply to the Minister to renew his retention licence.

(2) For the purposes of subsection (1), an application for the renewal of a retention licence shall be:

(a) in an approved form;

(b) made in an approved manner; and

(c) accompanied by the prescribed fee.

(3) In relation to an application for a renewal of a retention licence, the Minister: (a) shall, where an application for the renewal of a retention licence is received not earlier than 6 months, but not later than 3 months, before the expiration of the licence;

(b) may, where the application is received later than 3 months before the expiration of the licence; and

(c) shall not, where the application is received after the expiration of the licence, accept the application.

38 Grant or refusal of renewal of retention licence

(1) Where, under section 37, the Minister accepts an application by a retention licensee for the first renewal of the licensee's retention licence, the Minister: (a) shall, where the retention licensee has complied with the conditions to which the licence is subject, the lawful directions, if any, given to the licensee by the Minister and with this Act; or

(b) may, where the retention licensee has not so complied and the Minister is satisfied that, although the licensee has not so complied, circumstances exist that justify the renewal of the licence,

by notice in writing, inform the licensee that, subject to Parts IIA and IIB as applicable, the Minister is prepared to renew the licence.

(2) Where, under section 37, the Minister accepts an application by a retention licensee for the renewal of the licensee's retention licence, other than the first renewal of the retention licence, the Minister may inform the licensee, by notice served on the licensee, that the Minister is prepared to renew the retention licence and, if the retention licence is so renewed, it is renewed for a term of 5 years.

(3) Where, under section 37, the Minister accepts an application by a retention licensee for the renewal of the licensee's retention licence but the retention licensee has not complied with the conditions to which the licence is subject, the lawful directions, if any, given to the licensee by the Minister and this Act and, in the case of an application for the first renewal of the retention licence, the Minister is not satisfied that circumstances exist that justify the renewal of the licence, the Minister shall, subject to subsection (5), by notice served on the retention licensee, refuse to renew the licence.

(3A) A notice of the Minister's refusal to renew a retention licence must include the reasons for the refusal and a statement that the retention licensee may request a review of the determination under Division 6.

(4) Before exercising his or her powers under subsection (1), (2) or (3), the Minister may, by notice served on the applicant, require the applicant to lodge with the Minister, before the date specified in the notice:

(a) an analysis of the work undertaken and expenditure incurred during the term of the licence and details of the results of the work;

(b) a statement of the reasons why the applicant has not applied for a production licence in relation to the licence area;

(c) a technical works programme for the term of the proposed renewal; and

(d) such other information as the Minister thinks fit.

(5) The Minister shall not refuse to renew a retention licence unless the Minister has:
(a) by notice served on the retention licensee, given not less than 28 days notice of the Minister's intention to refuse to renew the licence;

(b) in the notice:

(i) given particulars of the reasons for the Minister's intention to refuse to renew the licence; and

(ii) specified a date on or before which the retention licensee may, by notice served on the Minister, submit any matters that the licensee wishes the Minister to consider; and

(c) taken into account any matters so submitted to the Minister on or before the specified date by the retention licensee.

(6) Notices under subsections (1) and (2) shall contain:

(a) a statement of the conditions to which the retention licence on its renewal is to be subject; and

(b) a statement to the effect that the application will lapse if the retention licensee does not make a request under subsection (7).

(7) A retention licensee who has been served with a notice under subsection (1) or (2) may, within 28 days after the date of service of that notice on the retention licensee or any other longer period agreed to by the Minister:

(a) by notice served on the Minister, request the Minister to renew the retention licence; and

(b) lodge with the Minister the security referred to in the notice served under subsection (1) or (2).

(8) Where a retention licensee has been served with a notice under subsection (1) or (2) and has, within the period referred to in subsection (7), made the request and lodged with the Minister the security referred to in that subsection, the Minister shall renew the retention licence subject to the conditions specified in the notice under subsection (1) or (2), as the case may be.

(12) Where a retention licensee has been served with a notice under subsection (1) or (2) but has not made the request and lodged with the Minister the security referred to in

subsection (7) within the period referred to in that subsection, the application lapses on the expiration of that period.

(13) Where:

(a) an application for the renewal of a retention licence has been accepted; and

(b) the retention licence would, but for this subsection, expire before:

(i) the Minister renews, or refuses to renew, the retention licence; or

(ii) the application lapses as provided by subsection (12),

the retention licence shall be deemed to continue in force in all respects until:

(c) the Minister renews, or refuses to renew, the retention licence; or

(d) the application so lapses, as the case may be.

39 Annual fee

(1) The annual fee payable in relation to a retention licence is the prescribed amount per block per annum.

(2) Other than in relation to the first year of the retention licence after it is granted or renewed for the purposes of subsection (1), the annual fee:

(a) is payable in advance; and

(b) is calculated on the number of blocks held,

by the licensee on the anniversary of the commencement of his licence or its last renewal.

40 Conditions of retention licence

Subject to this Part and to Parts IIA and IIB as applicable, a retention licence may be granted subject to such conditions as the Minister thinks fit and specifies in the licence document.

41 Variation, &c., of conditions of retention licence

(1) Subject to Part IIA if applicable, a retention licensee may apply to the Minister to vary, suspend or waive a condition of his licence.

(2) Subject to Parts IIA and IIB as applicable, on receiving an application under subsection (1), the Minister may, by notice served on the licensee, vary, suspend or waive a condition of the licence, in accordance with the application.

(3) Where a retention licensee has applied under subsection (1) to vary, suspend or waive a condition of his licence which relates to the technical works programme, the Minister may, after consultation with the retention licensee, appoint a person to evaluate the proposed variation, suspension or waiver and report his findings to the Minister.

(4) Where the Minister appoints a person under subsection (3), the cost of the person's services shall be a debt due and payable by the retention licensee to the Territory.

42 Rights conferred by retention licence

(1) A retention licence, while it remains in force, gives the retention licensee or, if there is more than one, the retention licensees jointly, subject to this Act and in accordance with the conditions to which the licence is subject and the directions, if any, lawfully given by the Minister, the exclusive right to carry on in the licence area such geological, geophysical and geochemical programmes and other operations and works, including appraisal drilling, as are reasonably necessary to evaluate the development potential of the petroleum believed to be present in the licence area.

(2) Where a retention licensee has:

(a) complied with the conditions of the retention licensee's licence, the lawful directions (if any) of the Minister and this Act;

(b) applied, in accordance with Division 4, for a production licence in relation to the whole or part of the licensee's retention licence area; and

(c) discovered a commercially exploitable accumulation of petroleum within the licensee's retention licence area, the Minister shall, subject to Division 4, to Parts IIA and IIB (as applicable) and to such conditions as the Minister thinks fit, grant to the licensee a production licence.

43 Notice to apply for production licence

(1) Subject to subsection (5), where the Minister is satisfied that commercial production of petroleum should commence in a retention licence area, he may, by notice served on the retention licensee, require him to show cause why he should not apply for a production licence in relation to the blocks where the commercially exploitable accumulation of petroleum occurs and specify a date, being not earlier than 6 months after the date of the notice, by which the licensee should show cause.

(2) Where a retention licensee has been served with a notice under subsection (1) and he fails to show cause to the satisfaction of the Minister, within the time specified in the notice, the Minister may, by notice served on the retention licensee, direct him to apply for a production licence and specify a date, being not earlier than 3 months after the date of the notice, by which the licensee should apply for the production licence.

(3) Where, under subsection (2), a retention licensee has been directed to apply for a production licence before a date specified in the direction and the licensee has failed to so apply, the Minister may, by notice served on the licensee, cancel his licence.

(4) The Minister may, by notice served on a retention licensee, vary the date in a notice under subsection (1) or (2) so as to allow a longer period for the retention licensee to show cause or apply for a production licence.

(5) The Minister may not exercise his powers under this section if the blocks where the commercially exploitable accumulation of petroleum occurs are, in whole or part, Aboriginal land and no agreement in relation to the production of petroleum in that area has been reached under the Land Rights Act between the retention licensee and the Land Council or as otherwise permitted under that Act.

Division 4 Production licences

44 Applicant

A person who is:

(a) a permittee; or

(b) a retention licensee, may apply for a production licence in relation to the whole or part of his or her exploration permit or licence area.

45 Application for production licence

(1) Subject to this Act, including Part IIA if applicable, a permittee or licensee may apply for a production licence by lodging with the Minister: (a) a statement containing the name and address of the applicant;

(b) a statement containing the designated number of each block the subject of the application;

(c) a map clearly delineating the application area and the boundaries of the existing exploration permit or retention licence area in which the application is comprised;

(d) a proposed technical works programme specifying the proposals for exploration, appraisal and production of petroleum from within the proposed licence area;

(e) evidence of the technical and financial capacity of the applicant to carry out the proposed technical works programme and to comply with this Act;

(f) proposals for the protection of the environment, including proposed measures to be undertaken by the applicant for the rehabilitation of the licence area or other affected areas;

(g) where the application is made by 2 or more persons, the proposed sharing arrangements between the applicants;

(j) the prescribed application fee; and

(k) such other information in support of the application as the applicant thinks fit.

(1A) If Part IIA applies, the relevant registered native title claimants, registered native title bodies corporate and representative Aboriginal/Torres Strait Islander bodies are to be served with notice of the application in accordance with that Part.

(2) Where the Minister has received an application for a production licence, the Minister may, by notice served on the applicant, request further information in relation to the applicant or the application.

(3) A permittee or licensee may apply for one or more production licences.

46 Size of production licence

(1) A person shall not apply for a production licence in respect of an area which is constituted by more than 12 blocks.

(2) A person shall not apply for a production licence in respect of an area which is constituted by more than one block unless the blocks form a discrete area which conforms to an approved shape.

(3) The Minister may grant a production licence in respect of:

(a) an area of less than one block; or

(b) blocks which form more than one discrete area, where he is of the opinion that circumstances justify his doing so or it is in the public interest to do so.

47 Grant of production licence

(1) Where the Minister:

(a) has received an application under section 45;

(b) is satisfied that the applicant has complied with the requirements of this Act relating to an application for a production licence; and

(c) is satisfied that he or she is required under section 29(3) or 42(2) to grant to the applicant a production licence in relation to specific blocks, subject to section 57L if applicable, the Minister must determine to grant to the applicant the production licence subject to conditions.

(2) Where the Minister: (a) has received an application under section 45; and

(b) is satisfied that, although the applicant has not complied with the conditions under which the applicant's exploration permit or licence was granted, the lawful directions, if any, given to the applicant by the Minister or this Act, circumstances exist that justify the granting of the production licence, subject to section 57L if applicable, the Minister may determine to grant to the applicant the production licence subject to conditions or refuse to grant it.

(3) Where the Minister exercises his or her power under subsection (1) or (2) and determines to grant to an applicant a licence, the Minister shall grant a licence only in relation to the minimum number of blocks which, in his or her opinion, is reasonably necessary for the applicant to fully exploit the commercially exploitable accumulation of petroleum which occurs in the application area.

(4) Where the Minister determines under subsection (1) or (2) to grant a production licence, he or she shall give notice to the applicant of:

(a) the conditions subject to which he or she is prepared to grant it; and

(b) the date, not being earlier than 28 days after the date of the notice, after which the application is to lapse unless the Minister has received from the applicant a written acceptance of the conditions specified in the notice.

(5) If the Minister receives from an applicant within the time specified in subsection (4)(b) a written acceptance of the conditions specified in the notice referred to in subsection (4), the Minister must grant to the applicant the production licence subject to those conditions.

(6) If the Minister does not receive a written acceptance of the conditions specified in the notice referred to in subsection (4) from an applicant within the time specified in subsection (4)(b):

(a) the Minister must not grant the applicant the production licence; and

(b) the applicant's application lapses on the expiry of the time specified in subsection (4)(b).

48 Refusal to grant production licence

(1) Where the Minister determines to refuse to grant a production licence he shall, as soon as practicable after he has so determined, serve notice of his determination on the applicant.

(1A) The notice of determination must include the reasons for the refusal to grant a production licence and a statement that the applicant may apply for a review of the determination under Division 6.

(2) The Minister may not determine to refuse to grant a licence, unless he has:

(a) by notice served on the applicant, given not less than 28 days notice of his intention to refuse to grant the licence;

(b) in the notice, specified:

(i) the reasons for his intended refusal; and

(ii) a date on or before which the applicant may, by notice served on the Minister, submit any matters he wishes the Minister to consider; and

(c) taken into account any matters so submitted to him on or before the specified date by the applicant.

49 Exploration permit or licence not affected

The term and area of an exploration permit or retention licence are not affected by:

(a) an application for a production licence; or

(b) the determination of the Minister not to grant a production licence.

50 Term of production licence

Subject to sections 73 and 74, a production licence remains in force for either 21 or 25 years as determined by the Minister commencing on the date on which it was granted or, in respect of the renewal of a production licence, the date on which it was last renewed, notwithstanding that it is renewed before the date on which it would otherwise have expired.

51 Application for renewal of production licence

(1) Subject to Part IIA if applicable, a production licensee may apply to the Minister to renew his production licence.

(2) For the purposes of subsection (1), an application for the renewal of a production licence shall be:

(a) in an approved form;

(b) made in an approved manner; and

(c) accompanied by the prescribed fee.

(3) In relation to an application for the renewal of a production licence, the Minister:
(a) shall, where an application is received not earlier than 6 months before, but not later than 3 months before, the expiration of the production licence;

(b) may, where the application is received later than 3 months before the expiration of the licence; and

(c) shall not, where the application is received after the expiration of the licence, accept the application.

(4) In addition to subsection (3), the Minister may, where he is satisfied that there are commercial reasons that justify an application for the renewal of a production licence being made, accept the application being made at a time earlier than that specified in subsection (3)(a).

52 Grant or refusal of renewal of production licence

(1) Where, under section 51, the Minister accepts an application by a production licensee for the first renewal of his production licence, the Minister:

(a) shall, where the production licensee has complied with the conditions to which the licence is subject, the lawful directions, if any, given to him by the Minister and this Act; or

(b) may, where the production licensee has not so complied and the Minister is satisfied that, although the licensee has not so complied, circumstances exist that justify the renewal of the licence, by notice in writing, inform the licensee that, subject to Parts IIA and IIB as applicable, the Minister is prepared to renew the licence.

(2) Where, under section 51, the Minister accepts an application by a production licensee for the renewal of his production licence, other than the first renewal of the licence, the Minister may, by notice served on him, inform the production licensee that he is prepared to renew the production licence and, if the production licence is so renewed, it is renewed for such term, not exceeding 25 years, as is specified in the notice.

(3) Where, under section 51, the Minister accepts an application by a production licensee for the renewal of his production licence but the production licensee has not complied with the conditions to which his licence is subject, the lawful directions, if any, of the Minister and this Act and, in the case of an application for the first renewal of the production licence, the Minister is not satisfied that circumstances exist that justify the renewal of the licence, the Minister shall, subject to subsection (4), by notice served on the production licensee, refuse to renew the licence.

(3A) A notice of the Minister's refusal to renew a production licence must include the reasons for the refusal and a statement that the production licensee may request a review of the determination under Division 6.

(4) The Minister shall not refuse to renew a production licence unless he has:

(a) by notice served on the production licensee, given not less than 28 days notice of his intention to refuse to renew the licence;

(b) served a copy of the notice on such other persons, if any, as he thinks fit;

(c) in the notice:

(i) given particulars of the reasons for his intention to refuse to renew the licence; and

(ii) specified a date on or before which the production licensee may, by notice served on the Minister, submit any matters that he wishes the Minister to consider; and

(d) taken into account any matters so submitted to him on or before the specified date by the production licensee or by a person on whom a copy of the notice has been served under paragraph (b).

(5) Notices under subsections (1) and (2) shall contain:

(a) a statement of the conditions to which the production licence, on its renewal is to be subject; and

(b) a statement to the effect that the application will lapse if the production licensee does not make a request under subsection (6).

(6) Where a production licensee has been served with a notice under subsection (1) or (2), he may, within 28 days after the date of service of the notice on him, by notice served on the Minister, request the Minister to:

(a) renew the production licence; or

(b) amend the conditions contained in the notice under that subsection or the amount of the security to be lodged.

(7) Where a production licensee has been served with a notice under subsection (1) or (2) and has made a request under subsection (6)(a), within the period referred to in subsection (6), the Minister shall renew the production licence subject to the conditions specified in the notice under subsection (1) or (2), as the case may be, and subject to the conditions imposed in pursuance of section 57L if applicable.

(8) Where a production licensee has been served with a notice under subsection (1) or (2) and has made a request under subsection (6)(b), the Minister shall:

(a) consider the request; and

(b) by notice served on the licensee, inform him of the conditions to which the licence, on its renewal, is to be subject and the amount of the security to be lodged.

(9) Where a production licensee has been served with a notice under subsection (8)(b), he may, within 28 days after the date of service of the notice on him, by notice served on the Minister, request the Minister to renew the licence subject to the conditions specified in the notice under subsection (8)(b).

(10) Where a production licensee has served a notice under subsection (9), within the period referred to in that subsection, the Minister shall renew the licence.

(11) Where a production licensee has been served with a notice under subsection (1) or (2) but has not made a request under subsection (6), within the period referred to in subsection (6), the application lapses on the expiration of that period.

(12) Where:

(a) an application for the renewal of a production licence has been accepted; and

(b) the production licence would, but for this subsection, expire before:

(i) the Minister renews, or refuses to renew, the production licence; or

(ii) the application lapses as provided by subsection (11),

the production licence shall be deemed to continue in force in all respects until:

(c) the Minister renews, or refuses to renew, the production licence; or

(d) the application lapses, as the case may be.

53 Annual fee

(1) The annual fee payable in relation to a production licence is the prescribed amount per block or part of a block per annum.

(2) Other than in relation to the first year of a production licence after it is granted or renewed, for the purposes of subsection (1), the annual fee:

(a) is payable in advance; and

(b) is calculated on the number of blocks held, by the production licensee on the anniversary of the commencement of his licence or its last renewal.

54 Conditions of production licence

(1) Subject to this Part and to Parts IIA and IIB as applicable, a production licence may be granted subject to such conditions as the Minister thinks fit and specifies in the licence document.

(2) Without limiting the generality of subsection (1), but subject to section 55, each production licence is subject to the condition that the production licensee:

(a) shall use the licence area continuously and exclusively for the purposes for which it is granted;

(b) shall not produce petroleum obtained from the licence area until the Minister authorises the commencement of production operations;

(c) shall pay royalties under this Act on petroleum produced; and

(f) shall, during such period of the term of the licence as is specified in the licence document, maintain an approved insurance policy, for:

(i) well redrilling and well recompletion expenses; and

(ii) damages arising out of damage to property or the environment, including by pollution, seepage or contamination.

55 Variation, &c., of conditions of production licence

(1) Subject to Part IIA if applicable, a production licensee may apply to the Minister to vary, suspend or waive a condition of his licence.

(2) Subject to Parts IIA and IIB as applicable, on receiving an application under subsection (1), the Minister may, by notice served on the licensee, vary, suspend or waive a condition of the licence, in accordance with the application.

(3) Where a production licensee has applied under subsection (1) to vary, suspend or waive a condition of his licence which relates to the technical works programme, the Minister may, after consultation with the production licensee, appoint a person to evaluate the proposed variation, suspension or waiver and report his findings to the Minister.

(4) Where the Minister appoints a person under subsection (3), the cost of the person's services shall be a debt due and payable by the production licensee to the Territory.

56 Rights conferred by production licence

A production licence, while it remains in force, gives the production licensee or, if there is more than one, the production licensees jointly, subject to this Act and in accordance with the conditions to which the licence is subject and the directions, if any, lawfully given by the Minister, the exclusive right:

(a) to explore for petroleum and recover it from the licence area; and

(b) to carry out such operations and execute such works in the licence area as are necessary for the exploration for and recovery of petroleum.

57 Declaration of restricted area

(1) A production licensee may, by notice in the Gazette and a newspaper circulating in that part of the Territory in which his production licence area is situated, declare his production licence area or part of that area to be a restricted area.

(2) Where a production licensee has, under subsection (1), declared a restricted area, he shall, within 3 months of the date of the notice in the Gazette fence the area.

(3) Where a production licensee fails to fence a restricted area within 3 months after the date of the notice in the Gazette, the declaration has no force or effect after the expiration of the 3 month period.

(4) The Minister may, by notice in the Gazette, repeal or vary a declaration under subsection (1).

(5) The production licensee has all the powers, in relation to the restricted area, of a person in lawful occupation of that area

Attachment B – Extracts from *Schedule Of Onshore Petroleum Exploration and Production Requirements (2016)*

WELL INTEGRITY

301 Approval to Drill

(1) Operations to drill a new exploration, development or appraisal well or workover an existing well shall not be commenced without prior approval.

(2) An application under Sub-Clause (1) shall be made not less than one month (or 3 months if an environmentally sensitive area is involved), or such other period as may be approved, prior to the commencement of operations and shall include -

(a) proposed well name and number;

(b) location, elevation and co-ordinates of the well site;

(c) programmed depth;

(d) estimated spud-in date;

(e) estimated drilling time and costs;

(f) name and address of drilling contractor;

(g) type of rig and blow-out prevention equipment, including description of equipment and method of operation;

(h) names and addresses of other contractors involved in the operations and the nature of the services they will perform;

(i) detail of the drilling program, including particulars of casing program (with designs safety factors for burst, collapse and tension), complete casing cementation program, drilling fluid and formation evaluation procedures (cuttings and fluid sampling, coring, and wireline and mud logging);

(j) name of person responsible for communications with the Director;

(k) proposed well path;

(l) drilling procedures and well control manuals including bridging plans if applicable;

(m) geological prognosis which includes well objectives and, for exploration wells, play definition (source, seal, reservoir, trap configurations) accompanied by a time or depth maps of near target horizon(s) and seismic sections where possible;

(n) emergency response plans and pollution control measures (including an spill contingency plan);

(p) evidence of adequate comprehensive insurance, including, but not limited to, public liability, loss of well control (including blowouts), relief well drilling, containment and clean-up; and

(q) such other information as the Minister requests.

(3) The drilling program shall, in the case of an exploration well in a permit area, be accompanied by a current plan showing the existing land tenure i.e., reserves, private property, etc. in relation to the proposed drill site and access road and shall make reference to any other wells, public utilities or any other structure within 2,000 metres of the proposed well location.

(4) Any information not available at the time of initial application must be forwarded no later than one month prior to the expected spud date.

(5) An approved application shall not be varied without approval and shall be carried out in accordance with any conditions to which the approval is subjected and specified on any approval instrument.

303 Equipment to Conform to Certain Standards

(1) Materials and equipment used in drilling, re-entry and workover operations shall conform to API.

(2) Equipment used in drilling, re-entry and workover operations shall be equipped with an emergency shutdown device.

304 Location 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.

305 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.

306 Casing

(1) The design and placement of casing strings shall take into account known or predicted formation strength, known or predicted formation pore fluid pressures and programmed drilling fluid densities, and the maximum performance properties used in the design of casing strings shall be those indicated as minimum performance properties pursuant to API.

(2) Casing strings shall be run and cemented at the approximate setting depths specified in the drilling program and any significant variations to the prescribed setting depths shall be notified to the Minister prior to running casing.

(3) All casing strings and liner strings shall be capable of withstanding all anticipated collapse and burst pressures, tensile loadings, temperatures, and environments likely to be encountered.

(4) All casing strings, other than liner strings shall extend to the wellhead.

(5) Casing recovered from a well shall not be re-used in another well unless inspection in accordance with API compliance with Sub-Clause (3) is established.

(6) A conductor casing string shall be installed to protect a well and equipment against surface formation instability and to enable the circulation of drilling fluid from the well before surface casing is installed.

(7) Surface casing shall be set at least 30 metres into a competent formation and, unless otherwise approved, to a depth of at least:

(a) 200 metres; and

(b) in relation to an exploration well where normal pressure gradients are anticipated, at least 15 per cent of the total depth to which uncased hole will be drilled to a depth of 2,500 metres, plus 5 per cent of the incremental depth of uncased hole beyond 2,500 metres; or

(c) in relation to an appraisal or development well where normal pressure gradients are known to exist, at least 10 per cent of the total depth to which uncased hole will be drilled.

(8) The design of the surface casing string shall take into account the support of other casing strings and the BOP stack.

(9) Where evidence indicates the possibility of above normal formation pore pressure, the surface casing design shall be considered on a well by well basis.

(10) Consideration shall be given to setting an intermediate casing string where:

(a) abnormal pressure, lost circulation or unstable zones are known or expected; or

(b) artesian water, high mud weights or extensive drilling time may lead to down-hole problems.

(11) When a liner string is installed there shall be an overlap of at least 30 metres between the top of the liner string and the shoe of the next larger casing string previously run.

(12) After cementing, all casing strings, except the conductor casing string, shall be pressure tested in accordance with API and records of such tests shall be submitted to the Minister prior to the continuation of well construction activities.

(13) Drilling operations or operations to complete or test a well shall not commence until a satisfactory pressure test pursuant to Sub-Clause (12) has been obtained.

307 Cementing of Casing

(1) Unless otherwise approved conductor casing strings (other than those placed by jetting or driving) shall be cemented with sufficient cement to fill the annular space between the casing string and the wall of the hole from the shoe to surface.

(2) All other casing strings shall be cemented with sufficient cement to fill the annular space between the casing string and the borehole and or previous casing string to surface unless otherwise approved.

(3) All casing string cementations shall be carried out in accordance with API and the details of the cementing operations shall be recorded in the driller's log and the daily drilling report. If there is any reason to suspect a faulty cementing operation, the Minister shall be notified.

(4) After the cementing of casing strings, unless otherwise approved, drilling shall not be commenced until a time lapse of:

(a) 24 hours; or

(b) 8 hours under pressure for the surface casing string and 10 hours under pressure for all other casing strings.

(5) For the purpose of Sub-Clause (4)(b) the cement is considered to be under pressure if, during the time referred to, the cement is restrained from movement by the use of float valves or other approved equipment.

(6) If the cementing requirements of this Clause have not been achieved by primary cementing operations, endeavours shall be made to meet those requirements by re-cementing or by remedial cementing, unless otherwise approved. n.b. the Minister shall be notified of the failure to achieve the cementing requirements prior to commencing these endeavours.

(7) Following the setting of casing, cementing and testing (including any pressure testing, logging, volumetric and or lab analysis etc.) the Operator shall submit a full report in an approved format to the Minister with an interpretation of the results confirming whether or not well integrity has been achieved in accordance with objectives unless otherwise approved.

308 Blow-out Prevention Control

(1) Blow-out preventers and related well control equipment shall be installed, operated, maintained and tested generally in accordance with API and shall be adequate to control expected pressures.

(2) Unless otherwise approved, prior to drilling below the conductor casing string in exploration wells, or in development or appraisal wells in those areas having known shallow gas accumulations, a diverter system incorporating a pipeline of adequate diameter with control valves shall be installed so as to safely divert hydrocarbons and other fluids in the event of pressurised fluids occurring below the shoe of the conductor string.

(3) Prior to drilling below the surface casing string the blow-out prevention equipment shall comply with API.

(4) An inside blow-out preventer assembly (back pressure valve) and a full opening drill string safety valve in the open position shall be kept on the rig floor at all times whilst operations are in progress, with suitable crossover substitutes to enable installation on all drill pipe, drill collars and tubing in use.

(5) A kelly cock shall be installed immediately below the swivel and another at the bottom of the kelly, of such design that it can be run through the blow-out preventers if applicable for the type of drilling rig used with appropriate pressure retention devices installed as per API.

(6) During operations there shall be a clearly marked control panel for operating blow-out preventers and choke manifolds, located at such a distance from the drill floor as to ensure safe and ready access in an emergency.

(7) Each choke manifold shall have pressure gauges, clearly visible to the choke operator when standing in his normal operating position for either the remotely or hand adjustable chokes, which indicate:

(a) the drill pipe pressure at the drill floor; and

(b) the casing string/drill string annulus pressure at a known point upstream of the choke.

(8) Installed blowout prevention equipment must not be repaired or removed until reasonable steps are taken to ensure that the well is safe.

(9) The Minister must be notified:

(a) whenever blowout prevention equipment is removed for any reason other than pre-approved operations and in accordance with safe operating procedures; and

(b) whenever blowout prevention equipment is re-installed.

(10) A notification under Sub-Clause (9)(a) above must include the reason for the removal of the equipment and the steps taken to make the well safe.

309 Pressure Testing Blow-out Prevention Equipment

(1) After setting the blow-out preventer stack the pipe rams, the wellhead connection, and the choke and kill lines shall be tested in accordance with API:

(a) when installed;

(b) before drilling out of each casing string;

(c) not less than fortnightly whilst drilling;

(d) following repairs that require disconnecting a pressure seal in the assembly; and

(e) before perforating or production testing, unless a valid pressure test has occurred in the past 48 hours.

(2) The blind rams shall be function-tested at the times stipulated in Sub-Clause (1) provided that, after installing each casing string, they shall be pressure tested in accordance with API.

(3) The blow-out preventers shall be function-tested on each round trip but not more frequently than once per day with the exception of the annular type blow-out preventers where a weekly function test is required.
(4) In the event that a test indicates that equipment is not operating correctly, operations shall be discontinued until the deficiencies have been corrected and the equipment subjected to another test.
(5) The results of each blow-out preventer test shall be recorded in the driller's log and the daily drilling report and records shall be kept at the wellsite for inspection.

310 Mud Monitoring System

Unless otherwise approved the following mud system monitoring equipment shall be installed and used during all drilling operations after setting and cementing the conductor casing string:

(1) a recording mud pit level indicator to determine mud pit volume gains and losses, including a visual and audio warning device;

(2) a mud volume measuring device for accurately determining the mud volumes required to fill the hole on trips;

(3) a mud return or full hole indicator to determine when returns have been obtained or when they occur unintentionally, as well as to determine that returns essentially equal the pump discharge rate;

(4) a pump stroke counter;

(5) a gas separator, gas knockout pot or a mud degasser; and

(6) a mud gas monitoring device to determine the concentration of gas in the drilling mud.

311 Penetration Rate and Formation Pressure Monitoring

A drilling rig, while engaged in drilling operations, must be fitted with equipment that provides a continuous recording of the penetration rate unless otherwise approved.

312 Accumulators

(1) Accumulators shall be located a minimum of 15 metres away from the rig floor and, without accumulator pump assistance, shall have sufficient capacity at all times to:
(a) open or close the hydraulically operated choke line valve;
(b) close or open the annular type blow-out preventer; and
(c) close or open all blow-out preventer pipe rams.
(2) Accumulator pumps shall be capable of re-building fluid pressure in the accumulators in accordance with API to:
(a) open the hydraulically operated choke line valve; and
(b) close the annular type blow-out preventer

(3) Accumulators shall be connected to the blow-out preventers with lines of working pressure at least equal to the working pressure of the accumulator and any lines located under the substructure shall be of steel construction unless completely sheathed with adequate fire resistant sleeving.
(4) Accumulator pumps shall have two independent sources of power.

313 Blow-out Prevention Drills

(1) Blow-out prevention drills shall be conducted weekly and in accordance with the well control manual by each drilling crew to ensure that all equipment is operating and that crews are properly trained to carry out emergency duties.
(2) All blow-out prevention drills and response times shall be recorded in the driller's log and the daily drilling report and records kept at the wellsite for inspection.
(3) A notice on the rig floor, shall provide details of the well control procedures proposed to be followed in the event that indication of a well kick is observed and all drilling crews shall be trained in those procedures.
(4) All on-site personnel holding the position of driller (including any person who may temporarily stand in for the driller) or more senior shall attend, at least once every 24 months, an accredited well-control school or refresher course in well-control and obtain a certificate of proficiency which must be presented to an Inspector upon request.

314 Formation Integrity Testing

(1) A formation integrity test shall be conducted after drilling out the casing shoe of surface and intermediate casing strings to establish that cementation and formation strength at the shoe are adequate to sustain the maximum anticipated pressures which may be imposed during subsequent drilling operations.
(2) Where a test requires that the approved drilling and casing program be amended, any such amendments shall be submitted to the Minister for approval.
(3) Where formations are encountered below a casing shoe which require the use of drilling fluid densities not anticipated in the approved drilling program and which could result in excessive pressures being imposed at the casing shoe an additional formation integrity test shall be performed and, if the result differs from that performed at the casing shoe, the Minister shall be notified forthwith and the casing program amended if necessary.
(4) All formation integrity test results shall be recorded in the driller's log and the daily drilling report.

315 Drilling Fluid

(1) The characteristics and use of the drilling fluid shall provide adequate control of any sub-surface pressures likely to be encountered.
(2) Wherever possible the well shall be maintained full of such drilling fluid.
(3) Sufficient reserves of drilling fluid and supplies of drilling fluid materials shall be available at the well site for immediate use to comply with Sub-Clauses (1) and (2).
(4) Tests consistent with API shall be performed on a regular basis while drilling and the results recorded in the driller's log and the daily drilling report.

316 Deviation Surveys

(1) 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.

(2) A well shall not be directionally drilled without approval, except for a short distance to straighten a hole, sidetrack junk or correct other mechanical difficulties.

317 Transfer of Wells after Conversion to Water Wells

(1) When, for the purpose of drilling a well a notice of intention to enter land is obtained, or a right of entry from an owner/occupier of land is given, the Operator shall raise with the owner/occupier the possibility of converting the well into a water well should the well not be capable of commercial petroleum production.

(2) The Operator shall furnish the Minister with a letter summarising the agreement entered into under Sub-Clause (1) signed by both parties.

(3) If it is decided to convert a well into a water well, the Operator shall furnish details of the proposed conversion to the Minister for approval as soon as practicable after the decision is made.

(4) After the ownership of the well is transferred to the owner/occupier, the Operator shall furnish the Minister with a letter confirming the transfer and the acceptance of liabilities by the owner/occupier signed by both parties.

318 Oil or Gas Lost or Used During Repair Operations

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.

319 Evaluation of an Occurrence of Petroleum

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

320 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.

321 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.
(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.

323 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.

324 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.

325 Protection of Aquifers

All reasonable steps shall be taken during well construction and any other well or production operations to prevent communication between, leakage from or the pollution of aquifers.

326 Production or Drill Stem Tests

(1) A person shall not conduct a production or drill stem test in an exploration, development or an appraisal well not yet producing without approval.
(2) An application for approval to conduct a production or drill stem test shall be accompanied by particulars of:
(a) the date and time of test;

(b) the equipment proposed to be used for the test including accurate flow measurement device(s);

(c) the proposed testing program;

(d) the proposed test intervals;

(e) the proposed duration not exceeding 90 days;

(f) the maximum quantity of petroleum or water proposed to be produced; and

(g) the proposed method of disposal of the petroleum, water or gas produced.

(4) In addition to Clause 331, the following conditions shall pertain to drill-stem tests or production tests:

(a) When production testing is to be performed in the vicinity of an inhabited area, all reasonable steps shall be taken to warn persons who could be affected, and the tests shall be conducted in a manner that minimizes the risk of injury or damage to property;

(b) All personnel shall be familiar with the relevant emergency procedures;

(c) All flowlines, valves and equipment used in a production test shall have a rated working pressure in excess of all anticipated pressures and, where appropriate, shall be tested prior to initial use at each well to at least those anticipated pressures;

(d) Open hole formation tests shall not be opened for flow during the hours of darkness except with the prior approval of the Minister;

(e) Subject to Sub-Clause (f), if formation fluids are produced into the test string, they shall be reverse circulated from the test string before it is pulled from the hole;

(f) In a cased hole, formation fluids in the test string may be displaced back into the formation from which they were produced;

(g) During formation testing, or the removal of any pipe after a formation test, a competent person must remain at the rig and oversee the operation;

(h) During formation testing, all motors, engines and lights that are not required for the operation shall be shut off;

(i) During formation testing, the annular space of the well shall be kept full of drilling fluid of a density adequate to control formation pressure

(j) Fluids brought to the surface during formation testing shall be safely disposed of through an independent test manifold and choke;

(k) Any choke equipment that forms part of the blow-out prevention equipment shall not be used for flow control during a formation test;

(l) If swivel joints or flexible hoses are used in the system during formation testing, they shall be equipped with wire rope or chain safety lines capable of containing any movement or whipping of the pipe or hose in the event of failure;

(m) All test strings shall be equipped with the means to reverse circulate out their contents;

(n) Well stimulation operations, such as swabbing or acidizing, shall not be initiated during the hours of darkness, or continued beyond the hours of daylight, without approval.

(5) If a test results in the discovery of a new pool of petroleum, the Operator shall notify the Minister as soon as practicable after the discovery is made and furnish:

(a) a copy of the relevant operational reports;

(b) a legible copy of the pressure recorder chart for each test taken on the well; and

(c) an interpretation of those tests.

327 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.

328 Approval to Abandon or Suspend a Well

(1) A well shall not be abandoned or suspended without prior approval, except as provided for in Sub-Clause (4).

(2) Subject to Sub-Clause (4), while drilling operations are being undertaken a well shall not be left in a condition which, in the opinion of the person-in-charge or the

Minister, is unsafe. Prior to the cessation of drilling operations, even temporarily, a well shall be made safe in accordance with the well control manual unless otherwise approved.

(3) Subject to Sub-Clause (4), where casing is being installed, if a well encounters or has encountered:

(a) hydrocarbons;

(b) abnormally pressured water;

(c) unstable coals or shales; or

(d) lost returns;

the drilling operations shall be continued to the next competent casing seat point at which point the hole will be logged, cased and secured at the surface.

(4) In the event of an emergency or adverse weather conditions requiring, in the opinion of the person-in-charge or the Minister, cessation of drilling operations, the well shall be made safe in accordance with the well control manual.

(5) An application for approval to abandon or suspend a well shall give particulars of:

(e) the reason for abandonment or suspension and proposed duration of suspension not exceeding 2 years;

(f) the proposed abandonment or suspension program including the method by which the well will be made safe; and

(g) such further information as the Minister may require.

329 Abandonment of a Well

Well abandonment shall comply with the following:

(1) In uncased hole, cement plugs shall be placed such as to provide a minimum of 100 metres of cement above and a minimum of 50 metres of cement below any significant oil, gas or fresh water zones.

(2) Where there is open hole immediately below the casing string, there shall be placed in that casing string:

(a) a cement plug placed by displacement method so as to extend at least 50 metres above and at least 50 metres below the casing shoe; or

(b) a cement retainer with effective back pressure control set at least 10 metres, but not more than 30 metres, above the casing shoe with a cement plug calculated to extend at least 50 metres below the casing shoe and at least 50 metres above the retainer; or

(c) where lost circulation conditions exist or are anticipated, a permanent type bridge plug set within 45 metres above the casing shoe with at least 50 metres of cement on top of the bridge plug.

(3) If the casing string is cut and recovered, a cement plug shall be placed to extend at least 50 metres above and at least 50 metres below the cut end of the casing string, and a retainer may be used in setting the required plug.

(4) Where the casing string has been perforated:

(a) a cement plug shall be placed opposite the perforations to extend from at least 50 metres below to 100 metres above the perforated interval; or

(b) the perforated interval may be plugged by means of a cement retainer set in the casing string no more than 45 metres above the top of the perforated interval with a cement plug extending at least 50 metres above the retainer, provided the perforated interval is isolated from open hole below; or

(c) subject to Sub-Clause (b) where a succession of retainers is used to isolate a series of perforated test intervals, only the topmost retainer need have a minimum of 50 metres of cement plug placed above it.

(5) In a cased hole containing a liner string or strings, a cement plug, of at least 50 metres height, shall be placed immediately above each liner hanger.

(6) A surface cement plug extending at least 15 metres below the surface to 50 metres below the base of the deepest aquifer shall be placed in the innermost string of casing that extends to the surface.

(7) Any annular space that extends to the surface, and which is open to drilled hole, shall be plugged with sufficient cement to fill the annular space if cement to surface was not previously installed.

(8) The location and integrity of cement plugs placed in accordance with Sub-Clauses (2), (3), (4), (5) and (6) shall be verified by the application of weight, or other methods as approved.

(9) Any intervals of cased hole between cement plugs shall be filled with fluid that is of an appropriate density and suitably inhibited to prevent corrosion of the casing.

(10) Blow-out preventers shall not be removed until all plugs required to isolate the open hole have been set and their location and integrity satisfactorily determined.

(11) No casing may be recovered if its recovery would expose any abnormal pressure, lost circulation, petroleum or water zone.

(12) All casing strings shall be cut 2 metres below the surface and covered with a minimum of 30 cm of cement. A steel plate shall be installed on top of the cement detailing the well name, number and total depth and covered with soil to restore the natural environment.

(13) The exact location of the well shall be confirmed 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. 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.

330 Well Completion

(1) The surface and subsurface equipment of a completed well shall (where applicable) be arranged to permit the measurement of the pressure and temperature at the wellhead and at the bottom of the hole (closed in or flowing), and to permit any other generally recognized test to be carried out.

(2) The surface equipment shall be fitted with sampling connections.

(3) The Operator shall, on completion and any recompletion of a well, keep and make readily available to an Inspector an accurate record of all subsurface equipment and junk in the well.
(4) Before opening a well to production and after every major repair, recompletion or workover, the wellhead and flow line connection shall be pressure tested.

331 Disposal of Produced Oil and Gas

(1) Any oil or gas that is circulated out of or produced from a well during a drilling, testing or repair operation, and that is not flowed through the well's flowline to a gathering facility, shall be flowed through an appropriate manifold and safely secured, properly rated temporary flow line to a storage tank or flare.
(2) Clean-up operations and tests that use temporary well site facilities shall not be commenced during the hours of darkness.
(3) If petroleum is flowed to a flare it shall be kept, as far as possible, continuously alight and comply with Clause 230.

332 Rehabilitation of Site

A well site area shall be rehabilitated in accordance with a current environment management plan.

337 Special Services

(1) Special services include 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.
(2) The installation and operation of well pumping units, and the operation of wireline and coiled tubing services, acidizing, fracturing, cementing, hot oil operations and other special services shall be carried out in accordance with these directions and the applicable recommended practices set forth in accordance with API.

338 Equipment

Where a system of high pressure piping, hoses and swivel joints is used in well stimulation or similar operations, the swivel joints, piping and hoses shall be appropriately secured.

340 Swabbing

(1) While swabbing operations are being carried out all engines, motors and other possible sources of ignition that are not essential to the operation shall be shut down.
(2) During swabbing operations, the swabbing line shall be packed off at the surface so that fluids are directed as much as possible through a closed flow system.
(3) During swabbing operations produced fluids shall be piped directly to a production facility, flare pit or tank.

(4) As noted in Sub-Clause 326(4)(n) swabbing operations shall not be initiated during the hours of darkness, nor continued beyond the hours of daylight, without approval.

341 Diagnostic Fracture Injection Testing

(1) Operations to conduct Diagnostic Fracture Injection Testing (DFIT) shall not be commenced without prior approval.
(2) An application under Sub-Clause (1) shall be submitted to the Minister and shall include:
(a) Technical program of DFIT;

(b) Comprehensive risk assessment of operations; and

(c) Well monitoring program during the pressure recording period.

(3) Daily operations report shall be submitted to the minister before noon.
(4) Prior to perforation the operator shall conduct Cement Bond Log (CBL) and submit it to the Minister with the interpretation of the CBL.
(5) The operator shall submit the DFIT interpretation report to the Minister within 3 months after the completion of the pressure recording.

342 Hydraulic Fracturing

(1) Hydraulic fracturing operations shall not be commenced without approval.
(2) An application under Sub-Clause (1) must be submitted to the Minister accompanied by a Technical Works Program describing all aspects of hydraulic fracturing operations including:
(a) Status of the well prior to the operations;

(b) Pressure testing of the well;

(c) Interpretation of cement evaluation log(s);

(d) Perforations details;

(e) Design and stages of the hydraulic fracturing program;

(f) Procedures of hydraulic fracturing operations;

(g) Mechanical properties of the casing;

(h) Geological hazards;

(i) Geomechanical hazards;

(j) Modelling of the fracture propagation;

(k) Details of all aquifers;

(l) Analysis of hydraulic fracturing operations including fracture gradient, half-length of fracture, propped half-length of fracture, fracture height, average fracture width, conductivity, maximum pumping pressure and estimated return volume of fluid;

(m) Returned fluid management plan;

(n) Details of Frac Tree;

(o) The monitoring program, if the applicant plans to conduct any monitoring survey concurrent with hydraulic fracturing such as Tilt meter survey, MicroSeismic Monitoring or use of tracers; and

(p) Such other information as the Minister requires.

(3) BTEX compounds must not be added to hydraulic fracturing fluids and any presence of BTEX in flowback fluids must be reported to the Minister without delay.

(4) Specific information regarding chemicals used must be released to the department and the general public.

(5) Hydraulic fracturing operations shall conform to API.

(6) Daily operations report shall be submitted to the minister before noon Australian Central Standard Time (ACST).

(7) If the operator has the plan to conduct micro-seismic monitoring, for the purpose of the drilling of monitoring well it shall submit an application under Clause 301.

(8) For monitoring operations, a weekly report shall be submitted to the Minister.

(9) The operator shall submit the pressure test copy to the Minister as soon as it is recorded.

FUGITIVE EMISSIONS

326 Production or Drill Stem Tests

(1) A person shall not conduct a production or drill stem test in an exploration, development or an appraisal well not yet producing without approval.

(2) An application for approval to conduct a production or drill stem test shall be accompanied by particulars of:

(a) the date and time of test;

(b) the equipment proposed to be used for the test including accurate flow measurement device(s);

(c) the proposed testing program;

(d) the proposed test intervals;

(e) the proposed duration not exceeding 90 days;

(f) the maximum quantity of petroleum or water proposed to be produced; and

(g) the proposed method of disposal of the petroleum, water or gas produced.

(4) In addition to Clause 331, the following conditions shall pertain to drill-stem tests or production tests:

(a) When production testing is to be performed in the vicinity of an inhabited area, all reasonable steps shall be taken to warn persons who could be affected, and the tests shall be conducted in a manner that minimizes the risk of injury or damage to property;

(b) All personnel shall be familiar with the relevant emergency procedures;

(c) All flowlines, valves and equipment used in a production test shall have a rated working pressure in excess of all anticipated pressures and, where appropriate, shall be tested prior to initial use at each well to at least those anticipated pressures;

(d) Open hole formation tests shall not be opened for flow during the hours of darkness except with the prior approval of the Minister;

(e) Subject to Sub-Clause (f), if formation fluids are produced into the test string, they shall be reverse circulated from the test string before it is pulled from the hole;

(f) In a cased hole, formation fluids in the test string may be displaced back into the formation from which they were produced;

(g) During formation testing, or the removal of any pipe after a formation test, a competent person must remain at the rig and oversee the operation;

(h) During formation testing, all motors, engines and lights that are not required for the operation shall be shut off;

(i) During formation testing, the annular space of the well shall be kept full of drilling fluid of a density adequate to control formation pressure

(j) Fluids brought to the surface during formation testing shall be safely disposed of through an independent test manifold and choke;

(k) Any choke equipment that forms part of the blow-out prevention equipment shall not be used for flow control during a formation test;

(l) If swivel joints or flexible hoses are used in the system during formation testing, they shall be equipped with wire rope or chain safety lines capable of containing any movement or whipping of the pipe or hose in the event of failure;

(m) All test strings shall be equipped with the means to reverse circulate out their contents;

(n) Well stimulation operations, such as swabbing or acidizing, shall not be initiated during the hours of darkness, or continued beyond the hours of daylight, without approval.

(5) If a test results in the discovery of a new pool of petroleum, the Operator shall notify the Minister as soon as practicable after the discovery is made and furnish:

(a) a copy of the relevant operational reports;

(b) a legible copy of the pressure recorder chart for each test taken on the well; and

(c) an interpretation of those tests.

327 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.

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(2) Clean-up operations and tests that use temporary well site facilities shall not be commenced during the hours of darkness.

(3) If petroleum is flowed to a flare it shall be kept, as far as possible, continuously alight and comply with Clause 230.

340 Swabbing

(1) While swabbing operations are being carried out all engines, motors and other possible sources of ignition that are not essential to the operation shall be shut down.

(2) During swabbing operations, the swabbing line shall be packed off at the surface so that fluids are directed as much as possible through a closed flow system.

(3) During swabbing operations produced fluids shall be piped directly to a production facility, flare pit or tank.

(4) As noted in Sub-Clause 326(4)(n) swabbing operations shall not be initiated during the hours of darkness, nor continued beyond the hours of daylight, without approval.

419 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.

Division 4 - Reporting

284 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.
(2) 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.
(c) the above reports shall be in addition to, and not take precedence over, reports required by NT WorkSafe.

286 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;
(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.

287 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.

288 Reporting 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.

290 Reporting of Emergencies

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

Attachment C – Guidelines and Other Energy Division Assessment Documents

ATTACHMENT C

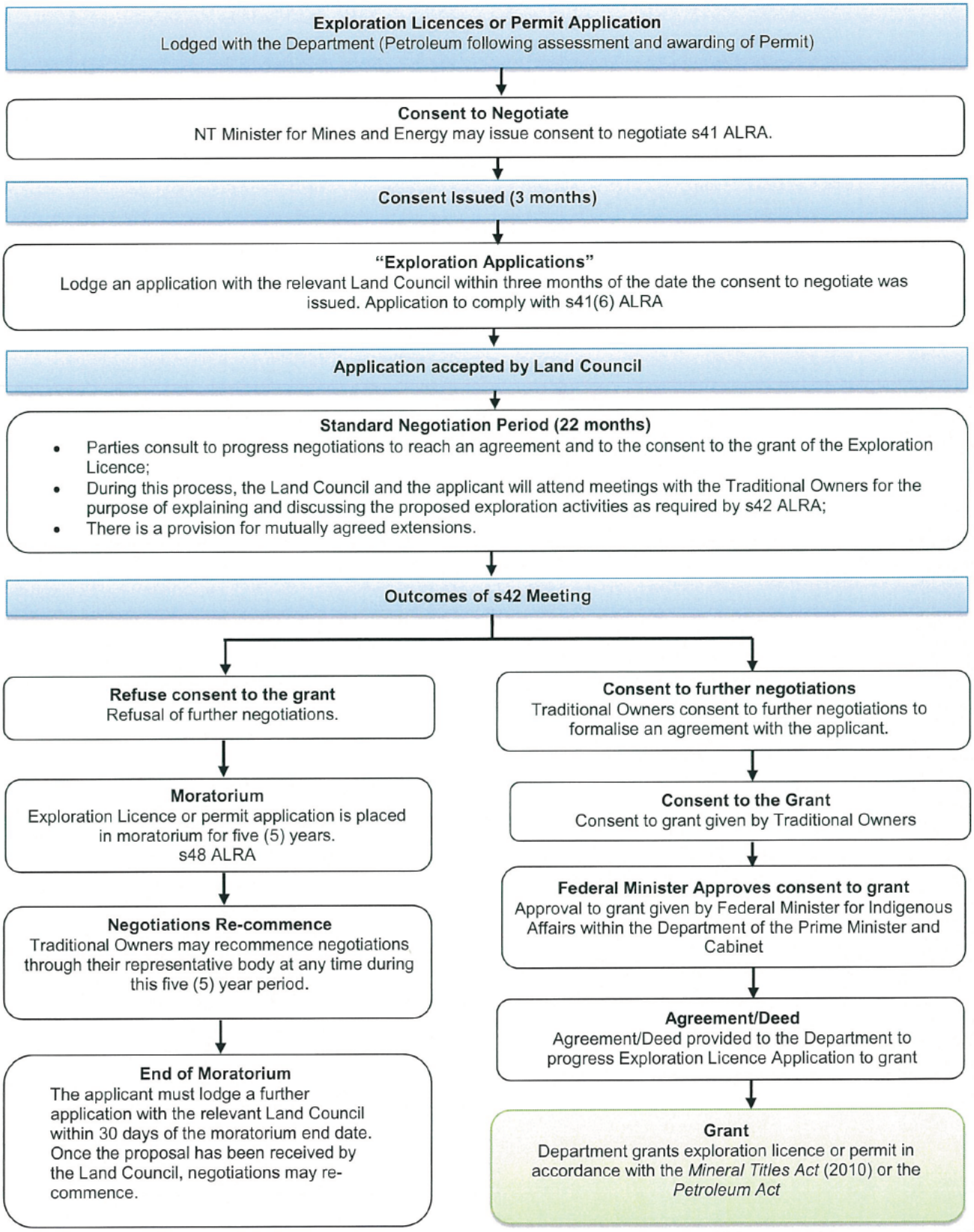
GUIDELINES AND OTHER ENERGY DIVISION ASSESSMENT DOCUMENTS

CONTENTS

1) Flowchart – ALRA

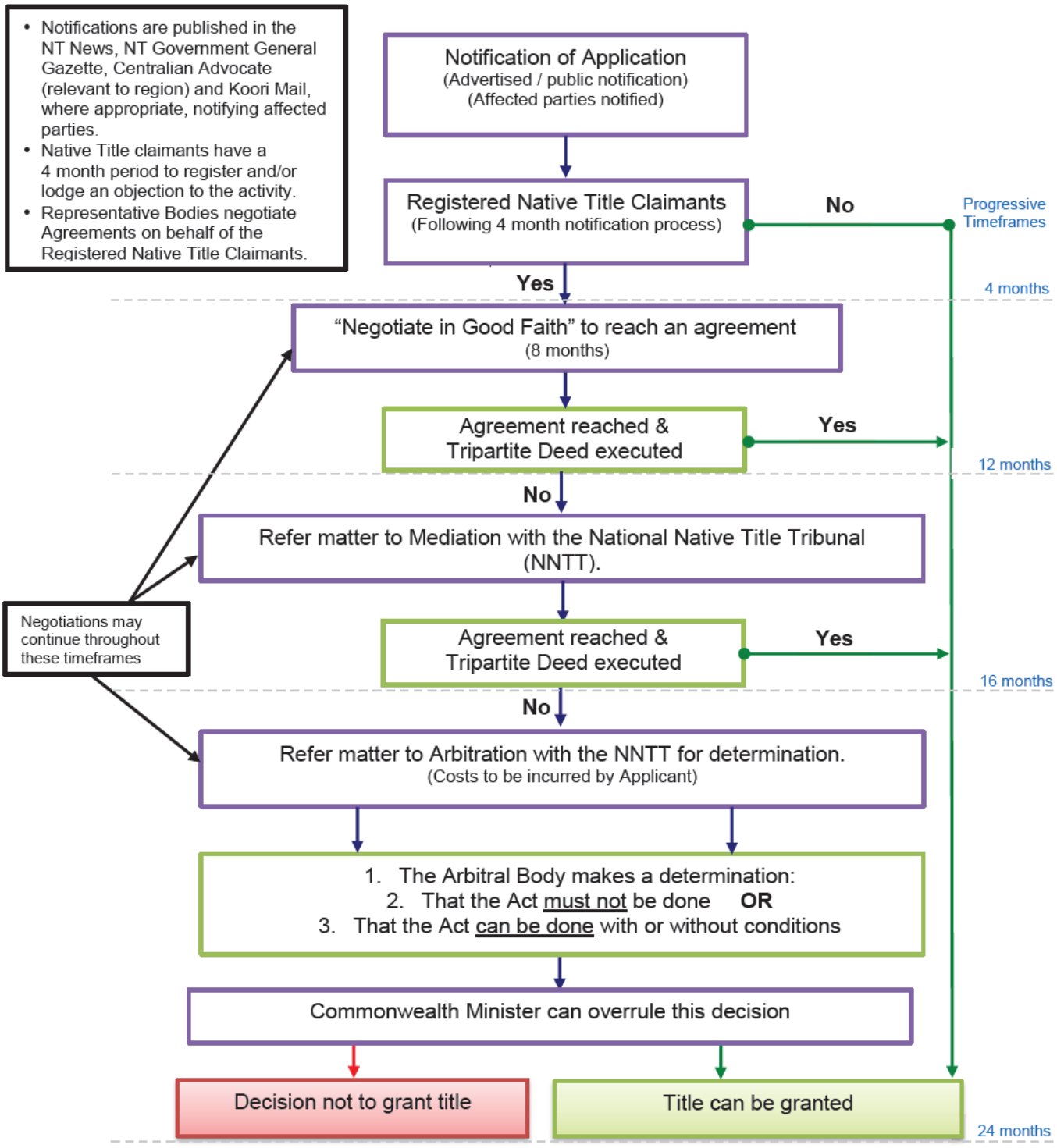
Flowchart of Aboriginal Land Rights Act Process

Read in conjunction with the "Exploration of the Aboriginal Freehold Land" Factsheet & the *Aboriginal Land Rights (Northern Territory) Act (ALRA) 1976*



2) Flowchart – Native Title

Timeframes for the Right to Negotiate Process for Applications on Native Title Affected Land

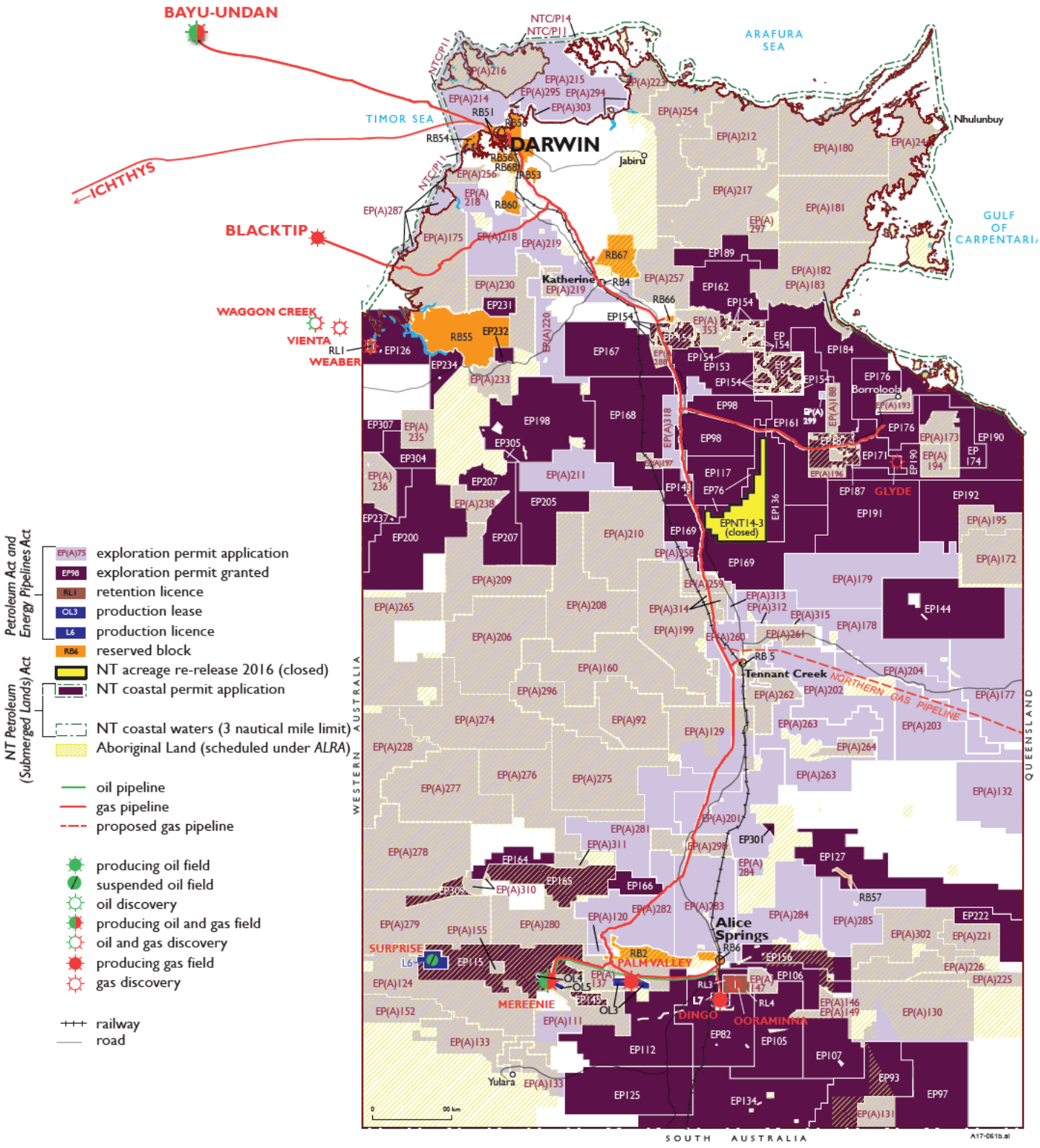


NOTE: All legislative requirements must be achieved prior to the grant of an application.
The above timeframes are indicative, although all parties are to "negotiate in good faith" to progress applications to grant.
A representative body can negotiate an agreement on behalf of native title holders before a Native Title claim is lodged which may preclude the need for a claim and avoid the Right to Negotiate process.

3) Map – Onshore Petroleum Titles and Developments

Onshore petroleum titles and developments

Creating Opportunities for Resource Exploration
CORE



February 2017

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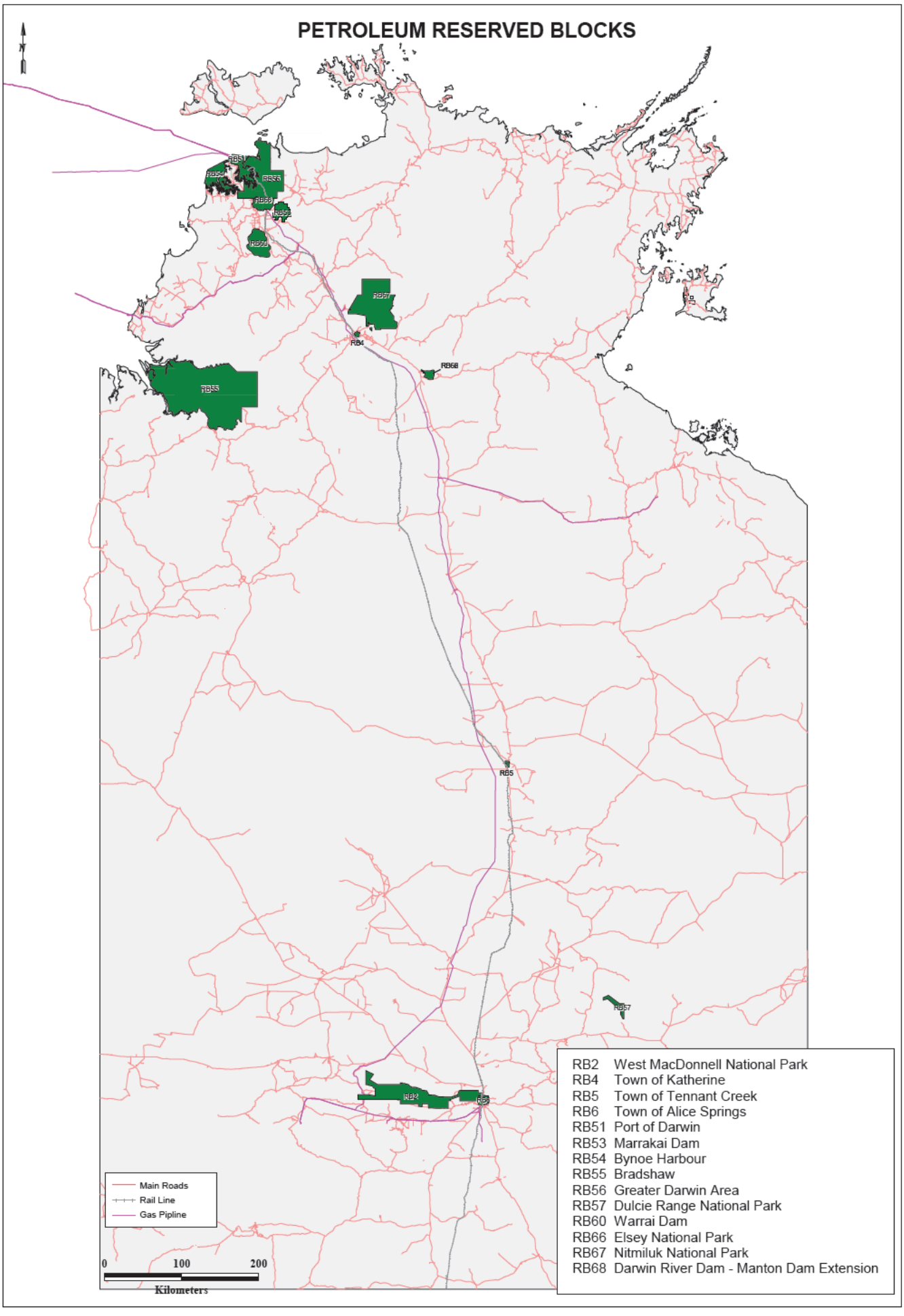
AUSTRALIA'S NORTHERN TERRITORY

4) Map – Reserved Blocks


PETROLEUM RESERVED BLOCKS
RB51
RB54
RB56
RB60
RB53
RB66
RB67
RB4
RB68
RB55
RB5
RB57
RB2
RB6
Main Roads
Rail Line
Gas Pipline
0
100
200
Kilometers
RB2 West MacDonnell National Park
RB4 Town of Katherine
RB5 Town of Tennant Creek
RB6 Town of Alice Springs
RB51 Port of Darwin
RB53 Marrakai Dam
RB54 Bynoe Harbour
RB55 Bradshaw
RB56 Greater Darwin Area
RB57 Dulcie Range National Park
RB60 Warrai Dam
RB66 Elsey National Park
RB67 Nitmiluk National Park
RB68 Darwin River Dam - Manton Dam Extension

5) Guideline – Summary of Titles

ENERGY TITLES SUMMARY

	Petroleum Act	*Petroleum (Submerged Lands) Act* Coastal Waters - 3NM	*Geothermal Energy Act*
	EXPLORATION PERMIT	EXPLORATION PERMIT	EXPLORATION PERMIT
	EP	NTC/P	GEP
Purpose	Prime title to explore, drill, survey for, but not produce, hydrocarbons.		Prime title to explore, drill, survey for, but not produce geothermal energy/generate power.
Term	5 years - 50% relinquishment at end	6 years - 50% relinquishment at end	5 years - 50% relinquishment at end
Renewal Term	5 years - maximum of 2 renewals	5 years - maximum of 2 renewals	5 years - maximum of 2 renewals
Maximum Blocks	200 [5' block]s	400 [5' block]s	2000 [1' block]s
Security	Determined by Minister	$30,000	Determined by Minister

	Petroleum Act	*Petroleum (Submerged Lands) Act* Coastal Waters - 3NM	*Geothermal Energy Act*
	RETENTION LICENCE	RETENTION LEASE	RETENTION LICENCE
	RL	NTC/RL	GRL
Purpose	Provides security of title over currently non-commercial discoveries for a reasonable period of time.		
Term	5 years	5 years	5 years
Renewal Term	Subsequent 5 year periods if discovery remains sub-commercial		The Minister must not renew a geothermal retention licence more than twice.
Maximum Blocks	12 [5' block]s	Extent of petroleum pool/location [5' block]s	A proposed licence area may comprise all or part of the permit area. [1' block]s
Security	Determined by Minister	n.a.	Determined by Minister

NORTHERN TERRITORY GOVERNMENT

E NERGY TITLES SUMMARY (Cont)

	Petroleum Act	*Petroleum (Submerged Lands) Act* Coastal Waters - 3NM	*Geothermal Energy Act*
	PRODUCTION LICENCE	PRODUCTION LICENCE	PRODUCTION LEASE
	L	NTC/L	GL
Purpose	To explore, test for and produce hydrocarbons.		Exclusive right to conduct activities in lease area related to the production of geothermal energy and the generation of power
Term	21 or 25 years	21 years	Life of Resource
Renewal Term	Not exceeding 25 years	21 years	n.a.
Maximum Blocks	12	Extent of petroleum pool/location	A proposed licence area may comprise all or part of the permit area.
Security	Determined by Minister	Determined by Minister	Determined by Minister

	Petroleum (Prospecting & Mining) Act [Repealed]		
	PRODUCTION LEASE		
	OL Production Leases OL3, OL4 and OL5 are administered under the *Petroleum (Prospecting & Mining) Act*		
Purpose	To explore, test for and produce hydrocarbons	**Renewal Term**	21 Years

ENERGY TITLES SUMMARY (Cont)

	Energy Pipelines Act		*Petroleum (Submerged Lands) Act* Coastal Waters - 3NM
	PIPELINE PERMIT	PIPELINE LICENCE	PIPELINE LICENCE
	PP	PL	NTC/PL
Purpose	Permit to enter land for the purpose of determining the route of proposed pipeline, situation of proposed apparatus or works and the land.	Provide a form of tenure to construct and operate a pipeline for hydrocarbons	Provide a form of tenure to construct and operate a pipeline for hydrocarbons
Term	1 year with possible extensions	s.19(1) - 21 years s.19(2) - Indefinite	Indefinite
Renewal Term	Extension by approval of Minister	s.19(1) - 21 years s.19(2) - Indefinite n.a. [s.16]	n.a.
Maximum length	As determined by Minister	As determined by Minister	As determined by Minister
Security	n.a.	$50,000 [s17(2)(a)]	As per Regulation 6

NORTHERN TERRITORY GOVERNMENT

6) Guideline – Petroleum Exploration Permit Application Process

PETROLEUM EXPLORATION PERMIT APPLICATION AND CONDITIONS

A guideline in relation to Section 21E of the *Petroleum Act*
(Effective 5 February 2016)

For further information, please contact:

In person	Director Petroleum Tenure Energy Division NT Department of Primary Industry and Resources 4th Floor, Centrepoint Building, The Mall, Darwin NT 0800
By post	Attention – Director Petroleum Tenure Energy Division NT Department of Primary Industry and Resources GPO Box 4550 Darwin NT 0801
By phone	+61 8 8999 5396 – Director Petroleum Tenure
By e-mail	energy.permits@nt.gov.au

CONTENTS

Introduction

The purpose of these guidelines is to assist and inform industry of the statutory obligations, processes and expectations in relation to petroleum exploration permits (*permit*) under the Northern Territory *Petroleum Act* (the Act) that applicants will need to observe when preparing an application for a permit through the acreage release regime.

Whilst the guidelines have been provided to assist applicants in their compliance with the Act, it is incumbent on each applicant to acquaint themselves with the provisions of the Act and all other laws of the Northern Territory (NT) as are applicable. Although these guidelines are here to assist you, in all cases the legislation prevails.

The Department's over-arching objective is to manage the NT's petroleum resources and acreage in a manner consistent with the long-term viability of the industry and best return for the Territory.

Within that framework, the basic objective in awarding a permit is to enable the efficient discovery and evaluation of any petroleum resources in the area, for eventual production under licence. Consistent with the Act, applications for a permit will be dealt with on their merits.

[*The guidelines will be amended from time to time to reflect current practices and or legislation and are available online at www.minerals.nt.gov.au*]

Purpose of Title

A permit, while it remains in force, gives the holder, subject to the Act and in accordance with the conditions to which the permit is subject and the directions, if any, the exclusive right to explore for petroleum, and to carry on such operations and execute such works as are necessary within the permit area; i.e. drill, survey for, but not produce, hydrocarbons.

Pre-requisites

The common essential pre-requisites for an application are:

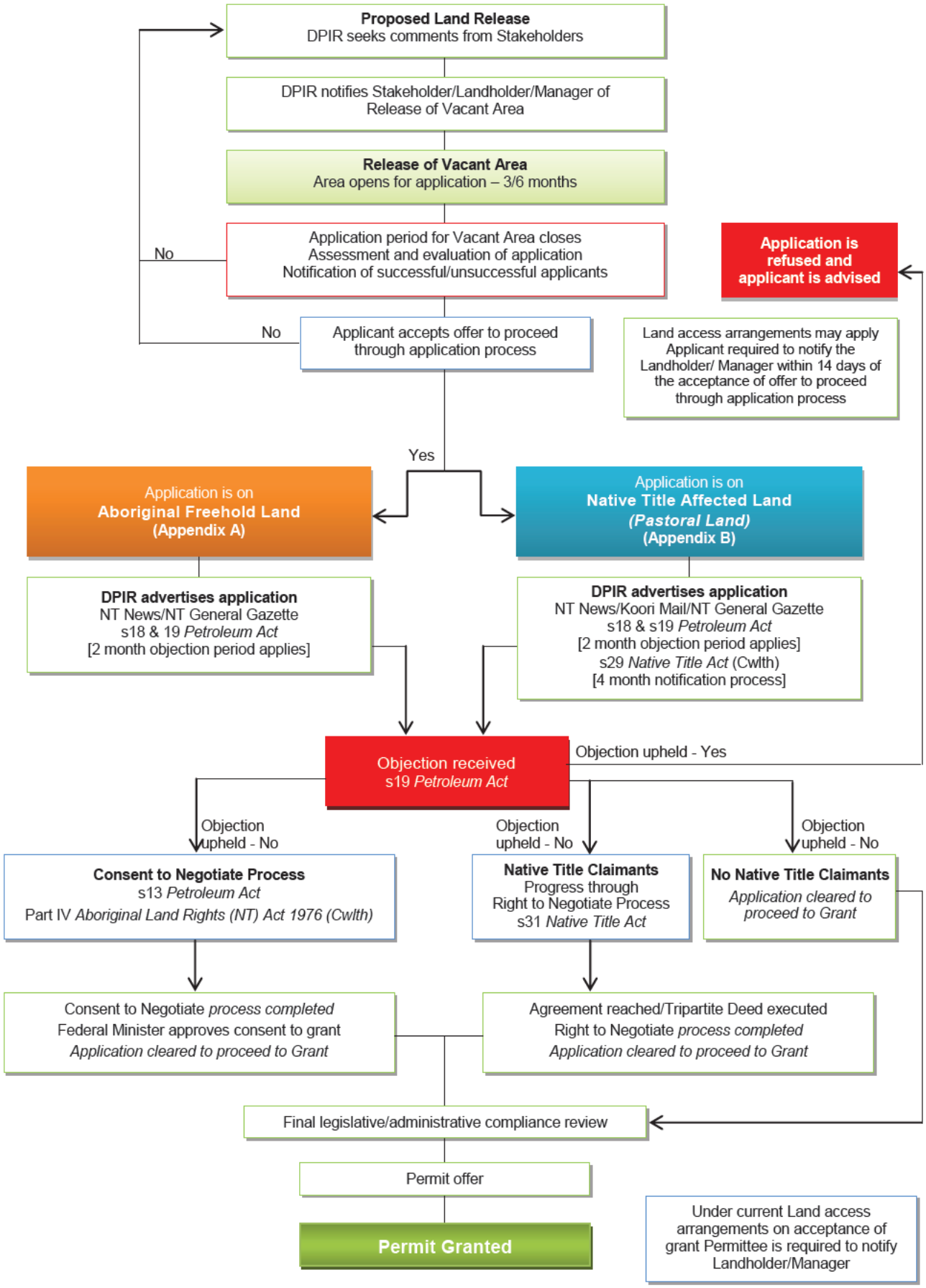
- that a realistic exploration strategy and program is proposed; and
- that the applicant
  - has the financial and technical capacity to undertake their proposed program; and
  - has complied with the Act in respect of making a valid application.

Other Legislation

The Commonwealth *Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA) will apply for exploration permit applications over Aboriginal Freehold Land. [Appendix A].

If an application attracts the Right to Negotiate process under the Commonwealth *Native Title Act 1993*, (NTA) the relevant procedures under that Act must be complied with. [Appendix B].

Exploration Permit Application Process



Land Status

There are three main categories of land tenure in the NT, which determines the grant process of an application:

- Aboriginal Freehold Land
- Freehold land
- Native Title affected land.

Aboriginal Freehold Land

Sections 12 and 13 of the Act govern the procedures for application, negotiation and grant of a permit over Aboriginal land. [Appendix A]

Aboriginal land is defined in Section 5(1) of the Act by reference to the *Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA) of the Commonwealth, which defines it as:

- land held by a Land Trust for an estate in fee simple; or
- land the subject of a deed of grant held in escrow by a Land Council.

Land Councils (established under Section 21 of ALRA) are responsible for assisting the Aboriginal people living within their area boundary.

N.B. An applicant may only enter into negotiations with the Land Council for consent to the grant of a permit in relation to Aboriginal land after first having lodged an application for the grant of a permit and receiving the consent of the Minister for Primary Industry and Resources to enter into negotiations under Section 13 of the Act.

The consent of the Minister gives the applicant the exclusive right to enter into negotiations with the relevant Land Council.

Freehold Land

Freehold title, sometimes referred to as a Grant in Fee Simple or Estate in Fee Simple, means that the Crown (or Government) has passed all interest in the land, other than resources, onto the owner. An example of freehold land is the average house block in a city or town.

Native Title Affected Land

An application for a permit on Pastoral Lease land may be subject to the Native Title Act (NTA). Applications are advertised under the NTA *Right to Negotiate Procedure* (RTN). The RTN process is used for all petroleum negotiations on Native Title affected land. [Appendix B]

The RTN public notification period of four months allows the Native Title Claimants to register and if required, to lodge an objection with the National Native Title Tribunal (NNTT).

The NT Government, through the Department of Primary Industry and Resources, Energy Division and Mines Division, case manage applications through the RTN procedure.

The NTA requires that negotiations be carried out "in good faith". The Department of Primary Industry and Resources has an expectation that negotiations to reach an agreement take place within firm timeframes. (*Refer 'Timeframes for the Right to Negotiate Process for Title Applications on Native Title Affected Land').*

Telecommunication Sites and Defence Facilities

It is the practice of the Department to exclude telecommunication sites or Commonwealth land from the grant of a permit.

Land Availability

Current Title Maps

Public access to online titles information is available through STRIKE. This online query system provides information on all release areas, applications and granted exploration and production energy titles, pipelines and geothermal tenure by way of an interactive map of the Territory. It provides clients with current publicly available spatial (geographical location), textual (ownership/transactions) and cadastral (land status) data associated with all titles.

By searching underlying land tenure on the cadastral layer, users can obtain details of land status and download spatial data files of current applications and granted titles. Users can access STRIKE at www.minerals.nt.gov.au

Application for a Permit

Applicants need to refer to Section 16(3) of the Act and the *Notice of Invitation for Petroleum Exploration Permit Application* when making application for a permit. (Please note that all applicants are required to identify themselves).

Applications must be compliant with the Act and also meet the minimum expectations of the NT Government, as outlined in this guideline.

Applicants may submit any other relevant information they wish to have considered. Once an application is submitted, the composition and timing of the proposed work program may not be amended through the submission of further information and any other changes will not be accepted.

An application must be accompanied by the fee, through an Australian bank cheque made payable to 'Receiver of Territory Monies – Northern Territory of Australia' (RTM) or by electronic funds transfer. Applicants wishing to pay by credit card will need to email energy.permits@nt.gov.au. The amount of the fee is prescribed in the schedule of the Petroleum Regulations. Evidence of an electronic fund transfer must be provided with the application.

If paying by electronic funds transfer, please make payment to the following account:

Bank Name	NAB
Account Name	NT Government
ABN	84 085 734 992
BSB	085-461
Account Number	931610009
Swift	NATAAU3303M (if overseas account)

1.1 Particulars of applicant(s)

- Full name of applicant/s - In case of individuals, please state full name of each person. In the case of corporations, state name of each corporation as shown on their latest Certificate of Incorporation.
- Australian Company Number (ACN or the ARBN where the applicant is a foreign company). This is the number described on the Certificate of Incorporation issued by the Australian Securities and Investment Commission (ASIC).
- Principal or residential address - Please state each applicant's principal or residential address. This is the physical address at which documents will be served on each applicant.
- Postal Address - Please state postal address of each applicant.
- Interest - Where the application is made by two or more persons the proposed sharing arrangements between the applicants.

1.2 Particulars of Release Area

- Schedule of blocks being described by reference to the name/s of a map sheet/s (e.g. Darwin SD52) of the 1:1 000 000 Series and the number of graticular sections shown thereon.
- A map clearly delineating the application (release) area and boundaries of existing permit or licence areas in the immediate vicinity of the application area.

1.3 Assessment of Release Area

- Applicant's assessment of the petroleum potential of area, including a geological and geophysical review and technical assessment, including concepts underlying the proposed exploration program.

1.4 Work Program

- Proposed technical works program for exploration of the blocks during each year of the term of the proposed permit and must show an accelerated exploration program.
- Proposed work program activities must be stated precisely to avoid ambiguity.
- Work programs are divided into a 'primary' and 'secondary' term.
- The first two-years of a work program are referred to as the primary term. The minimum work requirements must commence and be completed within the end of year two.
- Once awarded, the primary term becomes guaranteed and cannot be reduced. Work activities that cannot be guaranteed should not be included in the primary term.
- Permit years 3, 4 and 5 are referred to as the secondary term. Each year becomes guaranteed upon entry and the minimum work requirements must commence and be completed within the permit year.

  An example of a five-year work program should include (but not be limited to) the following:

Year	Activity
1	Geophysical and geological surveys, Field Geological Surveys, Desktop Geophysical and geological studies, 2D/3D Seismic Surveys* (should be detailed, e.g. Biochemistry, Geochemistry or standard prospect evaluation etc.)
2	
3	More Geophysical and geological surveys, data processing and interpretation or drilling of wells*.
4	Drilling one or more wells and Geophysical and geological studies or surveys.
5	Analysis of data acquired and interpretation of the results to identify prospective areas of the permit for retention, production, renewal or relinquishment, Continue further testing, Reservoir and Geological studies

** Depends on the maturity of the basin*

- The proposed work program must be consistent with the exploration strategy and underpinned by the technical evaluation of the release area.
- The proposed work program must be regarded as advancing the exploration effort.
- The early elements of the proposed work program should be sufficient to enable the later elements to proceed and be aligned with the exploration strategy. This includes the need for the number and type of wells to be justifiable and be supported by the number and maturity of plays, prospects and/or leads identified i.e. the work program should be pursuable on a dry hole basis.
- Proposed work program activities should only include work that will be undertaken within the permit area. Any work, studies or reprocessing proposed outside the permit area, must be clearly differentiated.
- Work intended to appraise a known petroleum accumulation in an area may form part of the proposed work program. However, appraisal activities must be clearly differentiated from exploration activities.
- Work associated with a known petroleum accumulation will only be considered as exploration work if the activity is assessed to include a significant exploration component.
- The minimum acceptable work program for an area will vary depending on the size of the area, its perceived prospectivity and its location. At a minimum, it is expected the proposed work program will contain:
  - New activities such as, data acquisition and/or well/s drilling. The type of activities will depend on whether the area is lightly-explored or frontier in nature.
  - Reprocessing and/or geophysical and geological studies to enable a play, lead or prospect to be identified and progressed toward maturing a drillable target.

- Where an area is fully covered by 2D seismic data, reprocessing a majority of this data may form part of the proposed work program and can be undertaken instead of acquiring new seismic data. The reprocessing would normally be expected to be from raw data or the quality controlled traces and to utilise techniques not previously undertaken on seismic data within the permit area.
- It is expected that at least one exploration well will be proposed during the initial five-year permit term for well-explored areas with good data coverage; the well should not be in Year 5.
- The description of the proposed work program should include:
  - Indicative expenditure in Australian dollars for each activity at current market value.
    - Operational activities: calculations detailing how the cost of the activities has been estimated should be provided.
  - The number of line kilometres of 2D and proposed line spacing and/or square kilometres of 2D seismic data that will be acquired and processed within the permit area, including:
    - Full fold numbers within the permit area.
    - A map showing the indicative location of the 2D lines outline. All existing seismic surveys should be identified on this map.
    - If known, the parameters and methodology of the seismic acquisition and processing that will be undertaken.
  - The amount, type and details of the applicable dataset of any new reprocessing the applicant proposes to undertake, including:
    - The number of line kilometres of 2D seismic data that will be reprocessed within the permit area clearly stated.
    - A map showing the indicative location of the 2D lines survey outline. All existing seismic surveys should be identified on this map.
    - If known, the parameters and methodology of the reprocessing that will be undertaken.
  - The number of exploration wells proposed, including indicative plays and target play levels.
  - The nature, scope and objectives of any studies.
  - The licensing or use of any existing exclusive or non-exclusive datasets and, if applicable, how these are proposed to be used in conjunction with any reprocessing or geophysical studies proposed in the work program.
  - Descriptions and the conceptual locations/targets/purpose of other operational activity or surveying proposed.

1.5 Technical and Financial Capacity

- Evidence of the technical and financial capacity of the applicant/s to carry out the proposed technical works program and to comply with the requirements of the Act.
  - Applicants should list the professional staff proposed to be used in the program, together with a short resume of their past record of proven technical experience.
  - Normally, applicants are expected to have at least sufficient net current assets to complete the first two years' program and to provide reasonable assurance that further funds will be forthcoming. If the applicant is a publicly listed company the last issued annual company report or the relevant sections thereof and the last issued quarterly report to the Stock Exchange should be included.
  - If the applicant is not a public company, a report should be furnished giving the same information as would be furnished in the annual report of a public company, and in the latest quarterly stock exchange report.

  In either case a statement of financial commitments other than those proposed in the application, and any additional source of finance should be included. This statement should include a list of interests in petroleum tenements in other states of Australia.

1.6 Operator

- The name of the designated operator and evidence of the technical capacity of the operator to carry out the proposed technical works program and a single address for service of notices in respect of the application.

1.7 Other Information

- Past performance of the applicant/s.
- Technical evaluation
  - The technical evaluation should summarise the applicant's understanding of the geology and petroleum potential of the release area. It should include the concepts underlying the proposed work program, with sufficient detail to support that program. A sound technical evaluation would include an assessment of relevant data and support the amount of seismic surveying and the number and conceptual targets of wells to be drilled, if applicable.
  - The technical evaluation should include, but is not limited to, a description of:
    - The applicant's assessment of the release area, including potential petroleum systems, and plays within the release area.
    - Any prospects and leads mapped within the release area, including supporting material such as images, interpreted seismic sections and horizon maps.
    - The data and/or studies the technical evaluation is based on.
    - Any geological and geophysical studies, seismic interpretation, mapping or any other work that has been undertaken as part of the technical evaluation.
    - How the applicant proposes to utilise any existing data over the release area, including how this data is to be utilised in the proposed work program.
- Exploration strategy
  - The overall exploration strategy should link the technical evaluation with the proposed work program.
  - Applicants should propose an exploration strategy that has the potential to significantly advance the assessment and understanding of the petroleum potential of the release area. The exploration strategy should support the applicant's technical evaluation of the release area and the proposed work program for the five year permit term.
  - The exploration strategy should explain how the release area will be explored over the permit term, including how the different work program elements will investigate the plays, prospects and leads identified in the technical evaluation of the area.
- Such other information in support of the application as the applicant thinks fit.

An application form is available online at the Department's website. One electronic copy, in a text search supported format and one hard copy is to be submitted. [Appendix C]

Post Application Requirements

Advertising

The Department will, as soon as practicable after the assessment of an application/s, arrange to have a notice of the successful application published in the applicable newspaper/s and Gazette at the expense of the applicant/s. An invoice will be forwarded to the applicant/s following advertising. The advertising requirements are subject to the Act and the underlying tenure of the application area, i.e. Pastoral Lease or Aboriginal Freehold Land.

Stakeholder Engagement - Land Access

The Northern Territory Government has a new process for land access agreements between the mining, petroleum and agriculture industries.

The new process strikes a balance between the rights of resource companies to explore and the rights of pastoralists to be advised, informed and consulted before exploration begins and includes:

- The establishment of a land access agreement for those exploration activities considered to create more disturbance and requires the lodgement of a Mining Management Plan or Petroleum Environment Plan;
- If agreement over conditions for land access cannot be reached within 60 days by mutual consent, the matter will be referred to an arbitration panel to be made up of high level government and industry representatives;

- The arbitration panel will arbitrate between the parties for a successful agreement within 21 days of the formation of the panel;

- Once agreement has been reached, the Department of Primary Industry and Resources may approve the Mining Management Plan or Petroleum Environment Plan

Please see:

Appendix D - *Stakeholder Engagement Guidelines and Land Access*
Appendix E – *Land Access Agreement Flowchart*
Appendix F – *Land Access Agreements Notification of Application Form*

Permit Conditions

After consideration of a permit application, the Minister may grant the permit over all or part of the area sought and subject to such conditions as he sees fit. The proposed conditions will be discussed with the applicant prior to the formal offer.

Although requests for permit variation will be considered, permittees will be expected to complete the committed work programs lodged at time of application. The first two years are less negotiable.

Applicants should note that summary work programs relating to a permit will be publicly available once the title is granted.

If a permit is required to go to the NNTT for an arbitral body determination, then the grant may also be subject to certain conditions to be complied by any of the parties.

Security

Before granting a permit the Minister will require a security to be lodged for compliance with the Act and to secure the applicant's compliance with the conditions to which the grant is made (Section 79). This security is currently set at *$10,000* per permit.

Security payments can be in the form of cash, credit card, cheque, money order, letter of Credit or Bank Guarantee. Bank guarantees must be made out in favour of the Minister for Primary Industry and Resources, money orders and cheques are to be made payable to the RTM and may be lodged by mail. Direct Debit may be made by contacting the Energy Titles Unit on +61 8 8999 5263.

Other types of securities may be lodged over the Counter from 8:00 am to 4:00 pm Monday to Friday, 4th Floor Centrepoint Building, Smith Street Mall, Darwin.

Northern Territory Legislation

Northern Territory legislation is available for perusal at:

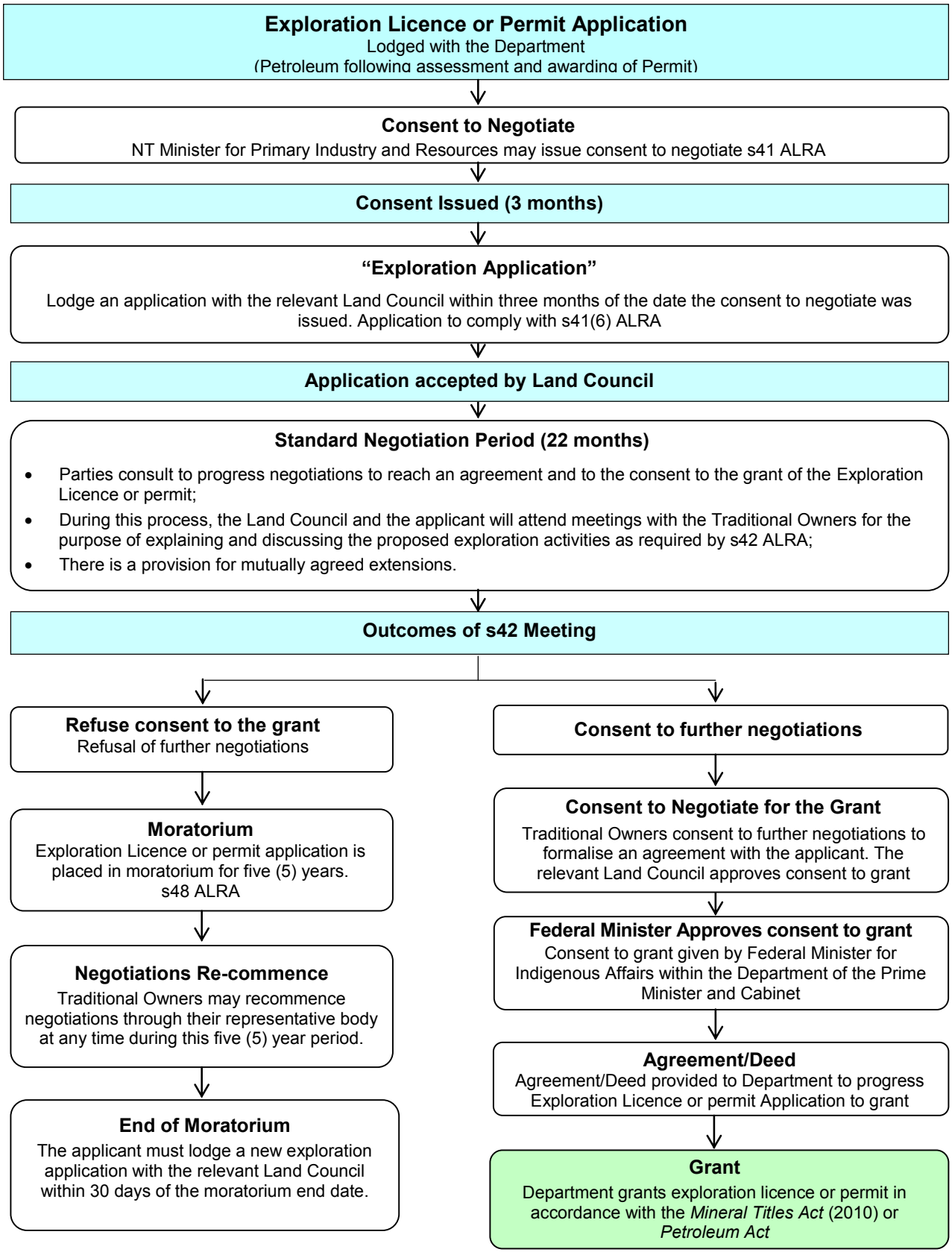
http://www.nt.gov.au/d/Minerals_Energy/index.cfm?header=Legislation

Disclaimer

TABLE OF REVISIONS			
Date	**Version**	**Purpose**	**Section**
4 December 2013	1	To establish guidelines for a Petroleum Exploration Permit Application and Conditions	21(E)
5 February 2016	2	Updated to reflect new land access arrangements	

Appendix A - Consent to Negotiate Process

Read in conjunction with the "Exploration on the Aboriginal Freehold Land" Fact sheet & the *Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA)



Appendix A - Exploration on Aboriginal Freehold Land

Introduction

The two main categories of land tenure in the Northern Territory (NT), excluding townships, are Aboriginal Freehold (ABF) and Pastoral Lease.

When exploring on a Pastoral Lease, exploration licence (ELA) (*Mineral Titles Act (2010)*) or exploration permit (EPA) (*Petroleum Act*) applications may be subject to the *Native Title Act 1993* (Cwlth). When exploring on ABF, ELA's and EPA's are subject to the *Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA) process.

Under ALRA, Land Councils represent the traditional owners. There are four Land Councils in the NT; Northern Land Council, Central Land Council, Tiwi Land Council and the Anindilyakwa Land Council.

Below is a summary of the legislative frameworks and processes for ELA's and EPA's on ABF.

The Mineral Titles Act (MTA) / Petroleum Act (PA) Process

Exploration Licence and Exploration Permit applications (and subsequent mining leases (MTA)) on ABF are required to comply with the *MTA* or *PA*.

A requirement of ALRA is that an applicant seeking to explore on ABF must initially apply for an Exploration Permit or Exploration Licence.

ELA's must be made through the Mineral Titles Division and EPAs through the Energy Division, Department of Primary Industry and Resources. Guidelines and application forms are available on the Department's internet site.

Following receipt of an ELA or EPA the Department ensures legislative compliance, and a public notification process is undertaken.

On completion of this process the NT Minister for Primary Industry and Resources, may issue *consent to negotiate*. This consent then activates processes under Part IV of ALRA.

The ALRA Process

Within three months of the date of *consent to negotiate*, being issued, the applicant is required to lodge an "exploration application" with the relevant Land Council. 'Exploration applications" must contain details of proposed exploration activities, methods of extraction and treatment of any commodity that may be discovered, as required by s41(6) ALRA. Guidelines on preparing "exploration applications" are available from the relevant Land Councils.

When the "exploration application" is received and accepted by the Land Council, the parties consult to progress negotiations in order to reach an agreement and to consent to the grant of the ELA or EPA.

During this process the Land Council and the applicant will attend meetings with the traditional owners for the purpose of explaining and discussing the proposed exploration activities under s42 of ALRA.

Negotiating Timeframes

Under ALRA, negotiation towards agreement is to be carried out within prescribed timeframes.

The standard negotiation period of 22 months commences when the "exploration application" outlining exploration activities is accepted by the respective Land Council. The standard negotiation period expiry is calculated as ending 22 months from 1 January following the date of receipt of the "exploration application". If an agreement is not reached within the initial standard negotiating period (22 months), there is provision for an extension by mutual agreement.

Reaching Agreement

Once agreement is reached between the Land Council and the applicant, it is also a requirement of ALRA that consent to grant be given by the responsible Federal Minister. Following this consent, the application is submitted to the Department of Primary Industry and Resources to progress the ELA or EPA to grant. Upon grant of the ELA or EPA the Department of Primary Industry and Resources administers the title in accordance with the *MTA* or *PA.*

Native Title and Aboriginal Land Rights Unit

Members of the Department's Native Title and Aboriginal Land Rights Unit (NTALR Unit) attend (s42) meetings and are available to provide guidance on how best to present your "exploration application" at an on-country meeting.

If you have any queries about the process, the "exploration application" or any other requirements contact the NTALR Unit for assistance.

Contact Details

Native Title and Aboriginal Land Rights Unit

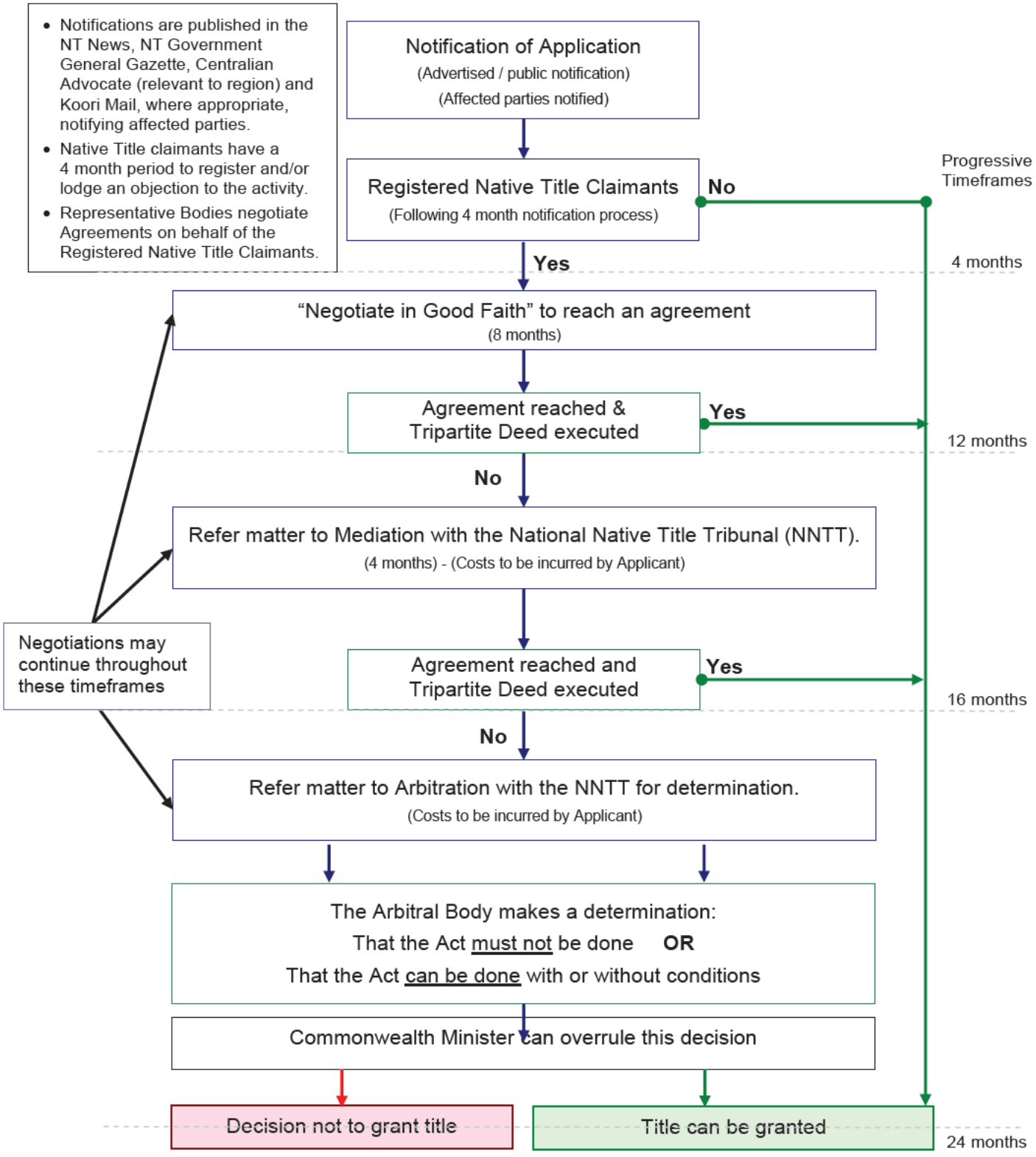
Tel:	+61 8 8999 5322
Fax:	+61 8 8981 7106
Email:	ntalrunit@nt.gov.au
Web:	www.minerals.nt.gov.au
STRIKE:	www.minerals.nt.gov.au/tis

Address

5th Floor, Centrepoint Building
48-50 Smith St, Darwin NT 0800
Postal: GPO Box 4550, Darwin NT 0801, Australia

Read in conjunction with the ALRA Flowchart and *Aboriginal Land Rights (Northern Territory) Act* 1976 (ALRA)

Appendix B - Timeframes for Right to Negotiate Process for Title Applications on Native Title Affected Land



NOTE: All legislative requirements must be achieved prior to the grant of an application.
The above timeframes are indicative, although all parties are to "negotiate in good faith" to progress applications to grant.
A representative body can negotiate an agreement on behalf of native title holders before a Native Title claim is lodged which may preclude the need for a claim and avoid the Right to Negotiate process.

Appendix B – Exploration and Mining on Native Title Affected Land

Introduction

The two main categories of land tenure in the Northern Territory, excluding townships, are Aboriginal Freehold (ABF) and Pastoral Lease.

Applications for exploration and/or mining on Pastoral Lease land may be subject to the *Native Title* Act *1993* (NTA).

Applications are advertised under the NTA;

- Expedited Procedure; or
- Right to Negotiate Procedure.

NB: all petroleum applications are advertised under the Right to Negotiate Procedure.

Expedited Procedure

Exploration licence applications (ELA) advertised under the expedited procedure will be subject to conditions to protect the rights and interests of the Native Title Parties pursuant to NTA s. 237.

The Department ensures legislative compliance and that the public notification processes for each application are met.

Following public notification, a period of 4 months is allowed for registered Native Title Claimants to lodge an objection to the expedited process with the National Native Title Tribunal (NNTT).

The NNTT is the arbitral body responsible for conducting hearings, mediations and arbitration matters in the Northern Territory.

Where NO objections are lodged the exploration licence application is granted.

Where objections are lodged, a hearing is facilitated by the NNTT. The applicant and the registered Native Title Claimants are required to negotiate an agreement. It is a requirement of the NTA that negotiations be carried out “in good faith”.

Agreements between the parties may be reached at any stage during the expedited procedure resulting in the withdrawal of the objection.

When an objection is dismissed by the NNTT the exploration licence application is granted.

When an objection is upheld by the NNTT the exploration licence application proceeds through the Right to Negotiate process.

When negotiations stall or no agreement is reached in mediation the matter may progressed to arbitration.

Right to Negotiate Procedure (RTN)

The RTN process is used for high impact mining ventures and all petroleum negotiations on Native Title affected land.

The RTN public notification period of 4 months allows the Native Title Claimants to register and if required, to lodge an objection with the NNTT.

The registered Native Title Claimants, the applicant, the Northern Territory Government and the relevant Land Council execute a Tripartite Deed, prior to the grant of the application.

The Tripartite Deed has an underlying Ancillary Agreement between the Land Council representing the registered Native Title Claimants and the applicant.

The Northern Territory Government, through the Department of Primary Industry and Resources, Mineral Titles Division, case manages applications through the RTN procedure.

The *Native Title Act* requires that negotiations be carried out “in good faith”. The Department of Primary Industry and Resources has an expectation that negotiations to reach an agreement take place within firm timeframes. (Refer ‘*Timeframes for the Right to Negotiate Process for Title Applications on Native Title Affected Land*’)

If substantial progress has not been achieved, if negotiations have stalled and/or no agreement is reached within these expected timeframes the matter will be placed in mediation and if required, progressed to arbitration with the NNTT.

Indigenous Land Use Agreements (ILUA)

Applications for exploration and mining tenure may also be granted where the applicant and the Native Title Representative Body enters into an ILUA.

These are flexible agreements that can provide for various activities including exploration and mining activities, suitable for small exploration or large mining projects.

Contact Details

Native Title & Aboriginal Land Rights Unit

Tel:	+61 8 8999 5322
Fax:	+61 8 8981 7106
Email:	NTALRUnit@nt.gov.au
Web:	www.minerals.nt.gov.au/ntalr
STRIKE:	www.strike.nt.gov.au

Address

5th Floor, Centrepoint Building
48-50 Smith St,
Darwin NT 0800, Australia

Postal: GPO Box 4550
Darwin NT 0801 Australia

Read this document in conjunction with:

- the Native Title Expedited Flowchart;
- the Native Title RTN Flowchart; and
- the *Native Title Act 1993*

NORTHERN TERRITORY OF AUSTRALIA

APPLICATION FOR A PETROLEUM EXPLORATION PERMIT

Section 16(3) - *PETROLEUM ACT*

Release Area/s
(Insert Release Area Number and Name of Map Sheet)

Applicant/s

☐ Individual ☐ Company ☐ Other

		ACN / ABN / ARBN
1		
2		
3		
4		

Address of each applicant
(If Company, registered office and principal place of business required)

1	
2	
3	
4	

Contact information for applicant/s

Primary Contact Person:		
Phone:	**Fax:**	**E-mail:**

Postal Address
Nominate Address from above ☐ 1 ☐ 2 ☐ 3 ☐ 4 or provide other address ☐

Page 1 of 2

Summary of proposed technical works program during each year of the term of the exploration permit

Year	Work Program Details*	Indicative Expenditure $A
1		
2		
3		
4		
5		

*Attach detailed technical works program to application

Signatures of applicant/s

Print Name Date	Print Name Date
Print Name Date	Print Name Date

Authorised Agent

Evidence of Appointment **must** be attached and comply with section 126 of the *Corporations Act*

Print Name	Signature	Date

Contact information

Appendix D - Petroleum Exploration – Landholder Two Way Communication Consultation Process

Permitting and Approvals Process	Consultation Process
Determine Area for Release *Stakeholder Consultation*	**Stakeholder Consultation** DPIR seeks comments from Stakeholders regarding Acreage Release Area.
Release of Vacant Area **Notification to Stakeholders/Landholders** *Letter to Stakeholders/Landholders* **Advertise Acreage Release Area** ***Petroleum Act* (PA) *s16(1)*** Area opens for application - 3/6 months	DPIR notifies Stakeholder/Landholder/Manager of Release of Vacant Area. Letter will advise process. DPIR advertises Acreage Release Area
	Selection of Applicant
Acreage Release application period closes Assessment and Evaluation of Applications **Notification of successful/unsuccessful applicants**	Applicant accepts offer and notifies Landholder/Manager within 14 days of the acceptance of offer to proceed through the application *process*.[1]
	Application process
Notification/Objection Period (2 months - PA) (4 months - *Native Title Act)*	DPIR advertises application in the NT Gazette, NT News, Koori Mail and publishes on the DPIR Website.
	The applicant will regularly update the Landholder/ Manager throughout the application process.
Objections provided to applicant, opportunity to respond. Objections will be taken into account prior to grant/conditions of grant	DPIR issues grant of permit to applicant; notifies grant in NT Gazette and publishes on the DPIR Website.
	On acceptance of grant Permittee is required to notify the Landholder/Manager
Permit Granted	DPIR to post generic grant instrument on its website
	Exploration activity
	Permittee commits to provide **14 days' notice** to Landholder/Manager of all aerial work and before first commencing *reconnaissance activities*[2]. Permittee to keep the Landholder/Manager informed about the nature and timing of activities.
Permittee applies to conduct exploration activity There is an expectation on the Permittee and Landholder/Manager that dialogue will	Permittee and Landholder/Manager are required to reach an *agreement*[3] prior to the commencement of an *exploration program*[4]. DPIR requires evidence of an agreement prior to granting approval.
	Permittee is to provide 14 days' notice to Landholder/Manager before commencing an approved *exploration program*[4].

Section A and/or B of the *Notice of Application for the Grant of a Petroleum Exploration Permit.*

Reconnaissance activities are surveys, inspections and other activities that do not involve any disturbance to the land or vegetation and are undertaken before the commencement of an exploration program.

Once the Permittee notifies the Landholder/Manager of its intention to commence negotiations, the parties have 60 days to reach a land access agreement and associated conditions. See the Stakeholder Engagement Guidelines Land Access for further details about agreement and arbitration processes.

A group of activities (other than reconnaissance activities) forming an exploration program requiring approval by DPIR. *30/11/15*

Appendix D - Land Access Agreements - Notification of Application

NOTICE OF APPLICATION FOR THE GRANT OF A PETROLEUM EXPLORATION PERMIT

As per the *Land Release Process* the successful applicant for a Petroleum Exploration Permit application is required to notify the Landholder and Land Manager within 14 days of acceptance of the offer to proceed through the application process.

To streamline the notification process the Department of Primary Industry and Resources has produced this template in lieu of a letter or other form of advice.

Completion of **Section A** should be completed by the applicant and sent to each landholder identified as being affected by the application. Landholder postal details can be obtained through a search of the Land Titles Register using the Integrated Land Information System (ILIS) administered by the Department of Lands, Planning and the Environment.

Where an application is within all or part of a pastoral lease, the applicant will be required to notify the pastoral lease Station/Land Manager. Complete **Section A** and **Section B.** Email **Section B** notice to the Department of Primary Industry and Fisheries for re-direction to the relevant Station/Land Manager. The email address for the service of this notice is:

Tania.Moloney@nt.gov.au
Copy to Energy.Permits@nt.gov.au

No later than 14 days after sending the notification (**Section A**/**Section B**), the applicant is required to provide proof of service to the Department of Primary Industry and Resources. This information can be provided by post or email as follows to:

Department of Primary Industry and Resources – Energy Division
Address: 4th Floor Centrepoint Building, 48-50 Smith Street, DARWIN NT 0800
Postal Address: GPO Box 4550, DARWIN NT 0801
Phone: 08 8999 5263 Fax: 08 8999 5191
Email: energy.permits@nt.gov.au
Website: www.minerals.nt.gov.au

The notification form provides the pastoralist and station/land manager with the opportunity to acknowledge receipt of the notice and to commence meaningful and mutual communication with prospective explorers.

In some instances the landholder and the station/land manager will be the same person and may receive two separate notifications (**Section A** and **Section B**). If this is the case only one acknowledgement of receipt is required. The landholder and station/land manager should return the form within 14 days directly to the applicant. Receipt of notice is deemed to have occurred after this period of time.

The applicant is required to forward the notices and any acknowledgements received from the pastoralist or station/land manager to the Department of Primary Industry and Resources as evidence of the start of two way communications. Additional notification following the grant of the petroleum exploration permit will be required by the permit holder in line with Environment Plan approvals prior to any exploration activity.

It is important to note that this initial notification does not provide the opportunity to object or make a submission in relation to the proposed grant of the petroleum exploration permit. The objection or submission provision is contained within s18(1) of the *Petroleum Act* and applies after the application has been advertised in NT News, the Koori Mail, on the department's website and in the NT General Gazette.

SECTION A

LANDHOLDER NOTIFICATION OF APPLICATION FOR THE GRANT OF A PETROLEUM EXPLORATION PERMIT

LANDHOLDER DETAILS	
*Name	
*Postal Address	
*NT Portion Number	
*Pastoral Lease Number	

APPLICANT DETAILS	
*Exploration Permit No	
*Name	
*Postal Address	
*Email	
*Telephone Number	
*Proposed Work Program	See attached
*Map of Proposed Application Area	See attached

All fields marked with an asterisk (*) are mandatory.

ACKNOWLEDGMENT OF NOTICE To be completed by specified person (i.e. Landholder)	
Landholder Name	
Postal Address	
Email	
Telephone Number	
Signature	
If you are also the Station Manager please tick: ☐	

Please sign and return this page to the applicant within 14 days of receipt

It is important to note that this initial notification does not provide the opportunity to object or make a submission in relation to the proposed grant of the petroleum exploration permit. The objection or submission provision is contained within s18(1) of the *Petroleum Act* and applies after the application has been advertised in NT News, the Koori Mail, on the department's website and in the NT General Gazette.

SECTION B

STATION/LAND MANAGER NOTIFICATION OF APPLICATION FOR THE GRANT OF A PETROLEUM EXPLORATION PERMIT

STATION MANAGER DETAILS	
*Station Manager Name *(If known)*	
*Pastoral Lease Number	
*Pastoral Lease Name	
*NT Portion Number	

APPLICANT DETAILS	
*Exploration Permit No	
*Name	
*Postal Address	
*Email	
*Telephone Number	
*Proposed Work Program	See attached
*Map of Proposed Application Area	See attached

All fields marked with an asterisk (*) are mandatory.

ACKNOWLEDGMENT OF NOTICE To be completed by specified person (i.e. Station Manager)	
Landholder Name	
Postal Address	
Email	
Telephone Number	
Signature	
If you are also the pastoralist/landholder please tick: ☐	

Please sign and return this page to the applicant within 14 days of receipt

It is important to note that this initial notification does not provide the opportunity to object or make a submission in relation to the proposed grant of the petroleum exploration permit. The objection or submission provision is contained within s18(1) of the *Petroleum Act* and applies after the application has been advertised in NT News, the Koori Mail, on the department's website and in the NT General Gazette.

7) Guideline – Bids Receipting and Processing

Acreage Release Process for the Receipting and Registration of Petroleum Exploration Permits Applications

19 July 2016
Version 1.0

NORTHERN TERRITORY GOVERNMENT

Document details	
Document title	Acreage Release Process for the Receipting and Registration of Petroleum Exploration Permit Applications
Contact details	Director Petroleum Tenure Ext 95396
Date and version	19 July 2016 Version 1.0.0
Approved by	Director Petroleum Tenure
Date approved	July 2016
Document review	To be reviewed prior each acreage release

Change history			
Version	**Date**	**Author**	**Change details**

Acronyms The following acronyms are used in this document	
Acronyms	Full form
CSO	Corporate Service Officer
DPIR	Department of Primary Industry and Resources
PAC	Petroleum Assessment Committee
PR	Petroleum Registrar
SPO	Senior Project Officer

Contents

Introduction

The following information outlines the process for receipting and registering of Petroleum Exploration Applications as they relate to an Acreage Release Bid rounds.

All applications received in relation to an Acreage Release are Commercial-in-Confidence.

No announcement on the number of applications received will be advertised. Information remains confidential until the Minister or Delegate signs off on the recommendations. Appropriate measures to maintain the security of the applications and limit general exposure are essential. Applications will be handled on a need to know basis.

Staff required for receipting of applications

- Petroleum Registrar (PR), if unavailable, Senior Project Officer (SPO)
- Corporate Services Officer (CSO) - (DPIR)
- Scrutineer – from an another NTG Agency

Roles

- PR/SPO – Open applications, record, check compliance and receipt fees
- CSO – Assist opening of applications, record, check compliance and confirm receipt information correct.
- Scrutineer – observe process

Process

Prior to, and with the close of an Acreage Release Round, PR/SPO to notify Department of Primary Industry and Resources Records Management Unit that they are:

- aware of the forthcoming Acreage Release round close, noting the 4PM local time submission deadline and submission requirements (refer *Petroleum Opportunities – Northern Territory Acreage Release 20xx Guideline*), and
- arrange for any submissions received to be brought to the PR's attention as they arrive or by no later than by 4PM on the closing date.

Hand deliveries should not be accepted by the Registrar after 4PM on the closing date.

For applications received after 4PM through the mail facilities (i.e. posted in advance of the deadline) contact the Director Petroleum Tenure to discuss appropriate action.

Applications are to remain unopened and kept by the PR in a locked cabinet until the next business day after the closing date.

On the day following the close of an Acreage Release Round
The PR/SPO, CSO and Scrutineer will meet to open applications. As each application is opened a preliminary analysis is undertaken to ensure each application is compliant with s16(3) of the *Petroleum Act* (PA) using the exploration permit application checklist. **Attachment A**

Application Fee
Each application must be submitted with relevant fee, this may be by Bank Cheque, Company Cheque or Credit Card payment. The PR/SPO will issue a receipt for the fee and register the application. **Attachment B**

All cheques/credit card payment details will be hand delivered to the Receiver Territory Monies located at the Charles Darwin Building, Smith Street Mall.

Non compliance
If one component of the application does not comply with the check list, highlight discrepancy for the Petroleum Assessment Committee (PAC) on the closing round summary sheet. **Attachment C**

Photocopy all applications and summary sheet for PAC.

PR (who will provide secretariat role to PAC) will call the first meeting to hand over the applications.

This triggers the PAC assessment process and completes the receipting process.

Attachment A - Checklist

CHECKLIST - PETROLEUM EXPLORATION PERMIT APPLICATION			
		RELEASE AREA	
1. Application			
• Name, Address of applicant, ACN or ARBN	*s16(3)(a)*		
• Designated number of blocks *(not exceeding 200)*	*s16(3)(b)*		
• Map *(supplied by client)*	*s16(3)(c)*		
• Proposed Technical Works Program *(each year of term, check not evaluate)*	*s16(3)(d)*		
• Technical and financial capacity *(check not evaluate)*	*s16(3)(e)*		
• Proposed sharing arrangements *(check not evaluate)*	*s16(3)(f)*		
• Designated operator and technical capacity *(check not evaluate)*	*s16(3)(g)*		
• Application fee ($5 280)	*s16(3)(j)*		
• LandStatus *(Noted)* **ABF**		**NTA**	
2. Comment/s			
3. Forward Application/s to PAC for Assessment		**Date**	

4. Signatures

Petroleum Registrar/Senior Project Officer

Name Signature Date

Corporate Service Officer

Name Signature Date

Scrutineer

Name Signature Date

Attachment B - Receipt

NORTHERN TERRITORY ACREAGE RELEASE – 20XX

ROUND CLOSING – DD MMMM 20XX

RECEIPT

APPLICATION RECEIVED

DATE RECEIVED	TIME RECEIVED	COMPANY	BID FOR AREA/S	PAYMENT REFERENCE
dd/mm/yy	14:40	COMPANY NAME	EPNT14-1 1 package Hand delivered	EFT 11/12/14 Rec # 6812204501
Director Petroleum Tenure / Petroleum Registrar Signature				*Place DPIR date stamp here*

Attachment C - Bid Summary

NORTHERN TERRITORY ACREAGE RELEASE – 20XX

ROUND CLOSING – DD MMMM 20XX

BID SUMMARY

Instructions

1. *The first three columns on the "Applications Received Table" should be filled in by the Petroleum Registrar as applications are received.*
2. *The subsequent two columns on the "Applications Received Table" (shaded grey) and the individual areas tables (below) should be filled in sequentially as applications are opened or as applications are received. Example shown – please delete for each Round.*
3. *The Petroleum Registrar should add additional rows / tables to the electronic version of this form as required.*
4. *Once complete this form should be emailed to Director Petroleum Tenure.*

Applications Received

APPLICATION # (INC # OF ITEMS)	DATE RECEIVED	TIME RECEIVED	COMPANY	BIDS FOR AREA/S	PAYMENT REFERENCE
1 *(Hand delivered)*	10/12/14	15:10	COMPANY NAME	EPNT14-1	EFT 4/12/14 Rec # 6812204505
2 *(Courier)*	12/12/14	11:45	COMPANY NAME	EPNT14-1	Credit Card
3 *(Courier)*	12/12/14	11:45	COMPANY NAME	EPNT14-3	Chq #

8) Guideline – Bids Assessment and Process

Northern Territory Acreage Release Assessment Process for Petroleum Exploration Permits

18 July 2016
Version 1.0

NORTHERN TERRITORY GOVERNMENT

Document details	
Document title	Northern Territory Acreage Release Assessment Process for Petroleum Exploration Permits
Contact details	Director Petroleum Tenure Ext 95396
Date and version	18 July 2016 Version 1.0.0
Approved by	Director Petroleum Tenure & Senior Director Petroleum Technology
Date approved	July 2016
Document review	To be reviewed prior each acreage release

Change history			
Version	**Date**	**Author**	**Change details**

Acronyms The following acronyms are used in this document	
Acronyms	Full form
ALRA	*Aboriginal Land Rights (NT) Act*
DPIR	Department of Primary Industry and Resources
ESD	Ecologically Sustainable Development
NOPTA	National Offshore Petroleum Titles Administrator
NTA	Native Title Act
PAC	Petroleum Assessment Committee
PAB	Petroleum Assessment Board
PR	Petroleum Registrar

Contents

Preamble

As of 1 January 2014, the Petroleum legislation (*Petroleum Act Amended 2014*) provides for multiple Petroleum Exploration Permit Applications over the same block(s) of vacant land via a competitive grant process of advertised block(s) as "open for application" for a specific period of time, generally six months.

A large proportion of the Northern Territory (NT) is granted or under application by petroleum exploration permits. In the near term, this will limit the amount of ground available for release. For this reason, the NT acreage releases will be announced each year, pending availability. Announcement will be at the North American Prospect Expo each February in Houston, Texas or the Australian Petroleum Production & Exploration Association (APPEA) national conference.

For consistency of inter-jurisdictional legislation and policy for petroleum explorers working across Australia, the Department of Primary Industry and Resource's (DPIR) approach to assessment of bids is consistent with those of the National Offshore Petroleum Titles Administrator's (NOPTA) Assessment of Bid and Renewal Applications processes and the Western Australian Department of Mines and Petroleum's Criteria for Assessment of Applications for the Award of Petroleum Exploration Permits and Petroleum Drilling Reservations procedures. Procedures from these jurisdictions are well understood and accepted by Industry and recognised as providing natural justice to applicants for acreage.

The DPIR Petroleum Assessment Committee (PAC) should aim to complete joint assessment of applications and provide a recommendation to the DPIR Petroleum Advisory Board (PAB) within three months (as per Commonwealth protocols) of the closing date of a round.

Principle

To ensure the Petroleum Exploration Permit award process is fair and just, wholly defendable and in the best interest of the NT. The procedure to select the best application must be managed in a timely, consistent and appropriate manner.

Purpose

This document sets out the criteria to be followed for assessing applications lodged under the *Petroleum Act* (the Act) for the award of petroleum exploration permits.

The objective in awarding a petroleum exploration permit is to:

- Award to the company that demonstrates proven technical and financial capacity.
- Select the work program bid that proves up all the petroleum resources and accelerates development of petroleum resources.
- Award to the company that can demonstrate and or has experience delivering exploration activities under the principles of ecologically sustainable development (ESD).
- Award to the company that demonstrates proven ability to undertake a strategy for social licence and community engagement.

All officers involved in the opening of bids and or assessment of bids are reminded the process is strictly confidential. No details of the bids should be conveyed to any other person/s outside the nominated officers involved in the process.

Petroleum Assessment Committee (PAC)

The committee **may** be made up of at least three members and the chair with technical expertise, two administrative members with tenure management expertise.

- Energy Division - Senior Director Petroleum Technology and Operations
- Energy Division - Director Petroleum Tenure
- Energy Division - Petroleum Geologist
- Petroleum Reservoir Engineer
- Energy Division - Petroleum Drilling Engineer
- Energy Division - Petroleum Registrar – will also act as secretariat.
- NTGS - Director Regional Geoscience
- NTGS - Petroleum Data Manager

The Senior Director Petroleum Technology and Operations will chair the process and in the event a vote has no clear majority the Chair will have the deciding vote.

The PAC meetings will be attended by a Scrutineer Officer nominated prior to the bid closing date.

Role:
Provide Technical, Financial and Performance Evaluation:

- Assessment of the proposed work program, exploration strategy, technical expertise and past performance of the bidders
- The PAC may in accordance with s16(5) of the Act seek further information in regards to an application
- The PAC will provide a report to the Petroleum Advisory Board ranking all bid applications in order of merit and nominating the highest ranked applicant
- Scrutineer Officer will observe the processes and provide a brief evaluation report at the completion of the assessment process. Comments may include recommendations for future assessments.

An independent financial assessment may be undertaken by an external party.

Petroleum Advisory Board (PAB)

The board is made up of the following:

- Executive Director of Energy Division
- Executive Director of Geological Survey
- Executive Director of Mines

Role:
- Review PAC recommendations
- Call on members of the PAC to provide explanation of decisions or request further analysis as required

- Provide final recommendation to the Chief Executive DPIR for approval
- Forward final recommendation to the Minister (or delegate) for endorsement.

Other professionals (e.g. Pipeline Engineer, Environmental Scientist) may be asked to be a member of one of the committees to provide specific technical advice. This may also include the services of a private company to assess financial reports provided by an applicant.

Acreage Release Assessment Process

1. *Reviewing Applications Received – Day after Closing*

Prior to the closing date a team will be assigned to manage the opening of bids. The team should consist of:

- Petroleum Registrar or Energy Titles Senior Project Officer
- Budgets or Finance Officer from DPIR or other agency
- Scrutineer Officer, who will oversee the process, preferably from another agency.

Opening of bids will take place the next working day following closing of the acreage release. The Team will register, issue receipt for fees, and verify application validity, copy and forward applications to PAC members.

The PAC will meet once per fortnight following receipt of applications, or more frequently as required, to discuss the progress of application assessments and identify any further information required in regard to the applications.

Upon completion of the assessments by the PAC a combined assessment report will be provided to the PAB ranking all applicants, and nominating the top ranked applicant, for each of the acreage release areas.

The PAB will convene a meeting to review the recommendation of the PAC and either request further information or provide the final recommendation to the Chief Executive DPIR. The Chief Executive will forward final recommendation to the Minister (or delegate) for endorsement.

Following the endorsement of the recommendation by the Minister, the Exploration Permit Application will be offered to the highest ranked applicant by the Director Petroleum Tenure. If the applicant declines the offer it will be made to the next ranked applicant.

Once DPIR receives confirmation of acceptance from the applicant the Minister will be advised and may publically announce the winning bid. At this time the Director Petroleum Tenure may also advise the unsuccessful applicants.

2. *Process of Assessing Applications by PAC*

The composition and timing of the work program proposed in the original application as part of the competitive application process, cannot be supplemented, expanded or amended through clarification or through the interview process.

3. Assessment Criteria

3.1 Criteria

Assessment must be undertaken in-line with the Petroleum Exploration Permit Application and Conditions - "Criteria for Assessment Petroleum Exploration Applications" and the *Petroleum Act*. **(Attachment A)**

Use checklist (**Attachment B**) to assist in ensuring applicant has provided relevant information.

Outcomes of assessments are to be recorded in the Energy Assessment Report/s (EAR) (**Attachment C**).

3.2 Validity of Application

Valid applications must comply with s16(3) of the Act as described in the Exploration Permit Application Guidelines.

Petroleum exploration permits are awarded for a five year term plus the potential for two further renewals of five years each.

3.3 Capacity to Undertake Work

An applicant must demonstrate to the Minister the capacity to undertake the proposed work program, in particular:

- Adequate financial and technical resources
- Ongoing access to resources to meet the proposed work program as well as any other commitments previously entered into in other permit areas
- The future viability of any consortium lodging an application, including evidence that a satisfactory Joint Operating Agreement has or can be reached
- The applicant's past performance meeting approved covenants on other petroleum exploration permits in the NT or elsewhere

The applicant of a petroleum exploration permit is expected to take into account all relevant information pertaining to environmental protection and land status such as Aboriginal Freehold and Native Title, which could affect land access.

3.4 Consideration of Past Performance

DPIR may take into consideration, amongst other things, the applicant's past performance in other petroleum exploration areas in the NT or, if relevant, elsewhere.

This is particularly relevant where one or more of the applicants has participated in a petroleum exploration permit that was cancelled due to not meeting work program commitments.

In the event of consideration being given to prior cancellation and where this would be a significant factor in the decision to offer a permit, the applicant would be given the opportunity to respond in writing within 14 days if they consider that the earlier failure was not relevant to the current situation and that default would not occur in the current application.

The PAC may wish to seek references from other jurisdictions on the performance of an applicant. However, if the reference is controversial the applicant must be given the opportunity for the right of reply.

3.5 Requests for Additional Information

The PAC should identify if any applications require further clarification of information and prepare questions to be sent out to applicants within three weeks of the close of the Round. For example, provision of reasonable evidence of ability to meet field work commitments proposed for the first two permit years. Request for clarification of information in applications should allow two weeks for the provision of information.

The request is to be made in accordance with s16(5) of the Act. (Check the current delegations to verify who has the delegation to request the information).

Where questions are posed to applicants, under no circumstance can the content of the application (in particular the work programs proposed) be varied.

Upon receipt of additional clarifying information, Director Petroleum Tenure is to forward this information to the PAC members within one business day. PAC will consider the additional information provided and incorporate into the Energy Assessment Report (EAR) where relevant.

PAC members will identify which application has the 'greatest merit' (s17(2)) for each area and provide an EAR/recommendation to the PAB for consideration and agreement.

The PAB are required to sign off on the final EAR prior to a recommendation to the Minister is made.

Note: If one applicant is asked to provide further information, all applicants must be provided the same opportunity.

4. Offer to the 'Most Deserving' Applicant

Within two weeks of agreement by the PAB on the EAR and the recommendation to the Minister, the Director Petroleum Tenure is to send a letter to the applicant that has the greatest merit advising the outcome of their application. The letter will seek confirmation that the applicant is willing to continue with their application and is aware of the requirements under ALRA/NTA. Applicant will be required to respond within 14 days of receipt of letter.

If no response is received from the applicant, the offer expires and the next application with the greatest merit may be offered the area - an additional PAB decision may be required.

5. Withdrawal of Application

If an application is withdrawn at any stage in the assessment process, the assessment of the application will cease and this will be documented in the EAR.

6. *Refusal of Non-Compliant Applications*

Applications missing in any aspect of the requirements detailed under s16(3) of the Act are considered non-compliant and should not be assessed.

Letters of refusal for non-compliant applications should be sent to the applicant within two weeks of the PAB formally agreeing to the EAR.

These letters should include a brief reason for the refusal of the application.

7. *Permit Application Awarded*

Once permit applications in the Round are awarded to the successful applicant the Director Petroleum Tenure is to notify the remaining applicant(s) that their application has been unsuccessful.

8. *Media*

Officers should be aware that once an offer has been accepted, companies may be required to make an ASX announcement.

This should be considered when developing media strategies and managing Ministerial expectations.

The Department of Primary Industry and Resources will liaise with the Minister's Office to prepare any media announcements as appropriate regarding the award of an application for a petroleum exploration permit.

9. *Re-Release of Acreage*

Areas that do not receive any applications, or areas that receive applications that are considered 'not to be deserving', may be re-released at the discretion of the Department of Primary Industry and Resources.

Assessment of Re-release applications will be processed along the same format as a release of acreage.

10. *Debrief*

Applicants may request a debrief if they are not successful in their bid.

Letters to unsuccessful applicants should provide sufficient detail for the reasons the application was not successful.

Attachment A Guide for Assessment of Release Area

Applicants are required to provide details of petroleum potential of the release area, including a geological and geophysical review and technical assessment, including concepts underlying the proposed exploration program.

1.1 Work Program

- Proposed technical works program for exploration of the blocks during each year of the term of the proposed permit and must show an accelerated exploration program.
- Proposed work program activities must be stated precisely to avoid ambiguity.
- Work programs are divided into a 'primary' and 'secondary' term.
- The first two-years of a work program are referred to as the primary term. The minimum work requirements must commence and be completed within the end of year two.
- Once awarded, the primary term becomes guaranteed and cannot be reduced. Work activities that cannot be guaranteed should not be included in the primary term.
- Permit years 3, 4 and 5 are referred to as the secondary term. Each year becomes guaranteed upon entry and the minimum work requirements must commence and be completed within the permit year.

An example of a five-year work program should include (but not be limited to) the following:

Year	Activity
1	Geophysical and Geological surveys, Field Geological Surveys, Desktop Geophysical and Geological studies, 2D/3D Seismic Surveys* (should be detailed, e.g. Biochemistry, Geochemistry or standard prospect evaluation etc.)
2	
3	More Geophysical and Geological surveys, data processing and interpretation or drilling of wells*.
4	Drilling one or more wells and Geophysical and Geological studies or surveys.
5	Analysis of data acquired and interpretation of the results to identify prospective areas of the permit for retention, production, renewal or relinquishment, continue further testing, Reservoir and Geological studies

** Depends on the maturity of the basin*

- The proposed work program must be consistent with the exploration strategy and underpinned by the technical evaluation of the release area.
- The proposed work program must be regarded as advancing the exploration effort.
- The early elements of the proposed work program should be sufficient to enable the later elements to proceed and be aligned with the exploration strategy. This includes the need for the number and type of wells to be justifiable and be supported by the number and maturity of plays, prospects and/or leads identified i.e. the work program should be pursuable on a dry hole basis.
- Proposed work program activities should only include work that will be undertaken within the permit area. Any work, studies or reprocessing proposed outside the permit area, must be clearly differentiated.
- Work intended to appraise a known petroleum accumulation in an area may form part of the proposed work program. However, appraisal activities must be clearly differentiated from exploration activities.
- Work associated with a known petroleum accumulation will only be considered as exploration work if the activity is assessed to include a significant exploration component.

- The minimum acceptable work program for an area will vary depending on the size of the area, its perceived prospectivity and its location. At a minimum, it is expected the proposed work program will contain:
  - New activities such as, data acquisition and/or well/s drilling. The type of activities will depend on whether the area is lightly-explored or frontier in nature.
  - Reprocessing and/or geophysical and geological studies to enable a play, lead or prospect to be identified and progressed toward maturing a drillable target.
- Where an area is fully covered by 2D seismic data, reprocessing a majority of this data may form part of the proposed work program and can be undertaken instead of acquiring new seismic data. The reprocessing would normally be expected to be from raw data or the quality controlled traces and to utilise techniques not previously undertaken on seismic data within the permit area.
- It is expected that at least one exploration well will be proposed during the initial five-year permit term for well-explored areas with good data coverage; the well should not be in Year 5.The description of the proposed work program should include:
  - Indicative expenditure in Australian dollars for each activity at current market value.
    - Operational activities: calculations detailing how the cost of the activities has been estimated should be provided.
  - The number of line kilometres of 2D and proposed line spacing and/or square kilometres of 2D seismic data that will be acquired and processed within the permit area, including:
    - Full fold numbers within the permit area.
    - A map showing the indicative location of the 2D lines outline. All existing seismic surveys should be identified on this map.
    - If known, the parameters and methodology of the seismic acquisition and processing that will be undertaken.
  - The amount, type and details of the applicable dataset of any new reprocessing the applicant proposes to undertake, including:
    - The number of line kilometres of 2D seismic data that will be reprocessed within the permit area clearly stated.
    - A map showing the indicative location of the 2D lines survey outline. All existing seismic surveys should be identified on this map.
    - If known, the parameters and methodology of the reprocessing that will be undertaken.
  - The number of exploration wells proposed, including indicative plays and target play levels.
  - The nature, scope and objectives of any studies.
  - The licensing or use of any existing exclusive or non-exclusive datasets and, if applicable, how these are proposed to be used in conjunction with any reprocessing or geophysical studies proposed in the work program.
  - Descriptions and the conceptual locations/targets/purpose of other operational activity or surveying proposed.

1.2 Technical and Financial Capacity

- Evidence of the technical and financial capacity of the applicant/s to carry out the proposed technical works program and to comply with the requirements of the Act.
  - Applicants should list the professional staff proposed to be used in the program, together with a short resume of their past record of proven technical experience.

- Normally, applicants are expected to have at least sufficient net current assets to complete the first two years' program and to provide reasonable assurance that further funds will be forthcoming. If the applicant is a publicly listed company the last issued annual company report or the relevant sections thereof and the last issued quarterly report to the Stock Exchange should be included.
- If the applicant is not a public company, a report should be furnished giving the same information as would be furnished in the annual report of a public company, and in the latest quarterly stock exchange report.

In either case a statement of financial commitments other than those proposed in the application, and any additional source of finance should be included. This statement should include a list of interests in petroleum tenements in other states of Australia.

1.3 Operator

- The name of the designated operator and evidence of the technical capacity of the operator to carry out the proposed technical works program and a single address for service of notices in respect of the application.

1.4 Other Information

- Past performance of the applicant/s.
- Technical evaluation
  - The technical evaluation should summarise the applicant's understanding of the geology and petroleum potential of the release area. It should include the concepts underlying the proposed work program, with sufficient detail to support that program. A sound technical evaluation would include an assessment of relevant data and support the amount of seismic surveying and the number and conceptual targets of wells to be drilled, if applicable.
  - The technical evaluation should include, but is not limited to, a description of:
    - The applicant's assessment of the release area, including potential petroleum systems, and plays within the release area.
    - Any prospects and leads mapped within the release area, including supporting material such as images, interpreted seismic sections and horizon maps.
    - The data and/or studies the technical evaluation is based on.
    - Any geological and geophysical studies, seismic interpretation, mapping or any other work that has been undertaken as part of the technical evaluation.
    - How the applicant proposes to utilise any existing data over the release area, including how this data is to be utilised in the proposed work program.
- Exploration strategy
  - The overall exploration strategy should link the technical evaluation with the proposed work program.
  - Applicants should propose an exploration strategy that has the potential to significantly advance the assessment and understanding of the petroleum potential of the release area. The exploration strategy should support the applicant's technical evaluation of the release area and the proposed work program for the five year permit term.
  - The exploration strategy should explain how the release area will be explored over the permit term, including how the different work program elements will investigate the plays, prospects and leads identified in the technical evaluation of the area.
- Such other information in support of the application as the applicant thinks fit.

An application form is available online at the Department's website. One electronic copy, in a text search supported format and one hard copy is to be submitted. [Appendix C]

Attachment B Check List

Assessment of a Petroleum Exploration Permit Application

This check list aims to assist in assessing an application for an exploration permit. The sections in bold are compulsory components of an application for an exploration permit, as noted under s16(3) of the Petroleum Act.

Where an applicant has not addressed any of the below points, the assessment panel may deem it necessary to request further information from the applicant.

Application Submission

The following should be noted:

- ☐ Application must be lodged by 4pm on the relevant closing date.
- ☐ Two hard copies of the application and supporting data must be lodged, with an **application fee ($5 280)** payable to the "Receiver of Territory Monies" through an Australian bank or by bank cheque, enclosed in an envelope or package. (*Direct Debit or Credit Card are acceptable forms of payment*.)
- ☐ Application must be sealed and clearly marked as "*Application for Area...Commercial-in-Confidence*"
- ☐ Envelope or package should be enclosed in a plain covering envelope or package and delivered by hand or posted to the relevant jurisdiction
- ☐ It is the responsibility of the applicant to confirm receipt.

Application Content

Technical assessment of the petroleum potential of area
Technical Assessment

- ☐ Applicant has indicated which data or information it has based its technical evaluation on.
- ☐ Applicant has demonstrated an understanding of the potential petroleum systems and plays likely to be present within the release area.
- ☐ Applicant has described any geotechnical studies, seismic interpretation, mapping or any other work it has undertaken as part of pre-bid evaluation, and provided descriptions of any prospects or leads identified.
- ☐ Exploration strategy and the work program proposed for the 5 year permit term is consistent with the applicant's technical assessment.

Minimum guaranteed work program (Years 1 through to 5)

- ☐ **Applicant's proposals for work and expenditure in relation to the block(s) specified in the application – s16(3)(d)**
- ☐ Applicant proposes new seismic surveying and exploration drilling.
- ☐ Applicant has precisely stated the number of km/km² of 2D/3D seismic acquisition or reprocessing to be undertaken within the release area.
- ☐ Applicant has not included work that is not guaranteed – that is - "contingent" work.
- ☐ Where an exploration well is proposed during the guaranteed term, and has not identified a drillable prospect as part of its pre-bid evaluation, the applicant proposes new seismic surveying that has the potential to mature a drillable target for that well.
- ☐ Applicant has included substantial operational activities that will significantly advance the knowledge of the petroleum potential of the area.
- ☐ Applicant has included at least one exploration well during the five year permit term.

Particulars of applicant:

Technical Details

- ☐ **Technical qualifications of the applicants - s16(3)(e)**
- ☐ **Technical advice available to the applicant**
  - ☐ If applicant intends to manage the work program through the use of "in-house" expertise, it should provide details of the "in-house" expertise available and the relevant experience of its key employees.
  - ☐ If applicant intends to manage its work program through the use of consultants, it should list the consultants it proposes to use and provide evidence of their availability to undertake the work.

Financial Details

- ☐ **The financial resources available to the applicant – s16(3)(e)**
  - ☐ Applicant has included its available financial resources indicating its ability to fund the work program proposed, which should include a statement of other exploration commitments over the next 5 years, a copy of the latest annual and quarterly reports for each applicant company and supporting documentation.
  - ☐ An applicant's financial capacity may be considered in place if confirmed funding sufficient to finance the proposed work program is evidenced.
  - ☐ An applicant's financial capacity may be considered prospective if some combination of confirmed and future funding is required to finance the proposed work program.

☐ Confirmed Funding – may be established by evidence of:

- bank deposits held
- loan/finance arrangements in place
- parent company or other guarantees
- net worth (net assets less exploration assets)
- forecast cash flows.

☐ Future Funding –may be established by evidence of:

- a track record of the successful promotion of exploration projects
- a proven ability to attract 'farm in' partners
- a proven ability to raise capital through private or public means
- letter of confidence from a capital raising entity.

☐ Where relevant, evidence of the viability of the consortium lodging the application, including evidence that a satisfactory settlement has been, or can be, reached on the Energy Operating Agreement.

☐ Percentage interest of each party to the application.

Past Performance

☐ Past performance of the applicant companies over previous five years in Australian offshore waters, onshore, or in any other jurisdiction.

☐ Applicant has provided details of any direct relationship that a Director of the company has had with a company that has defaulted over the previous five years.

Other information

☐ Other information as applicant wishes to be considered or taken into account

Commercial-in-Confidence

ENERGY ASSESSMENT REPORT
APPLICATION FOR PETROLEUM EXPLORATION ACREAGE RELEASE

EPNTXX-X

NORTHERN TERRITORY ACREAGE RELEASE 20XX

ROUND CLOSING – DD MONTH 20XX

NORTHERN TERRITORY DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES

MONTH 20XX

3 acreage release assessment process pub-final 18-7-2016

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EXECUTIVE SUMMARY

OVERVIEW

On [day] [month] 20xx, applications were invited for exploration permits within the (identify basin) in the Northern Territory. Applications for areas closed on [day] [month] 20xx.

APPLICATIONS

A total of xx applications were received for xx areas – summary as follows:

RELEASE AREA	NUMBER OF APPLICATIONS/COMPANY NAMES

Instructions: List ALL areas on offer so the record of bidding is complete

Clarifying information was sought for the following applications:

COMPANY	APPLICATION FOR RELEASE AREA	COMMENT
		Was information provided; interview required etc

SUMMARY OF BIDS RECEIVED

Release Area: _____

	Company X		Company Y	
	Exploration Program	Value (AU$)	Exploration Program	Value (AU$)
Y1				
Y2				
Y3				
Y4				
Y5				
	____ REPORTS & ____ USB / CD		____ REPORTS & ____ USB / CD	

RECOMMENDATIONS

It is recommended that offers be approved by the Petroleum Advisory Board to the following applicants based on the work programs proposed (summary on page X):

- The recommended applicant for Release Area xx is xx
- The recommended applicant for Release Area xx is xx

I have considered the analysis undertaken by the Petroleum Assessment Committee and endorse the above recommendation.

NAME
Executive Director Energy
Department of Primary Industry and Resources

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RELEASE AREA xx

APPLICANT	COMPANY XX	100%	COMPANY XX	100%
	Minimum Guaranteed Work Program	Indicative Expenditure A$	Minimum Guaranteed Work Program	Indicative Expenditure A$
Year 1				
Year 2				
Year 3				
Year 4				
Year 5				
Total 5 Year Work Program				

	COMPANY XX	100%	COMPANY XX	100%
Technical Comments				
Technical Expertise				
Past Performance				
Financial Resources:				
Evidence of JOA				
Conclusions				

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9) Guideline – Stakeholder Engagement

Stakeholder Engagement Guidelines Land Access

Background

The Northern Territory Government acknowledges that the pastoral industry has played an enduring role in the development of the Northern Territory and is critical to the continuing stewardship of the Northern Territory's natural resource estate. The government also acknowledges that the mineral and energy industries have been important factors in the development of the Northern Territory economy and have potential to make significant contributions in future.

Both the pastoral industry and the minerals and energy industries depend on access to land in order to encourage investment and deliver outcomes for families, investors and the Northern Territory economy.

The government has therefore negotiated with the Northern Territory Cattlemen's Association (NTCA), and representatives of the minerals and energy exploration industries, to reach agreement on a series of principles under which mineral and energy companies may obtain access to pastoral land for exploration.

These principles are based on mutual understanding of the mutual needs of the parties and take into account the need for collaborative approaches in order to deliver positive outcomes at local, regional and Northern Territory-wide levels.

The agreed mechanism through which explorers may gain access to pastoral land, through agreement, shall be given effect by the Department of Primary Industry and Resources (DPIR), and the process shall be displayed prominently on the department's website.

Recently the DPIR has introduced a number of changes to the assessment procedures of exploration applications that provide opportunities for effective stakeholder engagement between the explorer and the pastoralist before the grant of tenure. This is in addition to the engagement required before the commencement of activity.

These changes trigger a number of early opportunities to commence conversations and gain a better knowledge of what may be planned by the explorer, and to discuss appropriate shared land use arrangements, enabling respective activities to take place without undue inconvenience or disruption to the pastoralists.

The process for stakeholder engagement for mineral tenure applications varies slightly to that for energy tenure, as each is subject to different legislation requirements. In each case, it will be important for the mineral or energy explorer to demonstrate to the department that it has reached agreement with the landholder prior to commencement of activity.

Therefore access requirements and agreements could vary from a "hand shake type of agreement" to a more documented agreement. The department has committed to ensure that a form of agreement is reached to ensure that land use and access requirements are clearly understood and agreed to by both parties.

Energy

Petroleum Exploration Permits can only be applied for under the land release regime.

Stakeholder engagement between the explorer and the pastoralist is to commence as soon as possible once an explorer has been notified that they are the preferred applicant following the land release assessment process.

Steps to the grant of a petroleum exploration application are as follows:

1. Land Release – Applications assessed
2. Advertising successful bid application in the NT Gazette, NT News, Koori Mail (where applicable) and on the DPIR website; notification/objection period commences.
3. *Native Title Act* or *Aboriginal Land Rights (NT) Act* process
4. Permit Grant
5. Exploration Activity
6. Agreement Process

Refer to flow diagram: Petroleum Exploration – Landholder Two Way Communication Consultation Process

1. Land Release

The Government, in consultation with stakeholders will determine an area for petroleum exploration. The selected vacant areas will be released through advertising in relevant publications.

DPIR will send letters to stakeholders and the Landholder/Manager notifying them of the release of a vacant area and providing details of the application process.

2. Selection of Applicant

Applications for the land released area will be assessed and successful/unsuccessful applicants notified. Within 14 days of accepting the offer, the successful applicant must notify the Landholder/Manager that it has been selected and is proceeding through the application process.

3. Application Process

DPIR advertises the successful application in the NT News, NT Gazette, Koori Mail and on the DPIR Website.

After the relevant notification period, applications proceed through the relevant *Native Title Act* or *Aboriginal Land Rights (NT) Act* negotiation process.

The applicant will regularly update the Landholder/Manager on progress throughout the application process.

4. Permit Grant

On the successful completion of application processes, DPIR issues grant of permit to applicant, notifies the grant in the NT Gazette and publishes it on the DPIR Website.

On acceptance of the grant, the permittee is required to notify the Landholder/Manager and DPIR posts generic grant conditions on its website.

5. Exploration Activity

Reconnaissance Activities

The Permittee must provide at least 14 days' notice to the Landholder/Manager before undertaking any aerial work.

The Permittee must also provide 14 days' notice to the Landholder/Manager before first commencing any reconnaissance activities. Reconnaissance activities are surveys, inspections and other activities that do not involve any disturbance to the land or vegetation and are undertaken before the commencement of an exploration program.

Permittee must also keep the Landholder/Manager informed about the nature and anticipated timing of reconnaissance activities.

Exploration Program

An exploration program is a group of activities (other than reconnaissance activities) requiring approval by the DPIR (such as seismic survey or drilling program). The Permittee cannot commence an exploration program until an Environment Plan has been assessed and approved by DPIR.

The Permittee and Landholder/Manager are required to reach an agreement prior to the commencement of an exploration program. DPIR does not need to be provided with a copy of the agreement but needs to be provided evidence of its existence before granting approvals for the exploration program.

This could take the form of a letter signed by both parties confirming that an agreement has been finalised governing access to a specified area for the purposes of conducting one or more petroleum exploration programs over a specified period of time.

Evidence of a current agreement must be provided to DPIR with each program approval application.

Once an application program is approved, the Permittee must provide at least 14 days' notice to the Landholder/Manager before commencing the exploration program.

6. Agreement Process

The Permittee and Landholder/Manager have 60 days to reach a land access agreement and associated conditions. The 60 day period commences from the date that the Permittee sends a notice of intention to commence negotiations to reach an access agreement to the Landholder/Manager.

In the event that an agreement cannot be reached within 60 days, either party may refer negotiations to the Arbitration Panel to make a determination over conditions of access. By agreement, parties can commence arbitration before the expiry of the initial 60 day negotiation period.

The Arbitration Panel will comprise the Chief Executives of the Departments of Primary Industry and Resources, Department of Environment and Natural Resources, and Department of Infrastructure, Planning and Logistics and experienced industry representatives. It will have up to 21 days to make its recommendations.

Once an access agreement has been reached, either by mutual consent of the Permittee and Landholder/Manager or through a determination by the Arbitration Panel, an exploration program may be approved if it has met all other requirements. The Permittee can then commence the exploration program after providing 14 days' notice to the Landholder/Manager.

If either party (Permittee or Landholder/Manager) does not agree with the determination of the Arbitration Panel they retain the right to seek further review through the judicial system. However, this does not affect the approval that has been granted as a result of the arbitration determination or the right of the operator to commence activity.

The following links can lead you to the current guidelines, forms, information referred in the above and other information that might be useful resources to read.

Guidelines, Forms and Related Information (Energy)

- Land Access Agreement Flowchart
- Land Access Agreements Notification of Application Form

For further information, please contact:

Energy Titles Unit

Telephone: 08 8999 5263
Facsimile: 08 8999 5191
Email: energy.permits@nt.gov.au
GPO Box 4550, Darwin NT 0801

10) Guideline – Energy Fees

ENERGY TITLES & FEES

Monetary value of a Revenue Unit at 1 Jul 2016 is $1.15 *Refer to the relevant Regulations for the prescribed revenue units*	***Petroleum Act***	***Petroleum (Submerged Lands) Act***	***Geothermal Energy Act***	***Energy Pipelines Act***
• **APPLICATION FEES**		Coastal Waters - 3NM		
Exploration Permit/Pipeline Permit	$5,280	$4,927	$5,000	$4,600
Retention Licence/Lease	$3,967	$1,642	$10,000	n.a.
Production Licence/Lease	$2,627	$1,642	$50,000	n.a.
Pipeline Licence	n.a.	$4,927	n.a.	$4,600
Access Authority	$875	n.a.	n.a.	n.a.
Special Prospecting Authority	n.a.	$985	n.a.	n.a.
Renewal - *Exploration Permit*	$2,080	$1,642	$5,000	n.a.
Renewal - *Retention Licence/Lease*	$2,080	$1,642	$10,000	n.a.
Renewal - *Production Licence/Lease*	$2,627	$1,642	n.a.	n.a.
Renewal - *Pipeline Licence*	n.a.	n.a.	n.a.	$1,642
Variation, Suspension, Extension - *Exploration Permit*	$875	n.a.	$200	n.a.
Variation, Suspension, Extension - *Retention Licence/Lease*	$875	n.a.	$200	n.a.
Variation, Suspension, Extension - *Production Licence/Lease*	$875	n.a.	$200	n.a.
Variation - *Pipeline Licence*	n.a.	$985	n.a.	$1,611
Surrender - *Exploration Permit/Licence*	$875	n.a.	n.a.	n.a.
• **RENT / ANNUAL FEES** *(GST exempt)*				
Exploration Permit [per block]	$92	$84 / $1,500 minimum fee	$20 1st Renewal $40.00/2nd Renewal $80	n.a.
Retention Licence/Lease [per block]	$10,827	$12,075	$200	n.a.
Production Licence/Lease [per block]	$13,225	$18,000	$2 010	n.a.
Pipeline Licence	n.a.	$120 per kilometre	n.a.	$537 Minimum Fee/Refer to Formula **
• **REGISTRATION FEES**				
Transfer of Title	$1,313	1.5% or $985 minimum fee	$750	$196
Transfer of Title – *Related Corporations*	n.a.	$4,927	$750	$196
Approval of Dealing *[that creates or assigns an interest in a title]*	$765	1.5% or $985 minimum fee	*Caveat* - $100	$196
Devolution of Title *[devolved by operation of law]*	$65	$97	$250	$40
• **MISCELLANEOUS FEES**				
An inspection of register and other instruments	$21	$21	$15	$6
A copy / extract of register or other instrument (per page)	$6	$5.75	$5	$18
A certificate issued by the Registrar	$37	$32	n.a.	$96
Information in or accompanying an application (S 61(2))	$65	n.a.	n.a.	n.a.
Change of Name	n.a.	$97	n.a.	n.a.

**Formula is *A = B * C * D [A is the fee payable, B is the unit amount prescribed* by Regulation (currently 90 cents), *C is the average internal pipeline diameter expressed in metres, D is the pipeline length expressed in metres].*

NORTHERN TERRITORY GOVERNMENT

11) Guideline – Well Drilling, Work-over or Stimulation Application Assessment Process

Guideline - Well Drilling, Workover or Stimulation Application Assessment Process

Applicable Legislation: *NT Petroleum Act 2016*, NT Schedule of Onshore Petroleum Exploration and Production Requirements 2016 and Petroleum (Environment) Regulations 2016.

No.	STEP	REQUIREMENTS	ACTION BY
1.	Operator submits application **(Project Application) to** drill/workover/stimulate **NOTE:** 1. All applications are categorised as either Project Applications or Operational Applications. 2. All application letters must make direct reference to the applicable legislation, quoting appropriate clauses and signed by the custodian of the project. 3. Allow maximum of 30 days for processing of a Project Application 4. Operators are expected to provide **at least 5 days' notice** of an impending Operational Application. 5. *** Can be included in the Environmental Management Plan (EMP).** 6. **+ Minimum** written evidence of AAPA consultation and inspection of register of sacred sites. Additional CLC or NLC certificates are **also required.**	A. The application letter must be signed by the custodian of the project. B. The application needs to include: i. Drilling/Workover/Stimulation Program ii. Environment Management Plan (EMP) iii. Safety Management Plan iv. Insurance Certificate(s) v. Oil Spill Contingency Plan vi. Emergency Response Plan vii. Well Control Manual viii. Organisational Chart – Chain of Command, Roles/Responsibilities ix. Bushfire Management Plan* x. Erosion and Sediment Control Plan* xi. Weed Management Plan* xii. Dust Management Plan* xiii. Traffic Management Plan* xiv. Biodiversity Management Plan* xv. Waste Management Plan* xvi. Baseline Water Study xvii. MSDS for release to website xviii. Environmental Rehabilitation Security Bond Calculation form xix. Letters from Stakeholders xviii. Cultural Clearances+ C. Before Approval: • Payment of Environmental Rehabilitation Security. D. After Approval: • Environmental Management Plan Summary to be submitted within 7 days of approval granted. **Note:** Please send all documents to: petroleum.operations@nt.gov.au	Operator
2.	**Send EMP Guidelines and Operational Checklists to Operator.**	Operator provided with EMP and Operational Checklists.	DPIR
3.	Review of Application.	Email requesting comments.	DPIR

No.	STEP	REQUIREMENTS	ACTION BY
4.	Request input from other NT Government Agencies like NT EPA or DENR or DIPL etc.	Email requesting comments.	DPIR
5.	Track Application assessment progress and review responses from other Agencies.	Track new versions using Work-In-Progress (W.I.P) tracker and refer responses back to the Operator as required.	DPIR in consultation with other NT Government Agencies.
6.	Prepare an Application Assessment Report.	Focussing on assessment and review of the application submission package, i.e. Program/Plans/Certificates.	DPIR
7.	Environmental Rehabilitation Security Bond estimated and agreed to be deposited.	Suitable security confirmed in place.	Operator/DPIR
8.	Prepare Project Approval Letter for Senior Director Petroleum Technology and Operations to review and sign-off.	Approval letter to be addressed to the custodian of the project.	DPIR
9.	**Operator notified of approval and reminded to submit EMP Summary within 7 days.**	Approval letter sent and W.I.P tracker updated accordingly.	DPIR
10.	Well Integrity Compliance Checks and Drilling/Workover/Stimulation Progress Monitoring.	Set up new Well Integrity Compliance spreadsheets for the well.	DPIR
11.	Drilling/Workover/Stimulation Project Commences and EMP Summary sent within 7 days.	Well Spudded. Dissemination of daily reports, e.g. DDR, DGR, Logs etc.	Operator
12.	Operator submits application **[Operational Application(s)]** for approval while drilling/workover/stimulation progresses, e.g. Side-track, DST, P&A or Suspension. **Note**: *Steps 12-14 apply only in the event that **Operational Approval** is required after the Project Approval has been issued and project has commenced.*	a. Letter of application signed by the custodian of the project. **b. Work program must include current and final (after operational activity) schematics.** c. New EMP (& Summary) or possible addendum or bridging document may be required. d. Other updated documents as required.	Operator
13.	Assessment of the operational activity application.	Assessment to focus on well integrity and safety of operations.	DPIR
14.	Prepare Letter of Approval to carry out the operational activity for Senior Director Petroleum Technology and Operations to review and sign-off.	Approval Letter to be addressed to the custodian of the project.	DPIR

No.	STEP	REQUIREMENTS	ACTION BY
15.	Drilling/Workover/Stimulation project completed.	Update Petroleum Data spreadsheets with well information and data.	DPIR
16.	Site clean-up and demobilisation of drilling rig/workover/stimulation equipment.	Complete site clean-up and demobilisation of all buildings, vehicles & equipment.	Operator
17.	Monitor Environmental Rehabilitation progress.	Ensure environment is rehabilitated as per the approved EMP.	Operator/DPIR
18.	Periodic Reporting of Environmental Rehabilitation to DPIR	Reports required for monitoring environment rehabilitation progress.	Operator
19.	Submission of Close-out Environmental Rehabilitation Report submitted to DPIR	Final confirmation that rehabilitation has been completed in accordance with the approved EMP.	3rd Party /Operator/DPIR
20.	Assessment of Environmental Rehabilitation Report and follow through Environmental Close-out process.	Assessment of final environment rehabilitation report before release of Environmental Rehabilitation Security Bond.	DPIR
21.	Release of Environmental Rehabilitation Security Bond.	Security deposit released on acceptance that environment rehabilitation was undertaken as per the approved EMP.	DPIR
22.	Submission of Well Completion/Workover/Stimulation Report and Data sets.	Well Completion Report/Workover/Stimulation and Data sets to be submitted to DPIR.	Custodian of the Project/Operator

Correspondence

All correspondence concerning project or operational applications (letters, supporting documents etc.) **should be in electronic format only**, and be sent by email to:

SENIOR DIRECTOR PETROLEUM TECHNOLOGY AND OPERATIONS
Attention: Senior Petroleum Engineers

at: petroleum.operations@nt.gov.au

ADDITIONAL GUIDING INFORMATION

- Checklists and guidelines for various petroleum activities are available on the Department of Primary Industry and Resources' website at: https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/petroleum-operations-forms-and-guidelines
- Contact the **Petroleum Operations Team** on petroleum.operations@nt.gov.au for further information.

12) Guideline – Well Drilling, Work-over or Stimulation Activities Applications

Guideline - Well Drilling, Workover or Stimulation Activities Applications

The Department of Primary Industry and Resources (DPIR) categorizes applications for activities involving drilling or workover rigs as either Project Applications or Operational Applications.

Project Applications – occur where approval is required to **commence** (and then carry out) an entire project for which an approval has **not** already been granted.

Examples of projects requiring an application for approval:

- Entering a site to drill a new well
- Re-entering and working over an existing well
- Re-entering a well to carry out any particular activity

Operational Applications * – occur where approval is required to carry out a particular activity within a project which **has already commenced**; that is, an activity where Project Approval has already been granted. Operational activities are those leading to a specific change to the wellbore geometry and so for this reason, are activities that go outside the already approved work program.

Examples of well activities requiring an application for approval:

- Any activity that goes outside an already approved work program
- Side tracking a well
- Well suspension (guidelines available on website, refer to link in Additional Guiding Information below)
- Well decommissioning (plug & abandonment)
- Well completion
- Flow testing a well

* **Note:**

Project Applications are assessed before the drilling rig commences operations whereas Operational Applications are assessed whilst the rig is in operation.

Given the high cost of rig day rates, this can place considerable demands on all human resources. For this reason, it is the responsibility of operators to draw to the Regulator's attention, notice of any impending operation **as soon as it becomes a possibility.** To avoid rig delays, operators are strongly encouraged to submit draft applications earlier than the 5 day assessment timeframe.

1. Project Applications

Allow a minimum of 30 days for assessment

Depending on the type of project, the following documentation is or may be required as part of the assessment process of a Project Application:

- A letter of application that makes specific reference to Clause(s) under which the activity requires approval, and is signed by the custodian of the project.
- Drilling, Workover or Stimulation Program ^
- Environment Management Plan (see below) ^
- Safety Management Plan ^
- Insurance Certificate(s)
- Oil Spill Contingency Plan ^
- Emergency Response Plan ^
- Well Control Manual^
- Organisational Chart – Chain of Command, Roles/Responsibilities
- Bushfire Management Plan ^
- Erosion and Sediment Control Plan ^
- Weed Management Plan ^
- Dust Management Plan ^
- Traffic Management Plan ^
- Biodiversity Management Plan ^
- Waste Management Plan ^
- Baseline Water Study (particularly for Stimulation Projects) ^
- MSDSs for lodgement on DPIR's Website
- Completed Environmental Rehabilitation Security Calculation Form
- Letters to stakeholders
- Copies of Cultural Clearances+

Unless addressed within the Environment Management Plan, separate documents to be submitted also include: Bushfire Management Plan, Erosion and Sediment Control Plan, Weed Management Plan, Dust Management Plan, Traffic Management Plan, Biodiversity Management Plan, Waste Management Plan

^ **Should be identified by a document number and current version number and be dated and signed off by the custodian of the project.**

\+ **Minimum** written evidence of AAPA consultation and inspection of register of sacred sites. Additional CLC or NLC certificates are **also required**.

Before Final Approval is granted:

- Payment of the Environment Rehabilitation Security is required.

After Final Approval is granted:

- Environment Management Plan Summary for lodgement on DPIR's Website should be submitted within 7 days of approval granted.

Note:	OPERATIONS ARE NOT TO COMMENCE UNTIL ALL REQUIRED APPROVALS FROM DPIR AND OTHER APPROVING AUTHORITIES HAVE BEEN OBTAINED

2. Operational Applications

Allow a minimum of 5 days for assessment. HOWEVER, SIGNIFICANT CHANGES COULD REQUIRE SUBSTANTIALLY LONGER TO ASSESS

- The letter of application should make specific reference to Clause(s) under which the activity requires approval, and be signed by the custodian of the project.

- The application letter should be supported by:

  - Work Program proposed to be carried out - including current well schematic. The version of the work program should be stated and the document should have been dated and signed off by the responsible parties
  - any bridging documents or addendums to the project Environmental Plan or other originally submitted document, that may be pertinent
  - The proposed final well schematic.

3. Correspondence

All correspondence concerning project or operational applications (letters, supporting documents etc.) **should be in electronic format only**, and be sent by email to:

SENIOR DIRECTOR PETROLEUM TECHNOLOGY AND OPERATIONS
Attention: Senior Petroleum Engineers

at: petroleum.operations@nt.gov.au

ADDITIONAL GUIDING INFORMATION

- Checklists and guidelines for various petroleum activities are available on the Department of Primary Industry and Resources' website at: https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/petroleum-operations-forms-and-guidelines

- Contact the **Petroleum Operations Team** on petroleum.operations@nt.gov.au for further information.

13) Guideline – Environmental Management Plan Requirements

Guideline – Environment Management Plan (EMP) Requirements

EMP Submission and Format

The EMP should be submitted in electronic format to: petroleum.operations@nt.gov.au

Generally:

The EMP should:

- Have a version number or document reference for the EMP
- Contain a document revision history
- Include project proponent details
- A document distribution list for the EMP.

The EMP should contain at least the following sections:*

- Corporate Environment Policy
- Environmental Legislation and other requirements
- Project Activity Description
- Environment Description
- Environment Risks and Impacts Description and Assessment.
- Performance Objectives, Standards and Measurement Criteria
- Implementation Strategy
- Reporting
- Consultation

* *Other subjects that the applicant feels would assist the department in assessing the EMP may be included*

Section Contents:

1. Corporate Environment Policy

This section should:

- Contain the Operator's Corporate Environment Policy.
- Commit the operator to reducing the environment impacts and risks.
- Set environmental objectives and targets.
- Identify those responsible for implementing environment corporate policy.
- Be approved by someone from the Senior Management Team.

2. Environment Legislation and other requirements

This section should:

- Identify all the relevant legislation.
- Identify all relevant agreements.
- Identify all relevant codes of practice.

3. Project Activity Description

This section should contain:

- The proposed project operations relevant to the environment e.g. drilling, seismic, well testing, land clearing etc.
- An exact location of the proposed activity. i.e. legible maps of appropriate size and scale.
- General details of: support facilities/plant and equipment etc. with supporting maps, facility layouts, specifications, etc.
- Technical specifications relevant to the interaction of the activity with the environment: e.g. drilling rig specifications, seismic vehicles etc.
- Contractors and support companies; number of personnel etc.
- Proposed timetables for the expected commencement date of the project e.g. spud date etc and major activities within the project execution timeframe.

4. Environment Description

This section should:

- Describe the:
  - Existing natural physical environment including geography, geology, climate, hydrogeology, hydrology, soils etc.
  - Existing natural biological environment including bioregions, flora and fauna, birds, fishes, reptiles, mammals, feral animals etc.
  - Cultural environment including Indigenous, European and others.
  - Current socio-economic environment including habitational, recreational and commercial and tourism.
- Include the key values and sensitive aspects of the environment; whether within, or immediately close to, the project activity:
  - Sacred and Cultural Heritage sites
  - Protected areas/Conservation Areas
  - Rare or endangered flora and fauna
  - Areas of significant habitat
  - Fire regime

5. Environment Risks and Impacts, Description and Assessment

This section should contain:

- The Risk Assessment Methodology, including:
  - details of scoping process employed to identify impacts and risks
  - any hazard identification workshops conducted
  - definition of consequence as moderate to catastrophic
  - Summarization of risk assessment results in a table/matrix format.
- Identification, description and assessment of the environmental impacts and risks, (rising directly or indirectly from the activity) and their significance. For example:
  - Noise
  - Soil disturbances
  - Alteration of/disruption to local traffic
  - Fuel, oil or chemical spills
  - Overflow of drill cuttings or drilling mud
  - Reduced water quality. (A baseline water quality assessment may be required.)
  - Impacts on flora and fauna
  - Displacement of recreational users/other stakeholders
  - Introduction of noxious weeds, exotic flora, vermin and animal diseases
- The evaluated impacts and risks (likelihood and consequence), including:
  - Risk treatments
  - Determination of likelihood based on known frequency, available industry data or a statistical review
  - Determination of consequence based on specific ecological values, physical or social parameters or sensitivity of the area
  - Consequence rating that relates directly to reportable incident requirements
  - Use of industry models if relevant to quantify risks including model verification and validation

Note: Quantitative or qualitative measures should be used in assessment of environmental risks and impacts and a precautionary approach should be applied to evaluation of the environmental risks.

6. Performance Objectives, Standards and Measurement Criteria

This section should contain:

- The environment performance objectives. These objectives should relate to the identification and assessment of the environmental impacts and risks, e.g. minimize impacts on environment from chemical spills etc. The objectives should also be detailed enough to link to the impacts and risks.
- Environment performance standards. i.e. Compliance with company procedures and Industry codes of practice and government regulations.
- Measurement criteria that:
  - addresses the legislative and other controls that manage the environmental features of the activity. e.g. capacity to measure all spills, surface discharges etc.
  - relates to the performance objectives and standards
  - allows performance to be measured, e.g. Inspections, Audits etc.
  - enables whether an activity is meeting its environmental objectives and standards

7. Implementation Strategy

This section should list how the operator will address each environmental concern and should contain:

- Operation systems, practices and procedures that:
  - will be utilized to ensure that environmental impacts and risks are reduced to an agreed and acceptable level; and
  - are specific to the environmental performance objectives and standards.
- Establishment of a clear chain of command including roles and responsibilities of personnel for the implementation, management and review of the EMP, which includes permit holder, operator and contractors.

Additional issues to be addressed include:

  - Who is responsible for induction trainings?
  - Who is responsible for monitoring discharges?
  - Who is responsible for reporting?
  - Who keeps the records of all incidents?
  - Who is responsible for auditing? etc.
- Measures to ensure that employees and contractors are made aware of their responsibilities and have appropriate competencies and trainings. There should be plans in place for additional training for appropriate skills and support for ongoing training.
- Planned monitoring, audit, management of non-conformance and review of environmental performance. For example:
  - monitoring can be spot checks, daily meetings, regular inspections etc.
  - internal and external audits
  - method of handling and investigating non-conformance including arrangements for tracking and closing out of non-conformances.
- Specific reference to an appropriate Emergency Response Plan as well as an Oil Spill Plan that the operator has in place.
- A recording system that maintains quantitative records of emissions and discharges to the environment which can be monitored and audited against the performance standards and measurement criteria.

  This includes:

  - Induction records
  - Wastes records
  - Emissions and discharges records
  - Hazardous goods manifests
  - Non-compliance and corrective action records
  - Internal audits and inspection records
  - Equipment maintenance records
  - Integrity checks records

8. Reporting

This section should contain:

- Arrangements for the Routine Reporting about the activity that is carried out. The reporting arrangements must be appropriate and adequate in relation to the size and nature of the activity.

  Example of reports:

  - Daily or weekly status reports
  - Monthly records of emissions and discharges for longer term projects
  - Annual reports for longer term projects (summary and analysis of incidents, trends in emissions and discharges, summary and analysis of non-conformances, summary and analysis of complaints, results of research or ongoing monitoring programs, technical improvements, consultation undertaken, trends in waste usage and generation, trends in chemical usage).
  - Close out reports for short term or intermittent projects submitted 3 months after completion of work (results of audits, summary of incidents, complaints, non-conformances, emissions and discharges, results of emergency response exercises, rehabilitation)
  - Incident Reporting arrangements including appropriate reporting bodies and timeframes for reporting.

9. Consultation

This section should contain:

- A consultation report which includes:
  - List of all relevant stakeholders consulted
  - Name and tile of persons consulted
  - Issues discussed and whether the parties were provided with factual information relevant to the activity
  - Specific concerns and interests raised during the consultations, actions taken to address them and current status of this matter (i.e. resolved/pending/not resolved, how? why?)
- Processes and arrangements for ongoing consultation with relevant stakeholders throughout the life of the project including:
  - What, how, how often and to whom information will be disseminated?
  - Avenue for stakeholders to communicate concerns, queries, feedback
  - Copies of all stakeholder approved certificates.

ADDITIONAL GUIDING INFORMATION

- Checklists and guidelines for various petroleum activities are available on the Department of Primary Industry and Resources' website at: https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/petroleum-operations-forms-and-guidelines
- Link to the Petroleum (Environment) Regulations: https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/about-petroleum-activities
- Contact the **Petroleum Operations Team** on petroleum.operations@nt.gov.au for further information.

14) Checklist – Environmental Management Plan Assessment

Checklist – Environment Management Plan (EMP) Assessment

Assessors:	
Assessment Date:	
EMP Title:	
Operator Name: *(Permit Holder/Registered Operator)* **Address:** **Contact:**	
Type of Activity:	Civil Works - Access Roads, Wellpad ☐ Drilling Operations ☐ G&G Survey Operations ☐ Well Testing ☐ Well Re-entry /Workover/Re-completion ☐ Well Stimulation (incl. Hydraulic Fracturing) ☐ Field Development ☐ Construction of Production Facilities ☐ Well Decommissioning (Plug & Abandonment) ☐ Decommissioning of Production Facilities ☐ Other ☐

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
i) Is the initial and final submission of the EMP in electronic form?		
ii) Does the EMP have a version number and date on it?		

1. CORPORATE ENVIRONMENT MANAGEMENT POLICY

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
1.1 Does the EMP include the operator's corporate environment policy?		
1.2 Does the policy recognise commitment to reducing environment impacts and risks?		
1.3 Does the policy provide the setting of environment objectives and targets?		
1.4 Is the policy approved by the senior management?		
1.5 Does the policy identify person/s responsible for implementing environment policy?		

2. ENVIRONMENT LEGISLATION AND OTHER REQUIREMENTS

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
2.1 Does the EMP identify all relevant legislation that must be complied with? ***Commonwealth Legislation*** Aboriginal Land Rights (Northern Territory) Act 1976 Australian Heritage Council Act 2003 National Environment Protection Council Act 1994 Native Title Act 1993, as amended Environmental Protection and Biodiversity Conservation Act 1999 ***Northern Territory Legislation*** Aboriginal Land Act 2013 Biological Control Act 2011 Bushfires Act 2014 Control of Roads Act 2015 Dangerous Goods (Road and Rail Transport) Act 2012 Energy Pipelines Act 2015 Environmental Assessment Act 2013 Environmental Offences and Penalties Act 2011 Fire and Emergency Act 2015 Heritage Act 2015 Northern Territory Aboriginal Sacred Sites Act 2013 Petroleum Act 2015 Petroleum (Prospecting & Mining) Act 2001 Plant Health Act 2015 Public and Environmental Health Act 2015 Public Health (General Sanitation, Mosquito Prevention, Rat Exclusion and Prevention) Regulations 1988 Schedule of Onshore Petroleum Exploration & Production Requirements 2016 (under the Petroleum Act 2016) Soil Conservation & Land Utilisation Act 2013 Territory Parks and Wildlife Act 2011 Waste Management and Pollution Control Act 2014 Water Act 2013 Weeds Management Act 2013		

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
2.2 Does the EMP identify all relevant international agreements?		
2.3 Does the EMP include specific legislative requirements and how the operator will address each?		
2.4 Does the EMP, as a whole, meet the legislative requirements?		
2.5 For longer term projects (e.g. >1 yr.), does the EMP have a monitoring system to ensure changes in environmental legislation are met? • Rely on consultant • Regular contact with regulator		
2.6 Have any codes of practice been mentioned?		

3. DESCRIPTION OF AN ACTIVITY

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
3.1 Does the EMP contain an exact location of the proposed activity? • Legible map and/or description outlining basin, coordinates, permit etc • Legible map and/or description relevant to nearby environment sensitive areas Note: The map must be of an appropriate size and scale		
3.2 Does the activity cross boundaries with other permits? • Have access authorities been applied for and obtained?		
3.3 Are the general details of any support facilities or other contractors specified? • Name and description • Name and description of support and supply vessels incl. helicopters • Specs of all facilities • Map Layout of facilities • Number of rig personnel • Names of contractors and subcontractors outlined • Vehicles, Equipment, Machineries to be used at the drilling site etc.		

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
3.4 What is the estimated quantity of water to be used and where is the source? • Have groundwater salinities (ppm) been provided? • Will independent Groundwater Monitoring be taking place? • Frequency of testing?		**Does it include monitoring before, during and after?**
3.5 Does the EMP outline how ALL waste (accommodation & operational) will be disposed? • Disposal Method • Disposal Site/Condition. Is there are *Waster Management Plan* in place?		**For Produced Fluids:** • **Does the EMP state the end delivery point for all fluids:** ○ **Oil** ○ **Gas** ○ **Water** ○ **Fraccing Fluids** ○ **Drilling Mud & Brine** ○ **Accommodation wastes & water**
3.6 Does the EMP outline the proposed operations of the activity relevant to the environment? • Surface area of operations • Borrow pits • Production testing if drilling • Pipe works for the operations • Use of machineries for preparing survey lines. • Construction of Water Bores if applicable.		
3.7 Does the EMP contain the proposed timetables? • Commencement and completion dates/estimated weather down time/estimated equipment failure time etc.		

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
3.8 Has EMP been sent to DIPL? Send to: dev.TIPD@nt.gov.au 3.9 Approval given by DIPL for access point(s)? 3.10. Does program include any work to be undertaken on a road reserve? Has DIPL granted approval? 3.11 Traffic Management Plan in place? 3.12 For seismic surveys, does the EMP contain procedures for road crossings?		
3.13 Are the following plans in place to cover for the activity? *(where applicable).* • Erosion and Sediment Control Plan (ESCP). This should include additional details about rehabilitation measure and timings that are consistent with the Department of Environment and Natural Resources (DENR) guidelines. • Weed Management Plan consistent with DENR guidelines. • Dust Management Plan • Traffic Management Plan, which outlines measures for all works that affect the safety and efficiency of public roads. • Biodiversity Management Plan which provides adequate protection or relocation of threatened flora or fauna and is endorsed by DENR. • Waste Management Plan. • Fire Management Plan ***Note:*** *The above plans can be covered by risk management measures or HSE systems, standards and policies the operator has.*		

4. DESCRIPTION OF THE ENVIRONMENT

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
4.1 Does the EMP describe the: • Natural physical environment including geography, geology, climate, • Fire Regime • Natural biological environment including flora and fauna, (invertebrates, birds, reptiles, mammals). • Cultural environment including indigenous, European and others • Socio-economic environment including recreational and commercial and tourism.		
4.2 Are key values and sensitive aspects of the environment identified whether within or immediately adjacent to activity: • Sacred/Cultural heritage sites • Protected areas • Protected/rare/endangered flora and fauna • Areas of significant habitat		

5. DESCRIPTION AND ASSESSMENT OF ENVIRONMENTAL RISKS AND IMPACTS

QUESTIONS	Y/N/NA	COMMENTS and EMP Sections
5.1 Does the EMP identify the risk assessment methodology, including • Details of scoping process employed to identify impacts and risks • Hazard identification workshop • Define consequence as moderate to catastrophic. Note: relevant for reportable incidents		
5.2 Does the EMP identify and describe the environmental impacts and risks and their significance arising directly or indirectly from the activity? • Noise • Soil disturbances • Disruption to local traffic • Fuel, Oil, Chemical Spills • Overflow of drill cuttings or mud. • Overflow of evaporation ponds in case of significant rainfall event. Require heightened ponds of storage tanks? • All waste, accommodation & operational		
5.3 Does the EMP identify and assess the environmental impacts and risks in relation to the environment? • Reduced water quality. • Impacts on fauna • Death of fauna • Displacement of other users/ other stakeholders • Introduction of noxious weeds, exotic flora, vermin and animal diseases.		

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
5.4 Does the EMP identify and assess the environmental impacts and risks associated with ***Hydraulic Fracturing Operations***? • Reduced Water quality (requires salinities (ppm) of known aquifers). • Aquifer contamination. • Fracture propagation into overlying aquifer. • Leakage to aquifer from loss of well integrity. • Excessive usage of groundwater. • Seismicity & Pressure Monitoring • Cease – triggers to prevent exceeding allowable surface and down-hole pressures • Radioactivity • Handling and Disposal of Produced and Flowback fluids		**Required in EMP to cover Hydraulic Fracturing Operations:** • *Details of Baseline Water Assessment of known Water/Aquifer Systems.* • *Ongoing Monitoring Plans – (Before, During and After).* • *Disclosure of MSDSs or List of Chemicals to be used.* • *Details of Water Source and Usage.* • *Fracture Propagation Model.* • *Final Well Completion Schematic including details of Well Design and Construction.* • *Procedures for safe handling and disposal of produced and flowback fluids.*
5.5 Does the EMP evaluate impacts and risks (likelihood and consequence), including • Risk treatments • Is determination of likelihood been based on known frequency, available industry data or a statistical review? • Is determination of consequence based on specific ecological values, physical or social parameters, sensitivity of the area? • Consequence rating relates directly to reportable incident requirements – these meet DA expectations? • Use of industry standard models to quantify risk including model verification and validation e.g. oil spill modelling etc.		

6. PERFORMANCE OBJECTIVES, STANDARDS AND MEASUREMENT CRITERIA

QUESTIONS	Y/N/NA	COMMENTS and EMP Sections
6.1 Does the EMP contain environmental performance objectives? • Do they relate to the identification and assessment of environmental impacts and risks e.g. minimize impacts on environment from routine discharges • Are the objectives detailed enough to link to the risks?		
6.2 Does the EMP contain environmental performance standards? • Compliance with company procedures • Compliance with Industry codes of practice		
6.3 Does the EMP contain measurement criteria? • Capacity to measure all spills/ discharges etc.		
6.4 Does the measurement criteria: • relate to the performance objectives and standards • allow performance to be measured • enable whether an activity is meeting its environmental objectives and standards		

7. IMPLEMENTATION STRATEGY

QUESTIONS	Y/N/NA	COMMENTS and EMP Sections
7.1 Does the Implementation Strategy (IS) include operational systems, practices and procedures to ensure that environmental impacts and risks are reduced to an agreed and acceptable level? • Is it specific to the environmental performance objectives and standards?		
7.2 Does the IS establish a clear chain of command including roles and responsibilities of personnel for the implementation, management and review of the EMP? (Permit holder, Operator, Contractor) • Who is responsible for induction training? • Who is responsible for monitoring discharges? • Who is responsible for reporting? • Who holds the records • Who is responsible for auditing? • Who has authority to make decisions about these issues?		
7.3 Does the IS include measures to ensure that employees and contractors are aware of their EMP related responsibilities and have appropriate competencies and training? • Is additional training required to provide appropriate skills? • Is ongoing training required		

QUESTIONS	Y/N/NA	COMMENTS and EMP Sections
7.4 Does the IS provide for the monitoring, audit, management of non-conformance and review of environment performance? • Monitoring can include spot checks, daily meetings, regular inspections etc. • Monitoring methodology described e.g. type of equipment, inspection regime, calibration technique and laboratory comparison if required • Internal and external audits • Method for handling and investigating non-conformances including arrangements for the tracking and close out of non-conformances		
7.5 Does the IS make reference to an appropriate Oil Spill Plan and Emergency Response Plan/Manual? • Are the contact details correct? • Has an exercise been conducted within last 12 months		
7.6 Does the IS maintain quantitative records of emissions and discharges to the environment which can be monitored and audited against the performance standards and measurement criteria? • Induction records • Waste records • Emissions and discharges • Hazardous good manifests • Non compliances and corrective actions records • Internal audits and inspections records • Equipment maintenance records • Integrity records		

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
7.7 Other • Has world's best practice been adopted? • Is continuous improvement encouraged? • Does the EMP define and measure environmental risk?		

8. REPORTING ARRANGEMENTS

QUESTIONS	Y/N/NA	COMMENTS and EMP Sections
8.1 Does the EMP include arrangements for routine reporting about the activity? • Daily/weekly status reports • Monthly records of emissions and discharges for longer term projects • Annual reports for longer term projects (summary and analysis of incidents, trends in emissions and discharges, summary and analysis of non-conformances, summary and analysis of complaints, results of research or ongoing monitoring programs, technical improvements, consultation undertaken, trends in waste usage and generation, trends in chemical usage) • Close out reports for short term or intermittent projects submitted 3 months after completion of work (results of audits, summary of incidents, complaints, non-conformances, emissions and discharges, results of emergency response exercises, rehabilitation) **NOTE:** The reporting arrangements must be appropriate and adequate in relation to the size and nature of the activity.		

QUESTIONS	Y/N/NA	COMMENTS and EMP Section
8.2 Does the EMP include incident reporting arrangements? • Reporting bodies identified • Reporting timeframes		

9. CONSULTATION

QUESTIONS	Y/N/NA	COMMENTS and EMP Sections
9.1 Does the EMP contain a consultation report? • List all relevant stakeholders • Name and title of position for persons contacted • Issues discussed and whether they were provided with factual information relevant to the activity • Concerns and interests raised during the consultations • Actions taken to address concerns		
9.2 Does the EMP include processes for ongoing consultation with relevant stakeholders throughout the life of the project? • What, how, how often and to whom information will be disseminated? • Avenue for stakeholders to communicate concerns, queries, feedback		

10. REHABILITATION STRATEGY

QUESTIONS	Y/N/NA	COMMENTS and EMP Sections

10.1.Does the EMP include a rehabilitation strategy?
• Rehabilitation timeline?
• Submission of initial and progress reports?
10.2.Site Conditioning
• Assisted natural regeneration?
• Respreading of topsoil and vegetative matter?
• Seeding?
• Collection of local seeds during vegetation clearance?
• Advice and assistance from local landcare groups?
• Similarity to surrounding environment.
• Removal of all infrastructure?
  ○ Prior approval to leave infrastructure on site from pastoral lands board
• Sites of interest?
  ○ Hydrocarbon impacted sites
  ○ Mud sump locations
  ○ Kitchen/camp locations
  ○ Sites of spills
  ○ Flare pits
  ○ Roads
  ○ Water wells
• Weed Management
• Erosion Management
• Rehabilitation to include landholder consultation/engagement		

11. BEFORE APPROVAL

QUESTIONS	Y/N/NA	COMMENTS
Has Operator been alerted of expectation to carry out the following? • **Water Management** Plans for regular testing of local water bores prior, during and after the project. • **Chemical Disclosure** *(especially for Hydraulic Fracturing Projects)* Provide list of chemicals to be used to be used. These are to be made available for public record on NT DPIR's website. • **Waste Management** Plans for all waste disposal to be recorded and submitted to the NT DPIR's • **Environment Rehabilitation Security Bond** Submission of security bond calculation that covers all the rehabilitation management areas. After acceptance of the bond calculation by NT DPIR, final evidence of payment is required to be submitted to NT DPIR.		

12. AFTER APPROVAL

QUESTIONS	Y/N/NA	COMMENTS
Has Operator been alerted of expectation to carry out the following? • Within one week of obtaining operational approval, an EMP Summary has to be submitted to be made available for public viewing on NT DPIR's website together with the approved EMP. • Disclosure of Chemicals used as per DPIR's Factsheet.		

SUMMARY ASSESSMENT COMMENTS:

1. FIRST ASSESSMENT			
Assessor's Name:		Date:	
Assessor's Signature:			
2. SECOND ASSESSMENT			
Assessor's Name:		Date:	
Assessor's Signature:			
3. THIRD ASSESSMENT			
Assessor's Name:		Date:	
Assessor's Signature:			

15) Checklist – Well Drilling Program Assessment

Checklist - Well Drilling Program Assessment

Operator Name:		Well Name:	
Permit:		Date:	
Type of Drilling:		Well Status:	

Note: *Items with * are applicable for wells within NT coastal waters (3 nm limit).*

No.	Key Items to Check	Please tick (✓) or cross (X) the check boxes accordingly	Comments
1.	Is the Drilling Program assigned a Document or Version number?	☐	
2.	Is there a Distribution List in the Drilling Program?	☐	
3.	Is Drilling Program Signed?	☐	
4.	Drilling Program Basis **** Does the program include a statement claiming all operations and equipment will comply with:*** • ***Minimum API or equivalent standards and company's safety management systems?*** • ***Part II, Division 1 of NT Schedule of Onshore Petroleum Exploration and Production Requirement 2016?***	☐	**Not recommended for approval if response is "NO"**
5.	Relevant Documents Identified.	☐	
6.	**Well Summary/General Data/Well Card**		
	• Well Type	☐	

No.	Key Items to Check	Please tick (✓) or cross (X) the check boxes accordingly	Comments
	• Geographical Location	☐	
	• Block Number	☐	
	• Joint Venturers	☐	
	• Basin	☐	
	• Surface Coordinates	☐	
	• Subsurface Target Tolerance	☐	
	• Surface Location Tolerance	☐	
	• Tide Datum i.e. msl or LAT *	☐	
	• Rig Name	☐	
	• Rig Contractor	☐	
	• Planned Spud Date	☐	

No.	Key Items to Check	Please tick (✓) or cross (X) the check boxes accordingly	Comments
	• Well Schematic *(Current)* **** Does program include a schematic of well cross section to include corresponding lithology with depth, thickness, ppm of aquifers clearly marked?***	☐	**Not recommended for approval if response is "NO"**
	• Well Schematic *(Proposed)* **** Does program include a schematic of well cross section to include corresponding lithology with depth, thickness, ppm of aquifers clearly marked?***	☐	**Not recommended for approval if response is "NO"**
	• RT Elevation, Drilling/Elevation Datum	☐	
	• Water Depth (msl) m*	☐	
	• Proposed Total Depth (TD)	☐	
	• Estimated Drilling Time (days)	☐	
	• Formation Objectives	☐	
	• Depth of Objectives	☐	
	• Offset Wells	☐	
	• Anticipated Costs	☐	

No.	Key Items to Check	Please tick (✓) or cross (X) the check boxes accordingly	Comments
7.	Rig Move Mobilisation	☐	
8.	Prospect Summary	☐	
9.	Previous Exploration Summary	☐	
10.	Geological Summary/Geological Information/ Geological Prognosis.	☐	
11.	Planned Drilling Summary/Sequence of Operations.	☐	
12.	Well Location Maps	☐	
13.	Permit Maps	☐	
14.	**Geological/Production/Drilling Objectives**		
	• Safety and Environmental	☐	
	• Geological and Reservoir	☐	
	• Drilling Engineering	☐	
	• Economical	☐	

No.	Key Items to Check	Please tick (✓) or cross (X) the check boxes accordingly	Comments
15.	Expected Geological Structures	☐	
16.	Predicted Lithological Section	☐	
17.	Shallow Gas Potential	☐	
18.	Anticipated Hydrocarbons Potential with poisonous gases i.e. CO_2 and H_2S.	☐	
19.	Proposed Evaluation Program	☐	
20.	Drilling Safety Considerations	☐	
21.	Drilling and Safety Documentation	☐	
22.	Drilling Procedures ** Clear, sequential and Acceptable?*	☐	*If NO, please comment.*

No.	Key Items to Check	Please tick (✓) or cross (X) the check boxes accordingly	Comments
23.	**Well Design Information**		
	• Cementing Program ** Does the program include cement to surface for all casing strings?*	☐	Not recommended for approval if response is "NO"
	• Wellhead System & Equipment	☐	
	• Pore Pressure Gradient	☐	
	• Fracture Gradient	☐	
	• Key Offset Wells	☐	
	• Temperature Gradient	☐	
	• Lost Circulation	☐	
	• Casing Seat Selection	☐	
	• Casing Design Safety Factors	☐	
	• Contingent Liner	☐	
	• Leak Off Test & FIT ** For non-Production Casing.*	☐	Not recommended for approval if response is "NO"

No.	Key Items to Check	Please tick (✓) or cross (X) the check boxes accordingly	Comments
	• Kick Tolerance Identified	☐	
	• Surveying Program	☐	
	• Drilling Data i.e. ROP, WOB, RPM, Flow, Pressure, Mud Weight In/Out, BOP Pressure Rating etc.	☐	
24.	Potential Drilling Hazards	☐	
25.	Real Time Logging Requirements	☐	
26.	**Mud Logging and Sampling**		
	• Cuttings	☐	
	• Bit Cutting Samples (note where they should be sent).	☐	

No.	Key Items to Check	Please tick (√) or cross (X) the check boxes accordingly	Comments
	• Palynological Sampling i.e. Geochemical Analysis, Fluid Samples, Core Samples, Sample Dispatch from Wellsite/LWD, LWD Program, Wireline Electric Logs etc.	☐	
	• Mud Logging	☐	
27.	Coring	☐	
28.	Wireline Logging	☐	
29.	Production Testing	☐	
30.	**Drilling Circulating System**		
	• Rig Mud Pump	☐	
	• Bits and Bit Hydraulics	☐	
	• Deviation Requirements	☐	
	• Bottom Hole Assemblies	☐	
	• Suggested Stabilisers and BHA Requirements	☐	

No.	Key Items to Check	Please tick (✓) or cross (X) the check boxes accordingly	Comments
31.	**Drilling Fluid Type**		
	• Fluid Properties	☐	
32.	Casing Program including Pressure Testing Schedule for Non-Production Casing	☐	
33.	Well Integrity Validation *(Production Casing)* **** Is validation method of production casing cementation explicitly stated? By Logging or pressure?***	☐	**Not recommended for approval if response is "NO"**
34.	**BOP Systems and Safety**		
	• Rotating Head Surface Diverter Diagram	☐	

No.	Key Items to Check	Please tick (√) or cross (X) the check boxes accordingly	Comments
	• BOP Wellhead Diagram	☐	
	• BOP Requirements	☐	
	• Reference made to a Well Control Manual?	☐	
	• Kick Drills	☐	
	• Casing Test Pressures	☐	
	• Well Control Procedures	☐	
35.	**BOP Operating Guidelines**		
	• BOP Inspection and Actuation	☐	
	• Training and Drills, Competency **** Is there mention that the operator will meet the minimum requirements of Clause 313 of the NT Schedule of Onshore Petroleum Exploration and Production Requirement 2016?***	☐	
	• BOP Records Requirements	☐	

No.	Key Items to Check	Please tick (✓) or cross (X) the check boxes accordingly	Comments
	• BOP Maintenance Requirements	☐	
	• Shut-In Procedure Drilling and Tripping	☐	
36.	Drilling Rig/Equipment Specifications	☐	
37.	Prognosed Time-Depth Curve	☐	
38.	Environmental Management	☐	
39.	Workplace Health & Safety	☐	
40.	Logistics Information	☐	
41.	Reporting Arrangements ** As per the NT Schedule of Onshore Petroleum Exploration and Production Requirement 2016).*	☐ ☐	• *Part II, Division 4* • *Part III, Division 2*
42.	Does the program contain triggers seeking the following Operational Approvals? • *Side Tracking?* • *Flaring?** • *Testing?* • *Suspension or P & A*	☐	Not recommended for approval if response is "NO" ** For air drilling*

No.	Key Items to Check	Please tick (√) or cross (X) the check boxes accordingly	Comments
43.	**Organisational Chart**		
	• Chain of Command • Roles/Responsibilities		
44.	**Contact List**		
	• Operator	☐	
	• Contractors/Service Companies	☐	
45.	**NT Schedule of Onshore Petroleum Exploration and Production Requirement 2016**		
	• Overall, the drilling program satisfies and covers Part III, Division 1, Clauses 301 to 332 for Drilling, Well Re-entry and Workover Operations.	☐	
	• Overall, the drilling program satisfies and covers Part II, Division 2, Clauses 271 to 283 for Air and Gas Drilling.	☐	

Summary Assessment Comments:

FIRST ASSESSMENT			
Assessor:		**Date:**	..... /..... / 20.....
Assessor's Signature:			
SECOND ASSESSMENT			
Assessor:		**Date:**	..... /..... / 20.....
Assessor's Signature:			
FINAL ASSESSMENT			
Assessor:		**Date:**	..... /..... / 20.....
Assessor's Signature:			

16) Checklist – Well Work-over and Stimulation Program Assessment

Checklist - Well Workover and Stimulation Program Assessment

Operator Name:		**Well Name:**	
Permit:		**Date:**	
Type of Activity:		**Well Status:**	

Note: *Items with * are applicable for wells within NT coastal waters (3 nm limit).*

No.	Key Items to Check	Please tick (✓) or cross (✗) the check boxes accordingly	Comments
1.	Is the Workover/Stimulation Program assigned a Document or Version number?	☐	
2.	Is there a Distribution List in the Workover/Stimulation Program?	☐	
3.	Is Workover/Stimulation Program Signed?	☐	
4.	Workover/Stimulation Program Basis ***Does the program include a statement claiming all operations and equipment will comply with:*** • ***Minimum API or equivalent standards and company's safety management systems?*** • ***Part II, Division 1 of NT Schedule of Onshore Petroleum Exploration and Production Requirement 2016?***	☐	**Not recommended for approval if response is "No"**
5.	Relevant Documents Identified	☐	
6.	Relevant SOPs Identified	☐	

No.	Key Items to Check	Please tick (✓) or cross (✗) the check boxes accordingly	Comments
7.	Appropriate Legislations, Regulations, Code of Practices etc. mentioned?	☐	
8.	Cost Code & Purchase Orders	☐	
9.	**Well Data Summary**		
	• Well Type	☐	
	• Well Location Map	☐	
	• Block Number	☐	
	• Joint Venturers/Partners	☐	
	• Basin	☐	
	• Surface Coordinates	☐	
	• Tide Datum i.e. msl or LAT *	☐	
	• Workover Rig Name	☐	
	• Workover/Stimulation Contractor	☐	

No.	Key Items to Check	Please tick (✓) or cross (✗) the check boxes accordingly	Comments
	• Planned Date to Start	☐	
	• Current Well Details	☐	
	• Current Well Schematic Schematic of well cross section to include corresponding lithology with depth, thickness, ppm of aquifers clearly marked.	☐	**Not recommended for approval if response is "No"**
	• Proposed Well Details Schematic of well cross section to include corresponding lithology with depth thickness, ppm of aquifers clearly marked.	☐	**Not recommended for approval if response is "No"**
	• Wellhead and Christmas Tree Details	☐	
	• Existing Perforations	☐	
	• Gun/Charge Specifications	☐	
	• Completion Mechanical Properties	☐	
	• RT Elevation	☐	
	• Water Depth (msl) m*	☐	
	• Proposed Total Depth (TD)	☐	

No.	Key Items to Check	Please tick (✓) or cross (✗) the check boxes accordingly	Comments
	• Estimated Workover Duration (days)	☐	
	• Anticipated Costs	☐	
10.	**Stimulation/Hydraulic Fracturing Operations**		
	• List of MSDS to be uploaded to NT DPIR's website.	☐	
	• Hydraulic Fracturing Stages and Intervals included with Schematic.	☐	
	• Source of Water	☐	
	• Water Studies	☐	**Not recommended for approval if response is "No"**
	• Water Monitoring	☐	
	• Used Water Disposal Procedures	☐	**Is waste water to be trucked out? Provide name of Waste Water contractor and final delivery point.**
	• Pumped Volume of Fluid anc Chemicals	☐	**Reminder to send post-operational Chemical Disclosure Report as per DPIR's Factsheet.**
	• Estimated Return Volume of Fluid.	☐	
	• Information on Potable Water, i.e. depth to aquifer.	☐	

No.	Key Items to Check	Please tick (✓) or cross (✗) the check boxes accordingly	Comments
	• **Provide a well-labelled schematic showing minimum distance between the High Leak-Off case zone (Maximum Fracture Propagation) and lowest potable water aquifer.**	☐	**Not recommended for approval if response is "No"**
11.	Workover Rig/Stimulation Equipment Mobilisation Details	☐	
12.	Workover/Stimulation Results Summary	☐	
13.	Previous Workover/Stimulation Summary	☐	
14.	Workover/Stimulation Safety Considerations	☐	
15.	Workover/Stimulation Procedures (*Clear and Acceptable*?)	☐	If ***No***, please comment:
16.	Completion/Stimulation Procedures (*Clear and Acceptable*?)	☐	If ***No***, please comment:
	Completion String/Stimulation Equipment Diagram	☐	

No.	Key Items to Check	Please tick (✓) or cross (✗) the check boxes accordingly	Comments
	Proposed Downhole Schematic after Workover/Stimulation	☐	
17.	**Workover Kill/Stimulation Fluid**		
	• Type of Fluid	☐	
	• Calculations	☐	
18.	Well Assumptions Status	☐	**When was the integrity of the production casing validated?**
19.	Potential Workover/Stimulation Hazards.	☐	
20.	Materials List	☐	
21.	Well Deviation Data	☐	
22.	Proposed New Perforation Interval	☐	
23.	**BOP Operating Guidelines**		
	• BOP Inspection and Actuation	☐	

No.	Key Items to Check	Please tick (✓) or cross (✗) the check boxes accordingly	Comments
	• Training and Drills/Competency **** Is there mention that the operator will meet the minimum requirements of Clause 313 of the NT Schedule of Onshore Petroleum Exploration and Production Requirement 2016?***	☐	
	• BOP Records Requirements	☐	
	• BOP Maintenance Requirements	☐	
	• Shut-In Procedure Drilling and Tripping	☐	
24.	Workover Rig/Stimulation Equipment Specification	☐	
25.	Schematic of Workover Operations Layout at the wellsite	☐	
26.	Environmental Management	☐	
27.	Workplace Health & Safety	☐	
28.	Risk Assessment **Has the integrity of the production casing been validated?**	☐	**Not recommended for approval if response is "No"**

No.	Key Items to Check	Please tick (✓) or cross (✗) the check boxes accordingly	Comments
29.	**Organisational Chart**		
	• Chain of Command • Roles/Responsibilities		
30.	**Contact List**		
	• Operator	☐	
	• Contractors or Service Companies	☐	
31.	Reporting Arrangements ***(As per the NT Schedule of Onshore Petroleum Exploration and Production Requirement 2016).***	☐ ☐	• ***Part II, Division 4*** • ***Part III, Division 2***
32.	**Does the program contain triggers seeking the following Operational Approvals?** • *Side Tracking?* • *Flaring?** • *Testing?* • *Suspension or P & A*	☐	**Not recommended for approval if response is "No"** * ***For air drilling***
33.	**NT Schedule of Onshore Petroleum Exploration and Production Requirement 2016**		
	• Overall, the Workover and/or Stimulation Program satisfies and covers Part III, Division 1, Clauses 301 to 332 for Drilling and Workover.	☐	

Summary Assessment Comments:

FIRST ASSESSMENT			
Assessor:		Date:	..... /..... / 20.....
Assessor's Signature:			
SECOND ASSESSMENT			
Assessor:		Date:	..... /..... / 20.....
Assessor's Signature:			
FINAL ASSESSMENT			
Assessor:		Date:	..... /..... / 20.....
Assessor's Signature:			

17) Guideline – Incident Reporting Requirements for Operators

Guideline – Incident Reporting Requirements for Operators

Purpose

This guideline aims to provide transparency and clarity in relation to the reporting of reportable and recordable incidents. The guideline applies to all titleholders and operators that are authorised by DPIR to carry out petroleum activities in the Northern Territory.

Guideline

DEFINITIONS

- **All reporting is required to "the Minister" which** means via delegation to a member of DPIR's Energy Division, preferably a member of the Petroleum Operations Team (**AFTER HOURS EMERGENCY PHONE: 1 300 935 250**)

- The Petroleum (Environment) Regulations 2016 define **Reportable** Incidents and **Recordable** Incidents as follows:

    - **Reportable Incident** means an incident arising from a regulated activity that has caused or has the potential to cause material environmental harm or serious environmental harm

    - **Recordable incident** means an incident arising from a regulated activity:

        (a) that:

            (i) has resulted in an environmental impact or environmental risk not specified in the current plan for the activity; or

            (ii) has resulted in a contravention of an environmental performance standard specified in the current plan for the activity; or

            (iii) is inconsistent with an environmental outcome specified in the current plan for the activity; and

        (b) is **not** a reportable incident.

REPORTABLE INCIDENTS

Reportable Incidents – sequence of reporting

Regulations 33 and 34 of the Petroleum (Environment) Regulations 2016 provide the regulatory requirements for the reporting of Reportable incidents

1. **First Notice** of a reportable incident, provided either orally or in writing, must be provided **not less than 2 hours** after the operator has first become aware of the reportable incident

2. If First Notice of the reportable incident was **provided orally**, then **not later than 24 hours** after, the operator will provide a **written notice** about the reportable incident

3. **An Initial Written Report** will be provided as soon as practicable but not later than 3 days after the reportable incident was first reported.

4. **Interim Reports** may be required at the Minister's request

5. **A Final Report** must be provided as soon as practicable but no later than 30 days after the clean up or rehabilitation of the affected area is completed.

Reportable Incidents – content of reports

All First Notice reports, both oral and written, must provide **all known details** at the time of making the report but, at minimum are to include:

(i) The contact details of the operator or interest holder

(ii) All material facts and circumstances about the reportable incident that the interest holder knows or is able, by reasonable search or enquiry, to find out

(iii) Information about any action taken to avoid or mitigate material environmental harm or serious environmental harm in relation to the reportable incident

(iv) Information about the corrective action that has been taken, or is proposed to be taken, to prevent a similar reportable incident.

All Initial and Interim Written Reports must provide **all known details** at the time of making the report including comprehensive details on the following:

1. An update or confirmation of all details provided in the First Notice Reports

2. The results of any assessment or investigation of the conditions or circumstances that caused or contributed to the occurrence of the reportable incident, including an assessment of the effectiveness of the designs, equipment, procedures and management systems that were in place to prevent the occurrence of an incident of that nature

3. The nature and extent of the material environmental harm or serious environmental harm that the incident caused or had the potential to cause

4. Any actions taken, or proposed to be taken, to clean up or rehabilitate an area affected by the incident

5. Any actions taken, or proposed to be taken, to prevent a recurrence of an incident of a similar nature.

All Final Reports must provide **all known details** at the time of making the report including comprehensive details on the following:

1. An update or confirmation of **all details provided in any previous report**

2. People: an account of persons involved, personnel records, roster, history of previous 3 days, personality, stress, physical condition, training and ability, supervision, alertness, communication, team work

3. Environment: a description of the lighting, weather conditions, contaminants, noise, vibration, acceleration, radiation, work surface, electrical, pressure, wildlife

4. Equipment: a description and review of the design, construction, testing, calibration, inspection, maintenance, modification, wear and tear, life cycle, fit-for-purpose

5. Procedures: a description and review of procedures being used, appropriate content, easy to understand, readily available, training on, reviewed and tested, version control

6. Organisation: a description and review of the organisational culture, training program, visible support, available resources, systems monitoring, feedback and improvement

7. Timeline: A list of the sequence of events before and subsequent to the incident including events up to this final report

8. Key Findings: a list and analysis of all key findings including all contributing factors and key learnings

9. Action Plan: an account of the future remedial action plan including recommended actions, responsible person and due dates

10. References: a list of all references used in the drafting of the final report including but not limited to: procedures, past incidents, interview statements, training evidence, risk assessment and risk management, plant inspections and maintenance, photographic evidence, Investigation notes and correspondence, reporting to any other government agencies and stakeholders

11. Report Sign-off: signatory acceptance of Findings and Action Plan by key officers representing all involved parties to the incident

12. **Note: The final report must include a root cause analysis of the reportable incident.**

RECORDABLE INCIDENTS

Regulation 35 of the Petroleum (Environment) Regulations 2016 provides the regulatory requirements for the reporting of Recordable incidents.

Related legislation

- Regulations 33 – 35 of the Petroleum (Environment) Regulations 2016
- Part II, Division 4, Clauses 284 – 290 of the NT Schedule of Onshore Petroleum Exploration and Production Requirements 2016

Further information

- Checklists and guidelines for various petroleum activities are available on the Department of Primary Industry and Resources' website at: https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/petroleum-operations-forms-and-guidelines
- Contact the Petroleum Operations Team on petroleum.operations@nt.gov.au for further information
- Emergency contacts:
    - Business hours phone Senior Director: 08 8999 6567 or [redacted]
    - After hours: 1 300 935 250

18) Checklists – ED Site Inspections for Drilling; Environment; Fracturing; Well Testing

Checklist - Well Drilling Operations Inspection

Well Name: _____ **Permit:** _____

Project: _____ **Operator:** _____

Rig Contractor: _____ **Rig Name:** _____

Date: _____ **Days on Location:** _____

Well Spud Date: _____

Current Operations:

_____
_____
_____
_____
_____

Planned Next 24 hours Operations:

_____
_____
_____
_____
_____

Any Prior Incidents/Follow-up

_____
_____
_____
_____
_____

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
1.Rig Safety			
Report on Independent Rig Certification? Deficiencies addressed?			
BOP System			
BOP Testing Schedule			
BOP Maintenance & Spares			
Well Control Procedures/Manual			Clear instructions displayed on rig floor?
Well Control Certificates of Key Personnel – Rig Superintendent , Company Man, Drillers, Assistant Drillers etc.			
Drills i.e. Kicks, Fire, Gas			Record of frequency kept?
Crew Training			
Safety Meetings			Safety Manual sighted?
Emergency Evacuation & Muster Points			Emergency Response Plan sighted?

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
General Signage			Person-in-Charge clearly displayed?
Effective Lighting			
Shut-In Procedures & Signage			Clearly displayed on rig floor?
Shut-In Rig Floor Equipment			
2. Drilling Operations			
Rig Breakdowns/Lost Times			
Accidents Lost Times			
Well Head Equipment			
Drilling Fluids and Solids Control			
Mud Pumps & Solids Control			
Mud Logging & Sampling			
Drilling Bits & BHAs			
Tubular Inspections			

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
Real Time Logging			
Wireline Logging & Formation Evaluation			
Casing			
Cement			
3. Production Testing Operations			
Monitoring & Measurement			
Flaring			
4. Drilling Operations Support			
Logistics			
Support Aircrafts			
Service Companies			

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
5. Overall Workplace Environment, Health & Safety			
			Note if follow up is required by NT WorkSafe, DENR/NT EPA
Occupational Health & Safety			
Environment			
6. Others			

General Comments/Recommendations/Follow-up Actions:

_____
_____
_____
_____
_____
_____
_____
_____

Inspecting Officers:

Officer 1

Name: _____

Title: _____

Signature: _____

Date: _____

Officer 2

Name: _____

Title: _____

Signature: _____

Date: _____

Officer 3

Name: _____

Title: _____

Signature: _____

Date: _____

Checklist - Well Drilling Operations Inspection

Well Name: _____ **Permit:** _____

Project: _____ **Operator:** _____

Rig Contractor: _____ **Rig Name:** _____

Date: _____ **Days on Location:** _____

Well Spud Date: _____

Current Operations:

_____
_____
_____
_____
_____

Planned Next 24 hours Operations:

_____
_____
_____
_____
_____

Any Prior Incidents/Follow-up

_____
_____
_____
_____
_____

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
1.Rig Safety			
Report on Independent Rig Certification? Deficiencies addressed?			
BOP System			
BOP Testing Schedule			
BOP Maintenance & Spares			
Well Control Procedures/Manual			Clear instructions displayed on rig floor?
Well Control Certificates of Key Personnel – Rig Superintendent , Company Man, Drillers, Assistant Drillers etc.			
Drills i.e. Kicks, Fire, Gas			Record of frequency kept?
Crew Training			
Safety Meetings			Safety Manual sighted?
Emergency Evacuation & Muster Points			Emergency Response Plan sighted?

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
General Signage			Person-in-Charge clearly displayed?
Effective Lighting			
Shut-In Procedures & Signage			Clearly displayed on rig floor?
Shut-In Rig Floor Equipment			
2. Drilling Operations			
Rig Breakdowns/Lost Times			
Accidents Lost Times			
Well Head Equipment			
Drilling Fluids and Solids Control			
Mud Pumps & Solids Control			
Mud Logging & Sampling			
Drilling Bits & BHAs			
Tubular Inspections			

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
Real Time Logging			
Wireline Logging & Formation Evaluation			
Casing			
Cement			
3. Production Testing Operations			
Monitoring & Measurement			
Flaring			
4. Drilling Operations Support			
Logistics			
Support Aircrafts			
Service Companies			

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
5. Overall Workplace Environment, Health & Safety			
			Note if follow up is required by NT WorkSafe, DENR/NT EPA
Occupational Health & Safety			
Environment			
6. Others			

General Comments/Recommendations/Follow-up Actions:

_____
_____
_____
_____
_____
_____
_____
_____

Inspecting Officers:

Officer 1

Name: _____

Title: _____

Signature: _____

Date: _____

Officer 2

Name: _____

Title: _____

Signature: _____

Date: _____

Officer 3

Name: _____

Title: _____

Signature: _____

Date: _____

19) Checklist – Site Environment Inspection

Checklist – Site (Environment) Inspection

Site/Location: _____ **Permit:** _____

Operations/Activity: _____ **Operator:** _____

Contractor/s: _____

Date: _____

Copy of the approved Environment Management Plan (EMP) sighted onsite? Yes / No

EMP requirements discussed in the Site Induction? Yes / No

** As per the Approved EMP*

Environment Risks as identified in the approved EMP	Are Risks* identified addressed on location in accordance with the approved EMP? *Yes/No*	Are the Safeguards/Management Methods* acceptable? *Yes/No*	Are the Monitoring and Reporting Strategies* effective? *Yes/No*	Comments
Removal of native vegetation and potential fauna habitat. Loss of declared rare flora or priority species.				
Disturbance to fauna, death or entrapment.				
Soil disturbance.				

Environment Risks as identified in the approved EMP	Are Risks* identified addressed on location in accordance with the approved EMP? *Yes/No*	Are the Safeguards/Management Methods* acceptable? *Yes/No*	Are the Monitoring and Reporting Strategies* effective? *Yes/No*	Comments
Disturbance to Indigenous or Heritage sites.				
Introduction of noxious weeds, exotic flora, vermin and animal diseases.				
Disruption of local traffic or inconvenience to local landholders, residents and other road users.				
Grassfires and Bushfires.				

Environment Risks as identified in the approved EMP	Are Risks* identified addressed on location in accordance with the approved EMP? *Yes/No*	Are the Safeguards/Management Methods* acceptable? *Yes/No*	Are the Monitoring and Reporting Strategies* effective? *Yes/No*	Comments
Fuel, Oil or Chemical Spills. Release of gaseous hydrocarbons to the atmosphere. Uncontrolled fire.				
Overflow of drill cuttings or mud.				
Noise.				
Lighting				
Visual Amenity				

Environment Risks as identified in the approved EMP	Are Risks* identified addressed on location in accordance with the approved EMP? *Yes/No*	Are the Safeguards/Management Methods* acceptable? *Yes/No*	Are the Monitoring and Reporting Strategies* effective? *Yes/No*	Comments
Dust.				
Disturbance or damage due to infrastructure or services.				
Unapproved gas flaring.				
Blowout during well testing or drilling. Gas ignites.				
Release of waste oils or chemicals into the environment. Soil, surface water and groundwater contamination.				

Environment Risks as identified in the approved EMP	Are Risks* identified addressed on location in accordance with the approved EMP? *Yes/No*	Are the Safeguards/Management Methods* acceptable? *Yes/No*	Are the Monitoring and Reporting Strategies* effective? *Yes/No*	Comments
Mortality of flora and fauna from soil, surface and groundwater contamination. Fauna drinking unsuitable water.				
Release of grey water or sewerage into the environment. Soil, surface or groundwater contamination.				
Littering.				
Disturbed sites abandoned without required rehabilitation.				
Groundwater monitoring				

Additional Notes/Comments/Recommendations/Follow-up Actions:

1. _____
2. _____
3. _____
4. _____
5. _____

Inspecting Officers:

Officer 1

Name: _____

Title: _____

Signature: _____

Date: _____

Officer 2

Name: _____

Title: _____

Signature: _____

Date: _____

Officer 3

Name: _____

Title: _____

Signature: _____

Date: _____

20) Checklist – Well Hydraulic Fracturing Operations Inspection

Checklist - Well Hydraulic Fracturing Operations Inspection

Well Name: _____ **Permit:** _____

Project: _____ **Operator:** _____

Contractor/s: _____ **Date:** _____

Current Operations:

Planned Next 24 hours Operations:

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
1. Well Site Safety			
Safety Statement			
Site Induction			
Permit to Work System			
Well Control Procedures			
Site POB Board			
Safety Meetings (HSE)			
Emergency Evacuation. & Muster Points			
General Signage – Safety/Environment etc. i.e. Radio-active, PPE requirements.			
MSDSs			
Emergency Facilities and First-Aid Kits			
Spill Kits			
Lighting Plants			
Fire Extinguishers			
Emergency Shut-Down Procedures			
Emergency Shut-Down System and Equipment.			
2. Hydraulic Fracturing, Completion and Testing Equipment and Facilities			
Coil Tubing Unit (CTU).			
Nitrogen System			

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
Cement Milling Equipment			
Surface Barriers for Fraccing, i.e. 6.5k Frac Tree, 10k Frac Head, CTU Isolation Valve, Frac Head Isolation Valves, HP Separator and High Pressure Treating lines.			
Chemicals and Treatment Sand.			
MSDSs for all chemicals onsite			
Frac Fluid Tanks			
Nitrogen Tanks			
Mixing Tanks			
Pumping Equipment			
Chemical Tracer Injection System			
Frac Gel			
Treating lines			
FRACCAT acquisition van.			
Lab in FRACCAT acquisition van.			
Record and Reporting System during Fraccing in the FRACCAT acquisition van.			
Surface Manifold			
Well Test Separator			
Flow lines to Separator			
Flare Stack and Ignition System.			
Hydrates Control System			
Filter Units			
Completion Tubing String			
BOP for Completion			

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
Gas Production Tree			
Slickline Equipment and Lubricator			
TWCV and BPV			
3. Pre-Hydraulic Fracturing, Pre-Completion and Pre-Testing			
Have all Pre-Checks been completed? • Results of GR/CCL/CBL/VDL logging OK? • Function testing of Fraccing Tree. • Pressure Testing of manifold, separator, treating and flow lines, connections, cross-overs, Well Testing package, CTU and Nitrogen System. • Surface Barriers pressure tested and chart recorded. • Function Test of Spectra Chem chemical tracer injection system. • JHAs completed • All lines secured • Function test all ESD stations • Hydraulic Fracturing, Completion and Testing Program made available and understood by all crew members. • All equipment working. • Pre-Flow Safety Meeting • Muster Horns tested • Responsibilities discussed • Review of Emergency Response Plan (ERP).			

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
4. General Workplace, Health, Safety & Environment			
			Referral to NT WorkSafe or DENR/NT EPA required? *Yes/No*
General Occupational Health & Safety Standards			
Environmental Standards			
Flare Pit			
Sumps			
Dirt Pile			
Frac Ponds			
Workshop			
Shack			
Sand Storage			
Chemical Storage			
Gel Storage			
High Pressure Areas			
5. Monitoring			
			Referral to NT WorkSafe or DENR/NT EPA required? *Yes/No*
Air			
Water			
Noise			
Spills			

6. Others			

Additional Notes/Comments/Recommendations/Follow-up Actions :

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Inspecting Officers:

Officer 1

Name: _____

Title: _____

Signature: _____

Date: _____

Officer 2

Name: _____

Title: _____

Signature: _____

Date: _____

Officer 3

Name: _____

Title: _____

Signature: _____

Date: _____

21) Checklist – Well Testing Operations Inspection

Checklist - Well Testing Operations Inspection

Well Name: _____ **Permit:** _____

Project: _____ **Operator:** _____

Contractor/s: _____ **Date:** _____

Days on Location: _____ **Test Start Date:** _____

Current Operations:

_____
_____
_____
_____
_____
_____
_____

Planned Next 24 hours Operations:

_____
_____
_____
_____
_____
_____
_____

Any Prior Incidents/Follow-up

_____
_____
_____
_____
_____
_____
_____

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
1. Well Site Safety			
Safety Statement			
Site Induction			
Permit to Work System			
Well Control Procedures			
Persons on site			
Safety Meetings (HSE)			
Emergency Evacuation. & Muster Points			
General Signage – Safety/Environment etc.			
Spill Kits in place.			
Emergency Shut-Down Procedures			
Lighting			
Emergency Shut-Down System and Equipment.			
2. Well Test Equipment and Facilities			
Chemical Storage/Laydown			
Water Potable			
Tanker Load Out Facility			
Tank Farm (Storage Facility)			
Load Out Pumps			
Wellhead and associate rig-ups			
Multiphase Flow Meter (MPFM).			

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
Lighting Plant			
Gas Venting/Flaring System			
Choke (Adjustable/Fixed)			
Surface Safety Valve (SSV)			
Surface Flow Lines			
Produced Water Handling System			
Retention Tanks			
Pond			
Slickline Unit for Well Intervention			
Reservoir Fluid Sampling equipment			
Ports that allow monitoring of well stream parameters; i.e. temp. erosion, sampling etc.			
3. Pre-Well Test Checks			
Have all Pre-Well Test Checks been completed? • JHA completed • Adequate sampling bottles on site • All lines secured • Function test all ESD stations • Well Test Program made available and understood by all crew members. • All equipment working.			

Key Items	Records Sighted? (if applicable) *Yes/No*	Accepted/In-place? *Yes/No*	Comments
4. Pre-Flow Preparation Test Checks			
Have all Pre-Well Test Checks been completed? • Pre-Flow Safety Meeting • Muster Horns tested • Responsibilities discussed • Review of Emergency Response Plan			
5. General Workplace Health, Safety & Environment			
			Note if follow up is required by NT WorkSafe, DENR/NT EPA
Occupational Health & Safety			
Environment			
6. Others			

Additional Notes/Comments/Recommendations/Follow-up Actions:

1. _____
2. _____
3. _____
4. _____
5. _____

Inspecting Officers:

Officer 1

Name: _____

Title: _____

Signature: _____

Date: _____

Officer 2

Name: _____

Title: _____

Signature: _____

Date: _____

Officer 3

Name: _____

Title: _____

Signature: _____

Date: _____

22) Well Integrity Verification Form

Well Integrity Verification Form

NORTHERN TERRITORY GOVERNMENT

PETROLEUM OPERATIONS

WELL INTEGRITY: CONSTRUCTION AND SUSPENSION

Well:	**Big Hole 1**
Operator:	**Cowboy Drilling outfit**
Permit:	**EP 100000**
Rig Name:	**Rig 187**
Rig Contractor:	**Toolpusher Services Australia**
Spud Date:	**26-Jul-15**
Rig Release Date:	**27-Aug-15**

Update

Print To File

Summary of Operations:

* 17 1/2" conductor hole was drilled to depth of 96.04 mRT with 13 3/8" Conductor Casing set to 96.04 mRT.
* 12 1/4" hole was drilled from 96.04 mRT to 499.2 mRT with 9 5/8" casing set to 497.08 mRT.
* 8 1/2" hole was drilled from 499.2 mRT to 1385 mRT with 7" casing set to 1383.5 mRT.
* Rig released on 27 August.
* CBL was conducted on 3 September 2015.
* Hydraulic fracturing and flow testing were carried out from 30 September until 7 November.
* Well was plugged back total depth (PBTD) to 1320.0 mRT
* Well filled with cement plug with TOC tagged at 1086.0 mRT with 6000klbs.
* Well filled with completion fluid with 10.1 ppg.
* Well suspended.

Wellsite Photos

Well Integrity Check:

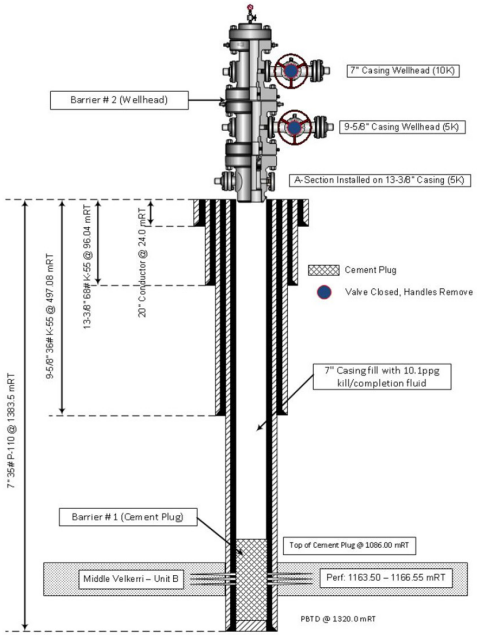
Construction

Hole Size (inch)	Casing Size (inch)	Hole TD (m)	Shoe Depth (m)	Lead Cement Volume Pumped (bbl)	Tail Cement Volume Pumped (bbl)	TOC - Lead - DDR Actual (m)	TOC - Tail - DDR Actual (m)	Pit Gain as expected?	Comments - Pit Gain	Plug Bumped?	Comments - Plug Bumping	Casing Pressure Test (psi)	Cement Job performed as per approved program. Issues raised in DDR.	Comments - Cement Job/Issues in DDR	Leak Off Test Results or FIT Results for Non-Production Casing
17 1/2	13 3/8	96.04	96.04	n/a	n/a	Surface	n/a	n/a	n/a	n/a	n/a	n/a	Yes	n/a	n/a - Conductor Casing
12 1/4	9 5/8	499.2	497.08	83.7	41.8	Surface	347	Yes	ok	Yes	464 psi, ok	1500psi	as approved program	no issues	FIT w/ 8.8ppg MW, pressure 1111psi EMW 21.7ppg
8 1/2	7	1385	1383.5	82.9	64.3	Surface	780	Yes	n/a	Yes	2050psi, ok	3000psi	as approved program	no issues	n/a production casing

Suspension

Plug Number	Plug Type	Date Set	Type of Hole	Hole Diameter (inch)	Bottom Depth (m)	Top Depth (m)	Plug Height (m)	(To Validate) - Tag (klbs)	Comment on Tagging	(To Validate) - Pressure (psi)	Comment on Pressure
Well Head	At surface	7/11/2015	At Surface	n/a	n/a	n/a	n/a	n/a	n/a	3000	ok
Completion fluid of 10.1 ppg	completion fuid	7/11/2015	Cased	7	1086	Surface	1086	n/a	n/a	n/a	n/a
cement plug	cement	6/11/2015	Cased	7	1320	1086	234	tagged with 6000lbs	tagged at 1086 as per DDR	n/a	n/a
Plugged Back Total Depth (PBTD)	cement	6/11/2015	cased	7	1383 1/2	1320	63 1/2	Tagged at 1320	Tagged as per DDR	n/a	n/a

Well Schematic



In the suspension program, is the number, location and validation method of all installed barriers in accordance with DME's legislation and guidelines?	YES ✓	NO
Was approval granted to suspend the Well?	YES ✓	NO
Was the rig activity carried out in accordance with the approved program? If not, were the changes approved by DME?	YES ✓	NO

Integrity Check by:	**Mehrdad Rezazadeh**	**Reviewed by:**	**Dominic Marozzi**	**Approved by:**	**Jop van Hattum**
Position:	Senior Petroleum Engineer	**Position:**	Senior Petroleum Engineer	**Position:**	Senior Director Petroleum Technology and Operations
Date:	**/ 12 / 2015**	**Date:**	**/ 12 / 2015**	**Date:**	**/ 12 / 2015**

23) Guideline – Environment Rehabilitation Reporting

Guideline – Environment Rehabilitation Reporting

Applicable Legislation: *NT Petroleum Act 2016*, NT Schedule of Onshore Petroleum Exploration and Production Requirements 2016 and NT Petroleum (Environment) Regulations 2016

Environmental Rehabilitation Reporting:

The purpose of submitting this report is to document progress of the rehabilitation strategies as defined in the approved Environment Management Plan for a particular project or activity. The report is intended to inform Northern Territory Department of Primary Industry and Resources (NT DPIR) of the environmental rehabilitation of impacted areas.

1. KEY REQUIREMENTS

1. Final Environment Audit

- **The audit must be conducted after a period of at least one wet season from completion of last activities.**
- The Final Environment Audit (audit) must be conducted by a nominated 3rd party auditor before submission of the Final Environment Rehabilitation Report to NT DPIR.
- The Final Environment Rehabilitation Report compiled after the audit must:
    - Provide clear evidence that the principles or aims of the environment management plan including the rehabilitation strategies have been addressed.
    - Assess the state of the environment in relation to the following:
        - Mobilisation and Demobilisation of Equipment
        - Disposal of Wastes
        - Removal of Equipment
        - Restoration of Infrastructure
        - Land Rehabilitation
        - Remedial Maintenance
        - Post Closure Monitoring

2. Report Submission

- Upon completion of the audit, a Final Environment Rehabilitation Report is required to be submitted to the Senior Director of Petroleum Technology and Operations within one calendar month.

3. Refund of Environment Rehabilitation Security Bond

- The Final Environment Rehabilitation Report will be assessed by NT DPIR. If clear evidence of adequate rehabilitation is demonstrated to an appropriate level, the report will be accepted and the environmental close-out procedures for the petroleum activity or project will commence before the bond is refunded to the proponent.

- For further information on how the Environment Rehabilitation Security Bond is calculated, please follow link provided in "ADDITIONAL GUIDING INFORMATION" below to view the calculation template.

NOTE: THE ENVIRONMENT REHABILITATION SECURITY BOND CANNOT BE REFUNDED IF THE *FINAL ENVIRONMENT REHABILITATION REPORT* IDENTIFIES AREAS NEEDING CONTINUED MONITORING OR IF IMPACTED AREAS ARE NOT ADEQUATELY REHABILITATED.

2. CORRESPONDENCE

All correspondence concerning the environment rehabilitation report (*supporting documents, data, photographs etc.)* should be in electronic format only and emailed to:

SENIOR DIRECTOR PETROLEUM TECHNOLOGY AND OPERATIONS
Attention: Senior Petroleum Engineers

at: petroleum.operations@nt.gov.au

ADDITIONAL GUIDING INFORMATION

- Checklists and guidelines for various petroleum activities are available on the Department of Primary Industry and Resources' website at: https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/petroleum-operations-forms-and-guidelines

- Contact the **Petroleum Operations Team** on petroleum.operations@nt.gov.au for further information.

24) Guideline – Well Suspension Applications

Guideline - Well Suspension Applications

- Suspension applications are categorised as either "Drilling" or "Production".
  - A "Drilling Suspension" is one where the well is to be suspended **without** a downhole completion installed.
  - A "Production Suspension" is where the well is to be suspended **with** a downhole completion installed.

- The Northern Territory **does not** recognise "*Temporary Suspensions*" -- **ALL** suspensions are to include the installation and validation of a **minimum of two (2) permanent barriers.**

- **Drilling Suspensions (without downhole** completion **installed)**
  - If the production casing is sealed to the formation, pressure tested and not perforated (and the cement integrity has been or is programmed to be logged), then this would constitute **one** permanent barrier.

- **Production Suspensions (with downhole** completion **installed)**
  - If the production casing is sealed to the formation, pressure tested and not perforated (and the cement integrity has been or is programmed to be logged), then this would constitute **one** permanent barrier.
  - The installation and validation of a minimum of two (2) permanent mechanical barriers applies to **both tubing string AND annulus.**
  - The wellbore schematic must be accompanied by a wellhead profile **CLEARLY** showing all wellhead barriers in **both the production tubing and annulus**.

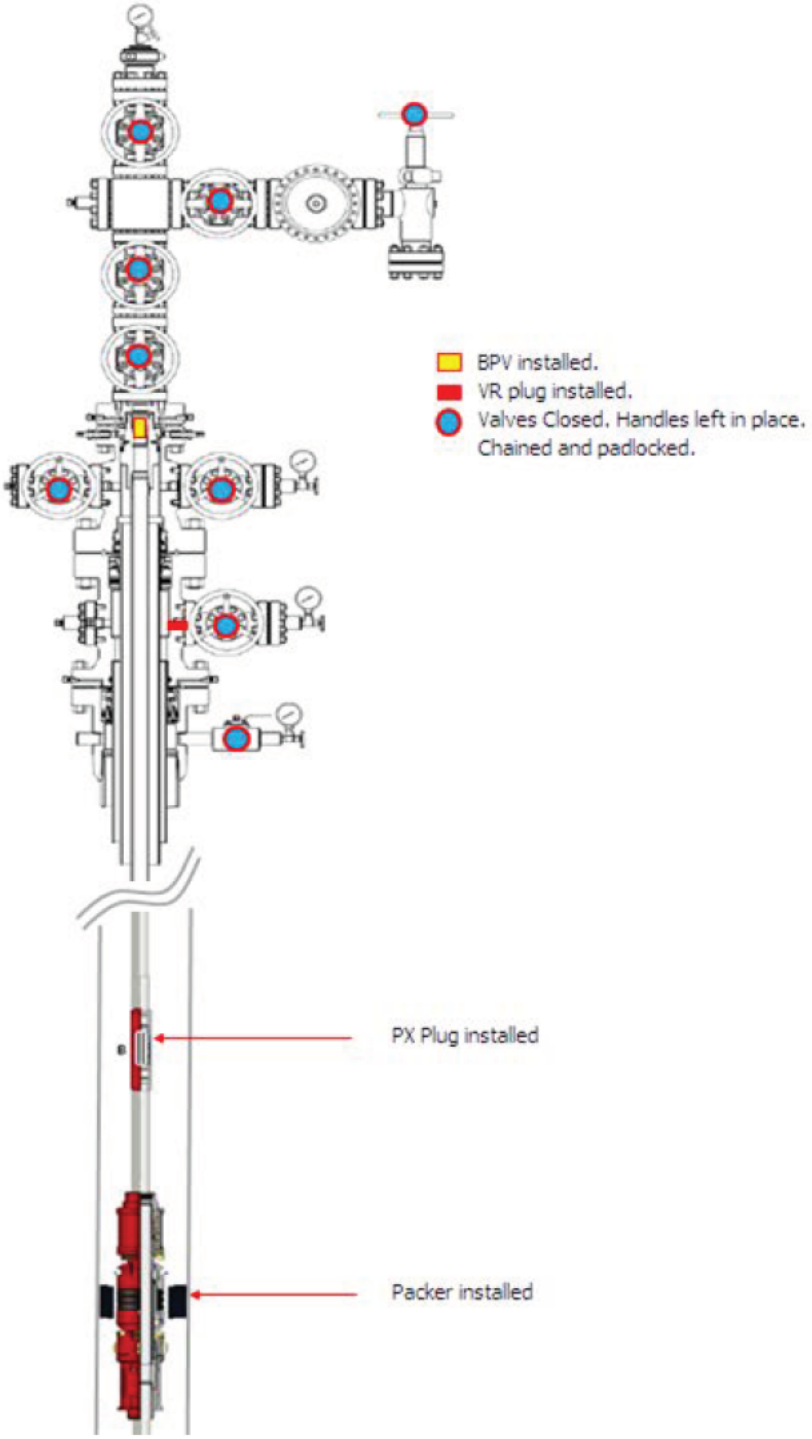
Applications for Suspension

Suspension applications are to consist of the following:

1. Letter of application, signed by the custodian of the project and making reference to Clause 328 of the Schedule of Onshore Petroleum Exploration and Production Requirements 2016.
2. Suspension Program reflecting the step by step procedures the rig will follow when installing and then validating the integrity of barriers (to be validated by either tagging or pressure testing).
3. Proposed final well schematic with all well construction features labelled, including the proposed position of installed barriers. The well's final brine weight is to be included. For Production Suspensions, a wellhead and downhole profile schematic with clearly marked permanent barriers is also to be included (*as attached Sample*).

Sample Diagram:

Identifying all permanent barriers in the tubing, annulus and wellhead.



NOTE: ALL BARRIERS ARE TO BE IDENTIFIED FOR:

- **TUBING/DOWNHOLE**
- **ANNULUS**
- **WELLHEAD**

For Well Suspension activity close-out

Please submit:

- Daily Drilling Reports to be sent as usual and reflecting the entire Suspension until activity close-out.

- The Final Well Schematic reflecting all well construction features (labelled) the position of ALL validated barriers and also the final brine weight.

- Details relating to ALL installed barriers are to include:
    - Barrier type (cement plug, mechanical plug etc.)
    - Bottom depth of barrier (m)
    - Top depth of barrier (m)
    - Tagging weight (lbs), unless pressure tested
    - Pressure test (psi), unless tagged.

- Photographs of the fenced-off well site with wellhead (valve handles removed or with handles left in place, chained and padlocked) along with signage reflecting contacts in the event of an emergency. At least 4 photographs will be required.

ADDITIONAL GUIDING INFORMATION

- Checklists and guidelines for various petroleum activities are available on the Department of Primary Industry and Resources' website at: https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/petroleum-operations-forms-and-guidelines

- Contact the **Petroleum Operations Team** on petroleum.operations@nt.gov.au for further information.

25) Guideline – Well Decommissioning (Plug and Abandonment) Application

Guideline – Well Decommissioning (Plug and Abandonment) Applications

Requirements

- Reference to Clause 328 "Approval to Abandon or Suspend a Well" and Clause 329 "Abandonment of a Well" in the *NT Schedule of Onshore Petroleum Exploration and Production Requirements 2016*.

- Plug and Abandonment (P & A) Applications are required to:

    - Address the requirements of Clause 329 appropriate to the **construction** and **status** of the well
    - Include the installation and validation of a **minimum of two (2) permanent downhole barriers**.

Applications for Well Decommissioning (Plug and Abandonment)

Plug and Abandonment (P & A) applications are to consist of the following:

1. Letter of application, signed by the custodian of the project and making reference to Clause 328 of the *NT Schedule of Onshore Petroleum Exploration and Production Requirements 2016*
2. The specific reason for the P & A as per Clause 328 (5)(a)

3. P & A Program reflecting the step by step procedures the rig will follow when installing and then validating the integrity of barriers (to be validated by either tagging or pressure testing)

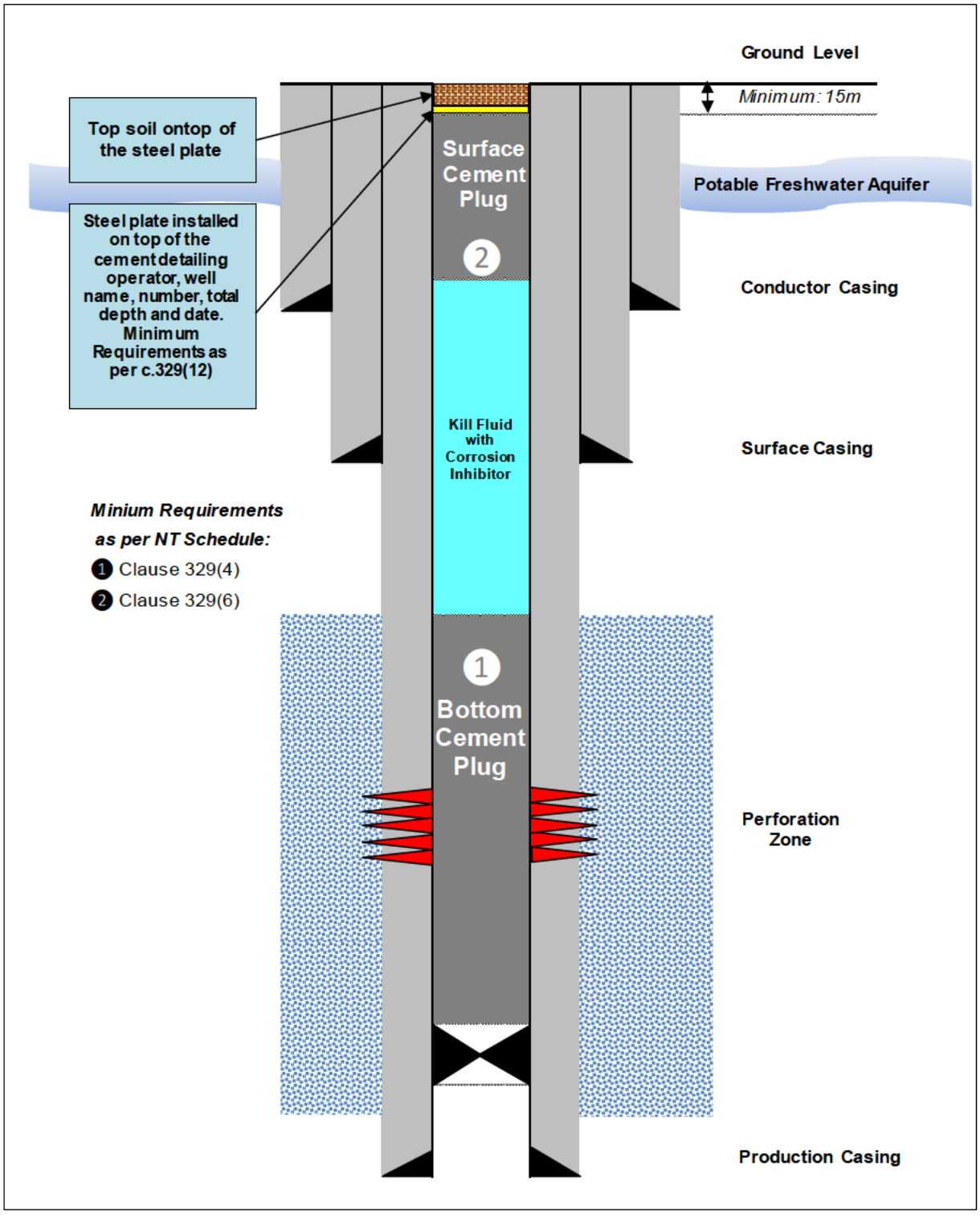
4. Proposed final well schematic with all well construction features labelled, including the proposed position of installed barriers. The well's final kill fluid weight is to be included (*as attached Sample Diagram*).

NOTE:

- **NO CASING CAN BE RECOVERED IF IT WILL EXPOSE ANY ABNORMAL PRESSURE, LOST CIRCULATION, HYDROCARBON OR WATER BEARING ZONE**
- **ALL PERMANENT BARRIERS ARE TO BE CLEARLY IDENTIFIED ON THE FINAL WELL SCHEMATIC.**

Sample Diagram:

Identifying all permanent barriers in the wellbore and signage at the surface.



For Well Decommissioning (Plug and Abandonment) Activity Close-out

Please submit:

- Daily Drilling Reports to be sent as usual and reflecting the entire P & A until activity close-out
- The Final Well Schematic reflecting all well construction features (labelled) the position of ALL validated barriers and also the final brine weight
- Details relating to ALL installed barriers are to include:
  - Barrier type (cement plug, mechanical plug etc.)
  - Bottom depth of barrier (m)
  - Top depth of barrier (m)
  - Tagging weight (lbs), unless pressure tested
  - Pressure test (psi), unless tagged
- Photographs of the well site along with surface signage reflecting well and operator details. At least 4 photographs will be required.

ADDITIONAL GUIDING INFORMATION

- Checklists and guidelines for various petroleum activities are available on the Department of Primary Industry and Resources' website at: https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/petroleum-operations-forms-and-guidelines
- Contact the **Petroleum Operations Team** on petroleum.operations@nt.gov.au for further information.

26) Factsheet – Disclosure of Chemicals

Factsheet – Disclosure of Chemicals

The aim of this factsheet is to promote the safe and responsible use of chemicals used in Northern Territory's hydraulic fracturing operations and to provide accurate and transparent information on any chemicals that may be used.

The use of chemicals in the petroleum industry is regulated by the Energy Division of the Northern Territory (NT) Department of Primary Industry and Resources (DPIR) to ensure they are managed, stored and disposed of in an effective, safe and environmentally responsible manner.

Why are chemicals used in hydraulic fracturing?

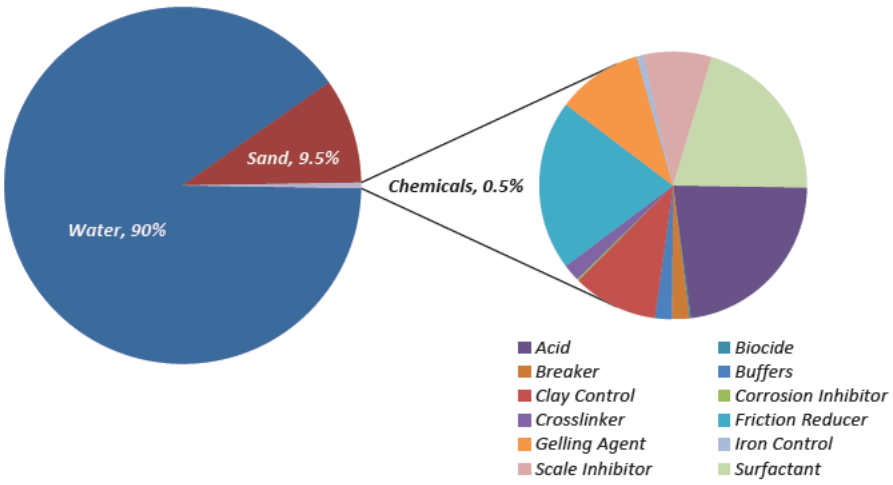
In the NT, the unconventional gas-bearing rock sources are usually shale formations that are located between two and three kilometres underground. Shale has a very low permeability meaning that the trapped gas cannot flow under its own reservoir pressure. During hydraulic fracturing, fluid is pumped down the well at pressure to create fractures in the rock formation in order to provide the gas with a pathway through the impermeable rock. The fractures or cracks generally vary between 20 and 100 m in length. They are usually shorter in the vertical plane as the path of least resistance is in the horizontal plane for sedimentary rocks.

The hydraulic fracturing fluid must be water based unless otherwise approved. It typically contains 90 per cent water, 9.5 per cent sand and up to 0.5 per cent chemicals.

Water is used to create the pressure required to fracture the rock. It is also used to transport sand and chemicals down the well and into the fractures. The proppant, usually sand, is used to hold the created fractures open and hence to maintain an open pathway to increase the volume of natural gas that can be extracted.

The hydraulic fracturing fluid is designed to serve a number of important purposes. Typically, particular chemicals are used to improve the transportation of sand, prevent the growth of bacteria, reduce mineral blockages and to prevent well corrosion over time.

Typical Hydraulic Fracturing Fluid Composition



How are chemicals assessed?

Petroleum companies are required to submit an application for assessment and seek approval before they can carry out hydraulic fracturing activities. The assessment process is carried out in accordance with NT legislation, in particular the NT's environmental regulations.

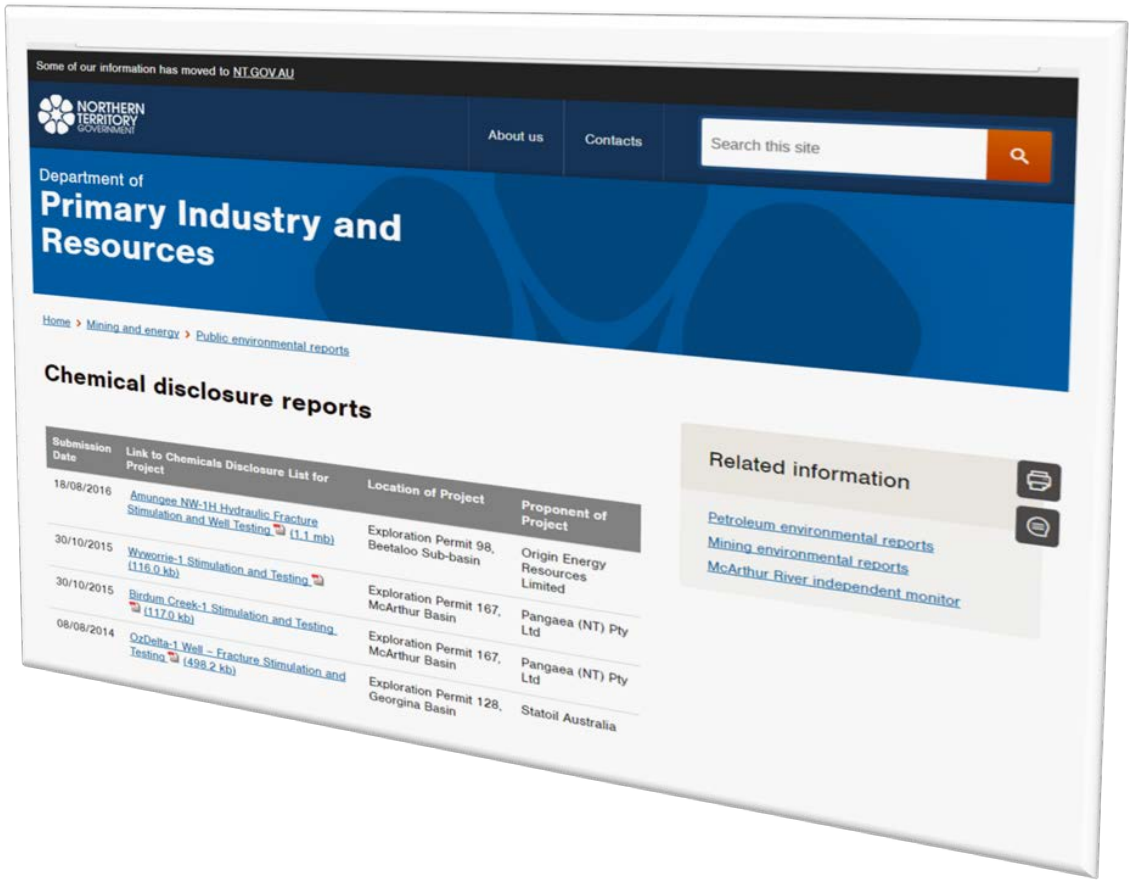
Petroleum companies must demonstrate that the use of all selected chemicals will not pose an unacceptable risk to human health, the environment or groundwater resources. These assessments are carried out on a case-by-case basis.

One of the preconditions for approval is that operators submit Material Safety Data Sheets (MSDS) for all chemicals that will be pumped down hole during the fracture stimulation. The MSDS must be made available for public disclosure (see below).

During hydraulic fracturing, the operator must accurately keep track of the volumes of water and chemicals pumped and following operations provide NT DPIR a disclosure report with all the Chemicals Abstract Service (CAS) numbers for all chemicals used, their names, volumes and concentrations.

Where can I find what chemicals are being used for hydraulic fracturing activities?

The MSDS must be made available for public disclosure and are uploaded on NT DPIR's website. They can be found at the following link: https://dpir.nt.gov.au/mining-and-energy/public-environmental-reports/chemical-disclosure-reports



What types of chemicals are used for hydraulic fracturing activities?

The type of chemicals selected for use in the hydraulic fluid will depend on the properties of the rock in the target zone to be fractured.

Type of Chemical	Specific Use
Proppants	Proppants or tiny solids, usually sand, are used to physically hold the tiny rock fractures open providing the gas with an open pathway into the wellbore.
Microbial controls, biocides	Limits the growth of bacteria in fluids which may contribute to well corrosion or reduce flow rates.
Oxygen scavengers, corrosion inhibitors	Arrests or reduces corrosion rates by removing or deactivating oxygen and other corrosive materials in fluids.
Iron control, scale control	Limits the build-up of iron precipitates and mineral scale which can reduce the flow rate of fluids and contribute to well corrosion.
pH control, buffers, salts, stabilisers, solvents	Adjusts the chemical and physical properties of the fluid to achieve optimum flow rates.
Friction reducers	Reduces the friction forces of fluids to be pumped into the well in order to increase flow rates.
Clay inhibitors, stabilisers	Arrests clay swelling in the rock of the target zone to be fractured in order to optimise flow rates.
Gelling agents, binders, cross linkers	Increases the viscosity or thickness of fluids which allows more proppant to be carried into the rock fractures.
Breakers	Breaks down the gelling agents and releases the proppant into the rock fractures created.
Surfactants	Reduces the adhesive properties or stickiness of fluids in order to improve flow rates.

ADDITIONAL GUIDING INFORMATION

- Checklists and guidelines for various petroleum activities are available on the Department of Primary Industry and Resources' website at: https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/petroleum-operations-forms-and-guidelines

- Contact the **Petroleum Operations Team** on petroleum.operations@nt.gov.au for further information.

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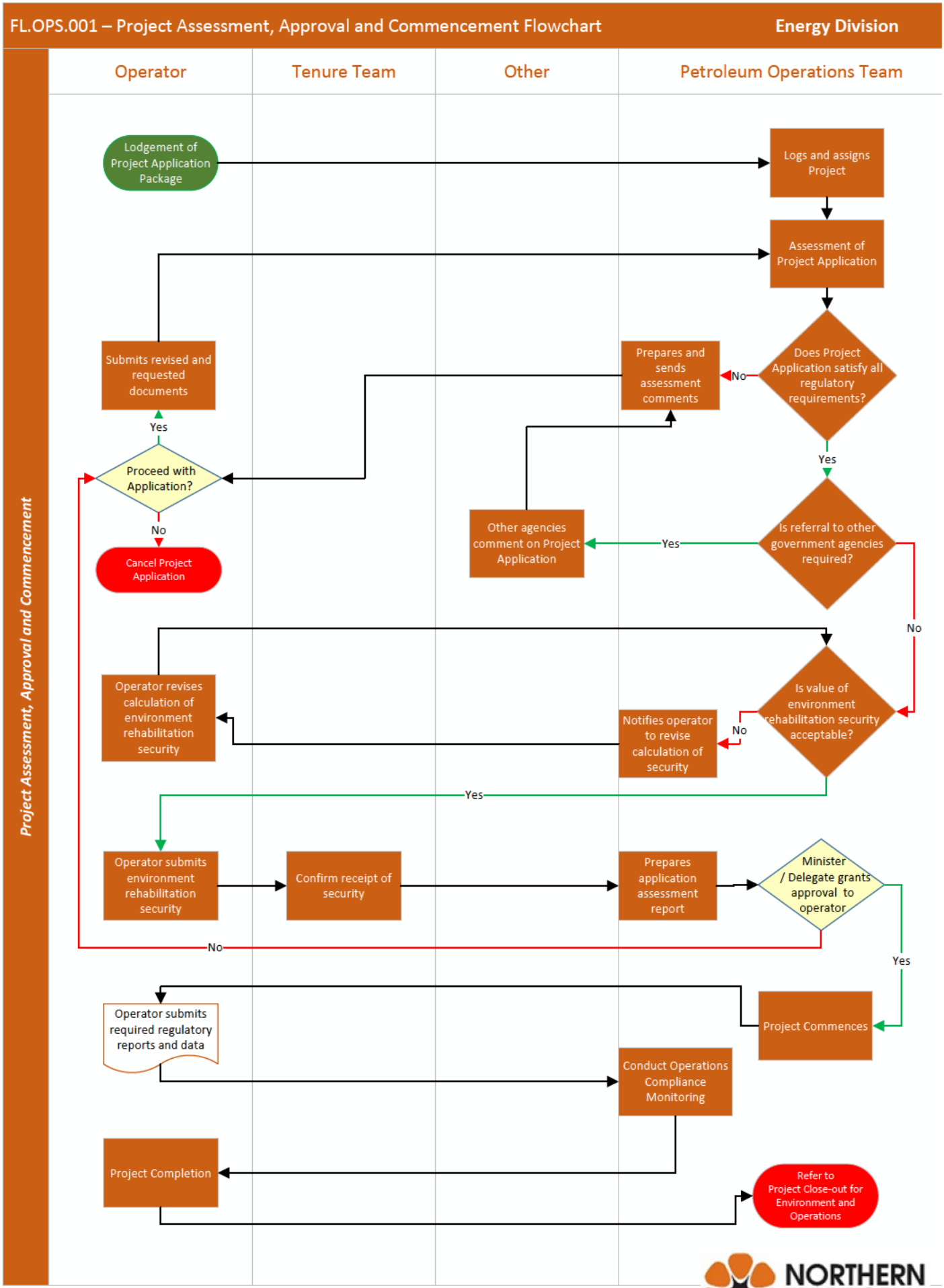
Attachment D – Energy Division Workflows

ATTACHMENT D

ENERGY DIVISION WORK FLOWS

CONTENTS

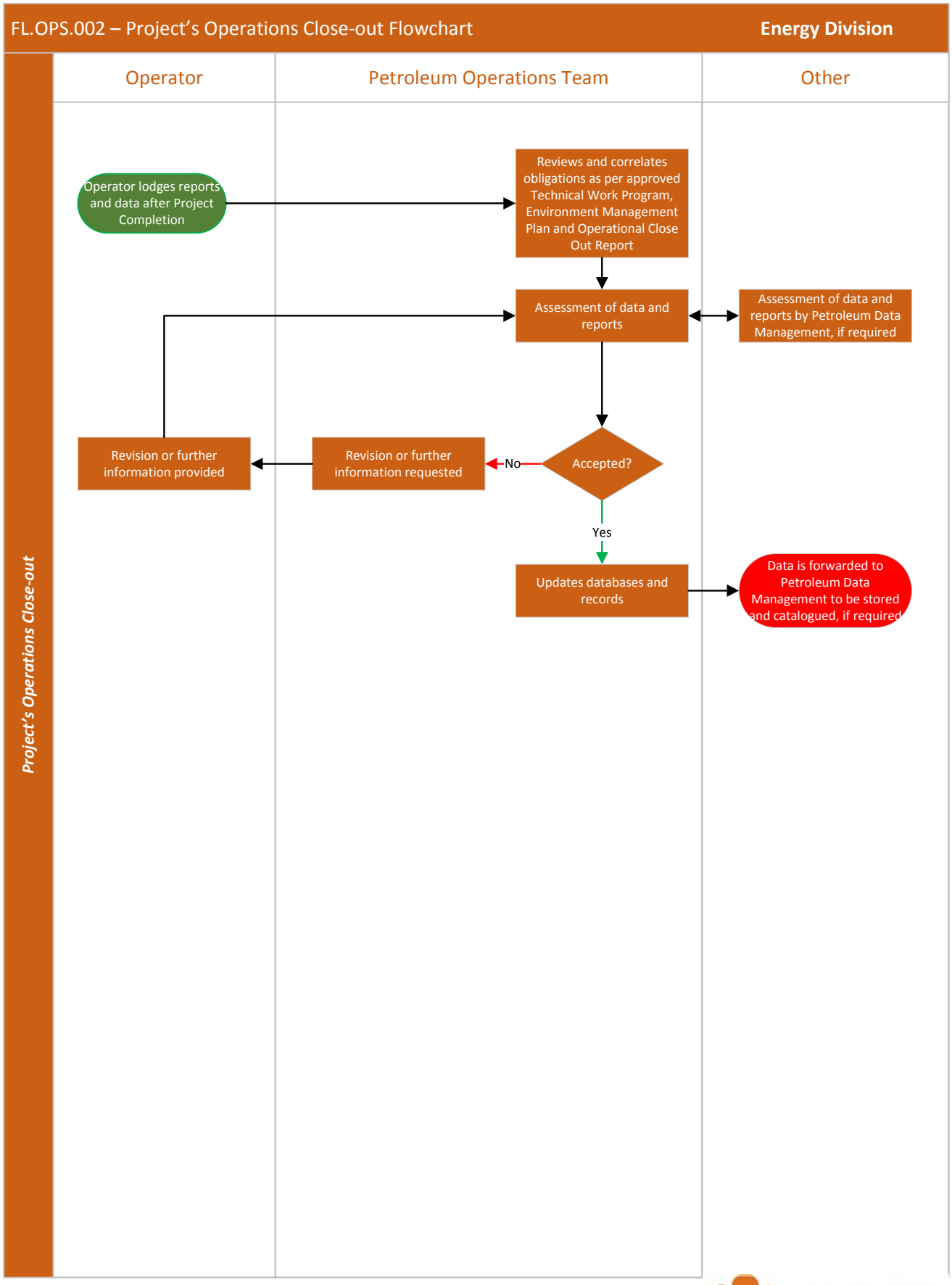
1) Flowcharts Assessment and Compliance



DEPARTMENT OF **PRIMARY INDUSTRY AND RESOURCES**

FL.OPS.001 – Project Assessment, Approval and Commencement Flowchart. **Last reviewed:** 23 March 2017. **Approved by:** Senior Director Petroleum Technology and Operations

NORTHERN TERRITORY GOVERNMENT

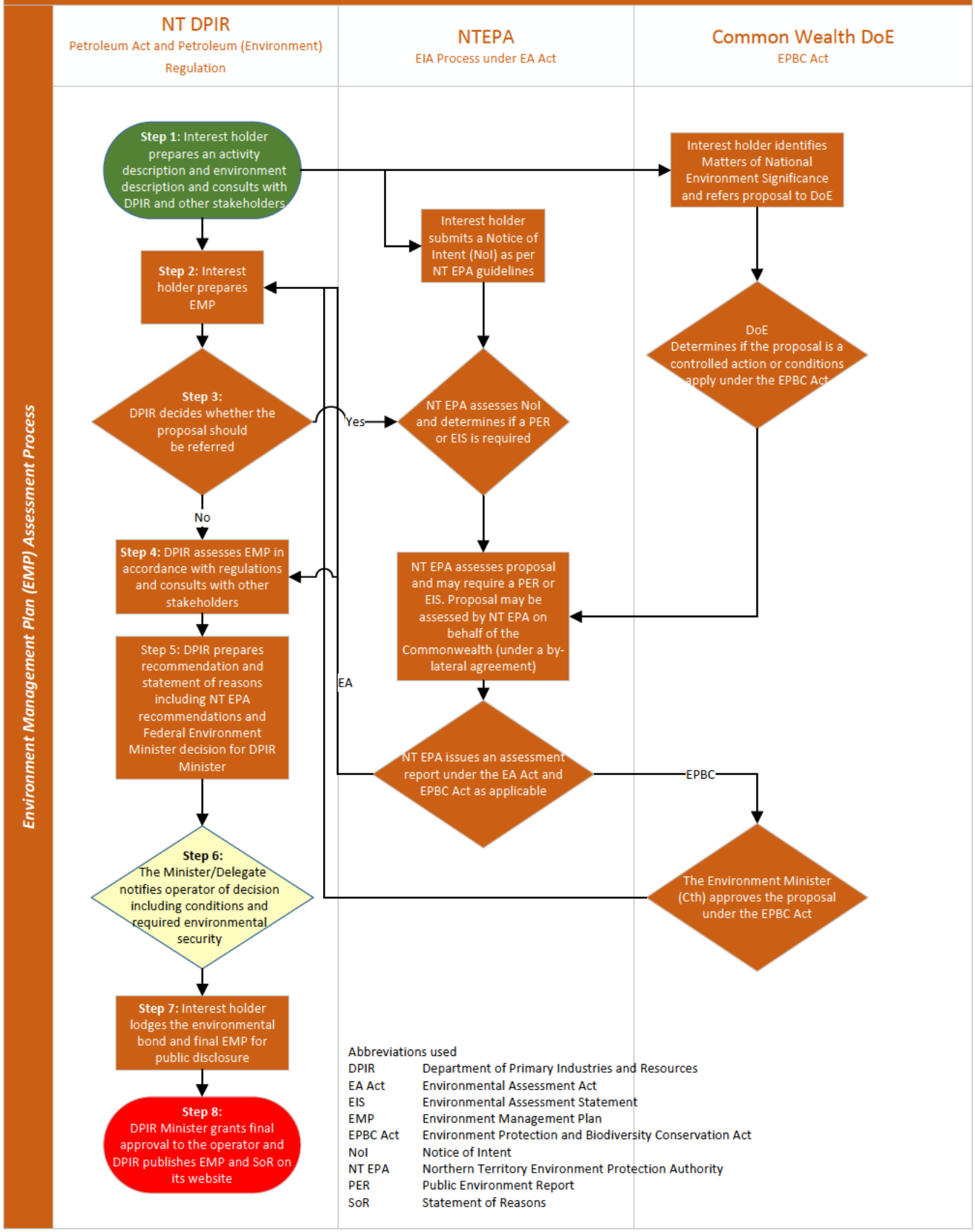


DEPARTMENT OF **PRIMARY INDUSTRY AND RESOURCES**

FL.OPS.002 – Project's Operations Close-out Flowchart. **Last reviewed:** 23 March 2017. **Approved by:** Senior Director Petroleum Technology and Operations

NORTHERN TERRITORY GOVERNMENT

FL.OPS.ENV.001 – Environment Management Plan (EMP) Assessment Process Flowchart — Energy Division



Abbreviations used

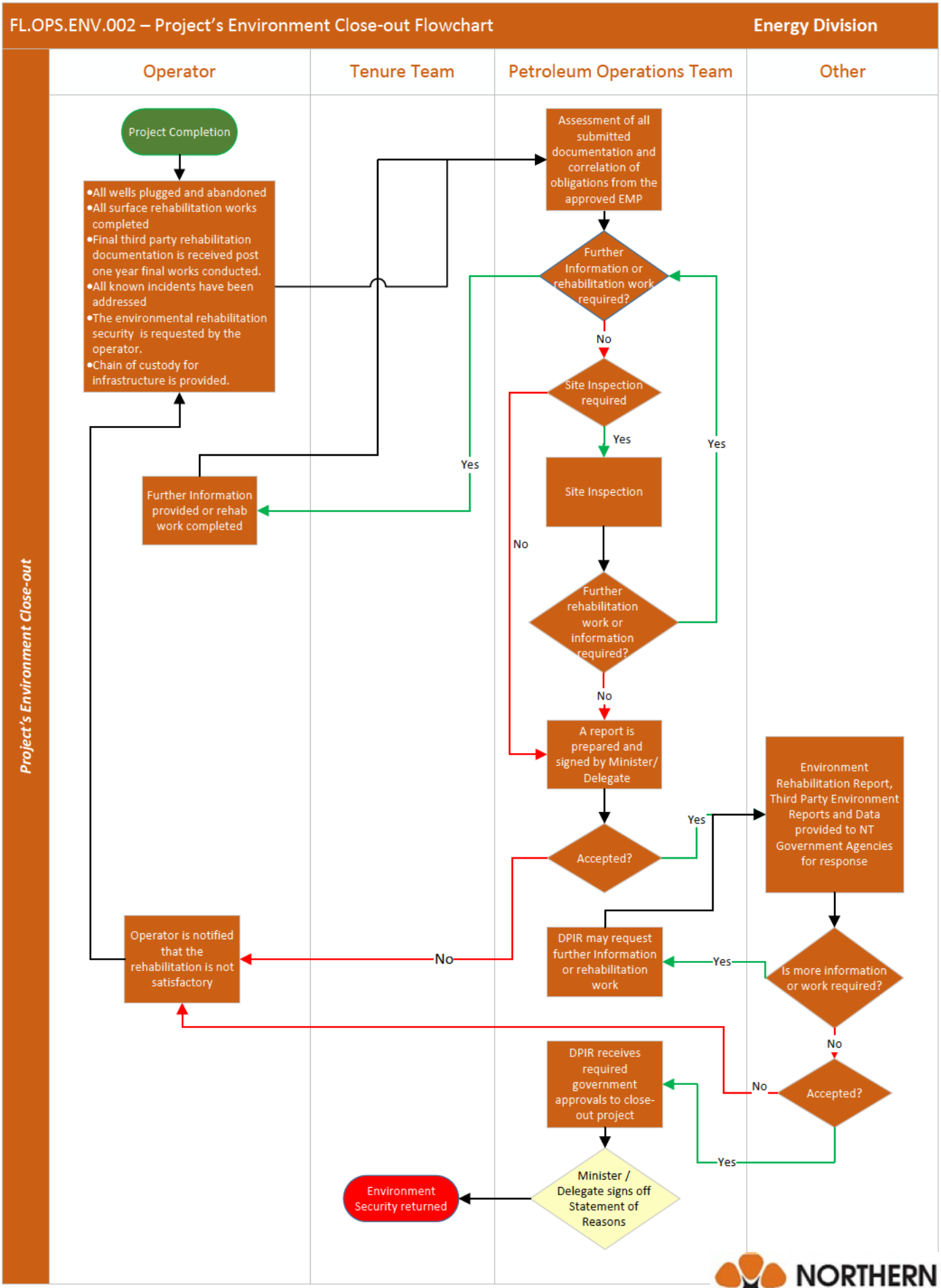
DPIR	Department of Primary Industries and Resources
EA Act	Environmental Assessment Act
EIS	Environmental Assessment Statement
EMP	Environment Management Plan
EPBC Act	Environment Protection and Biodiversity Conservation Act
NoI	Notice of Intent
NT EPA	Northern Territory Environment Protection Authority
PER	Public Environment Report
SoR	Statement of Reasons

DEPARTMENT OF **PRIMARY INDUSTRY AND RESOURCES**

FL.OPS.ENV.001 – Environment Management Plan (EMP) Assessment Process Flowchart

Last reviewed: 23 March 2017. **Approved by:** Senior Director Petroleum Technology and Operations

NORTHERN TERRITORY GOVERNMENT



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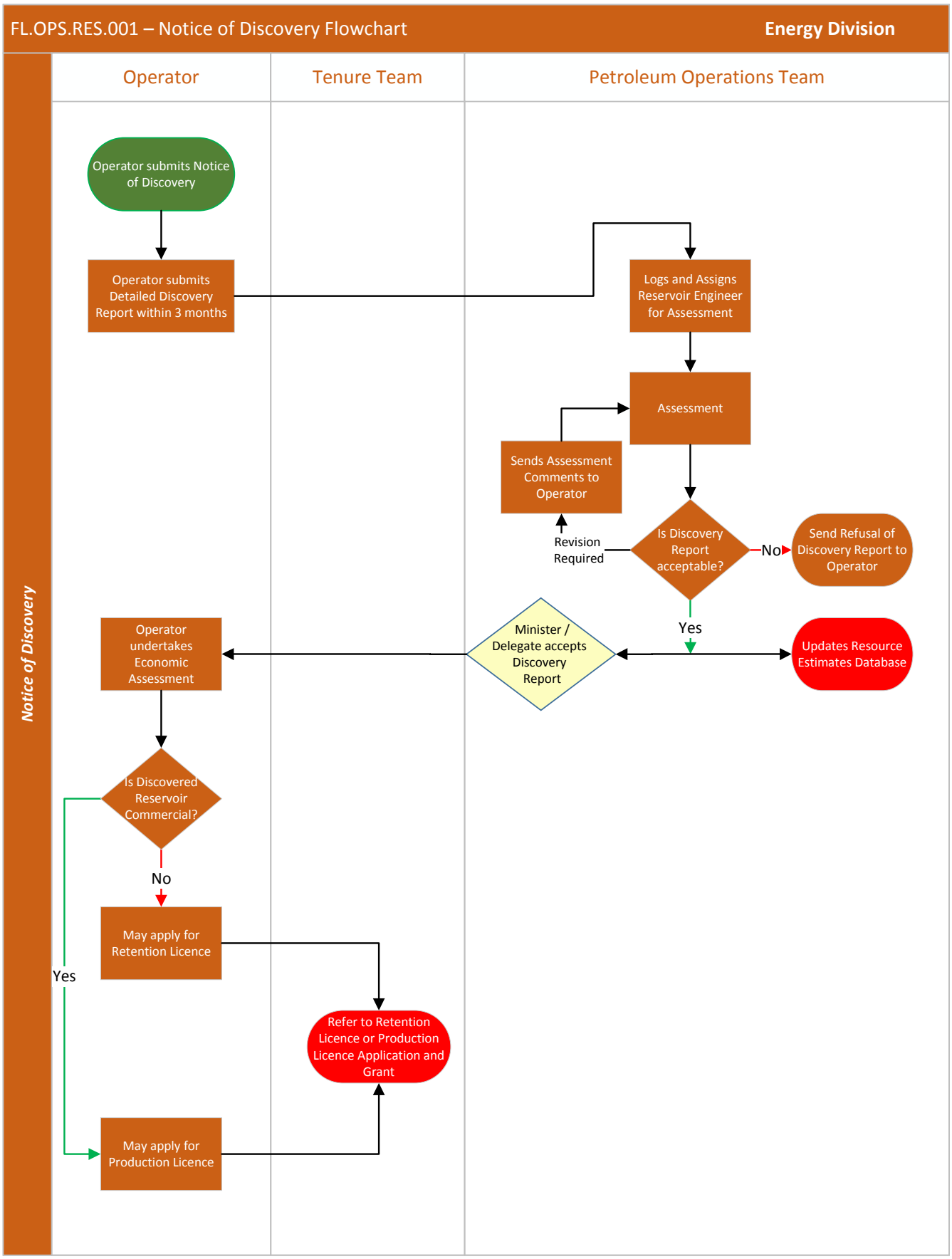
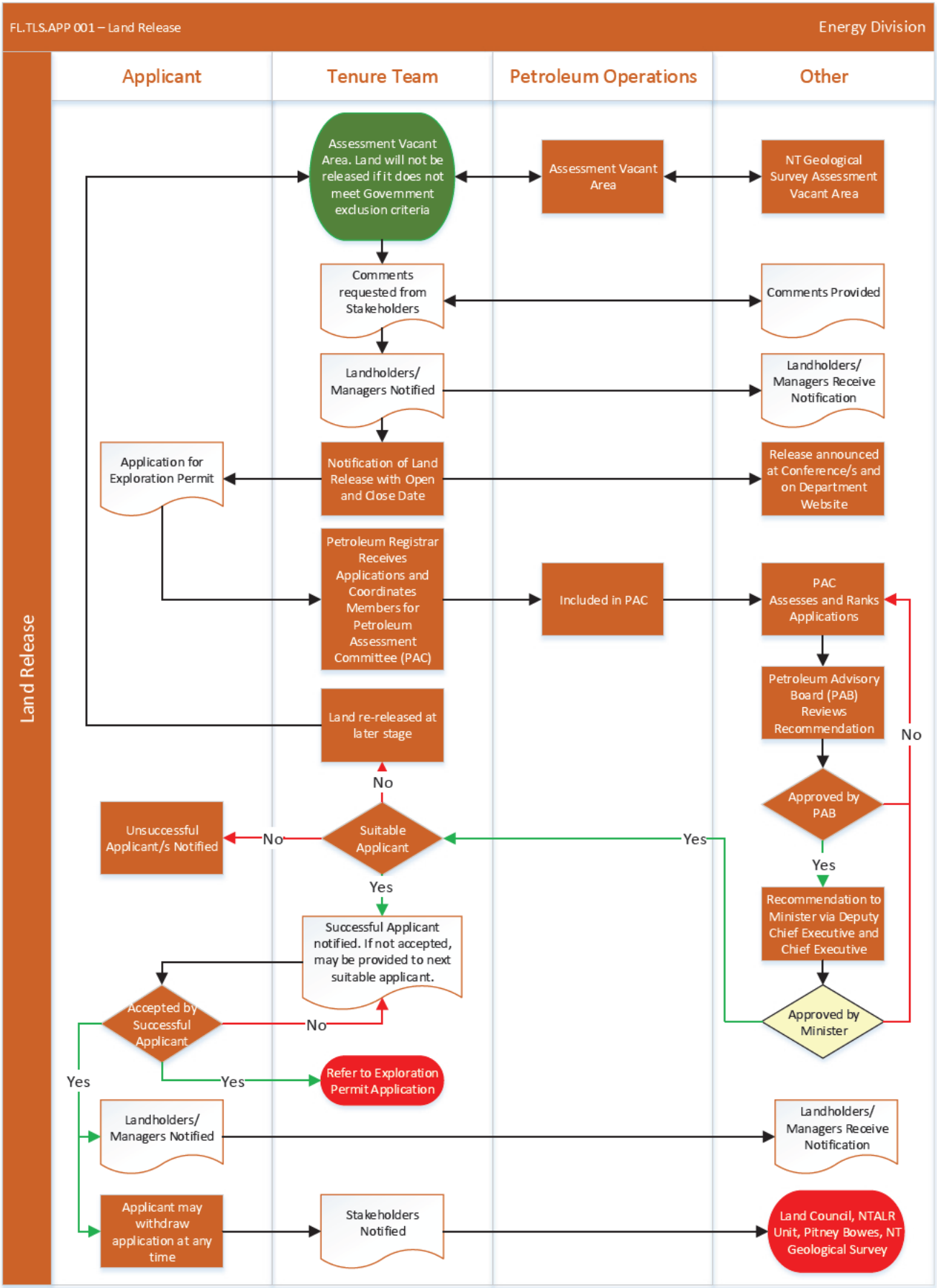
Page 1 of 1

FL.OPS.ENV.002 – Project's Environment Close-out Flowchart **Last reviewed:** 23 March 2017. **Approved by:** Senior Director Petroleum Technology and Operations

NORTHERN TERRITORY GOVERNMENT


FL.OPS.RES.001 – Notice of Discovery Flowchart
Energy Division
Notice of Discovery
Operator
Tenure Team
Petroleum Operations Team
Operator submits Notice of Discovery
Operator submits Detailed Discovery Report within 3 months
Logs and Assigns Reservoir Engineer for Assessment
Assessment
Sends Assessment Comments to Operator
Revision Required
Is Discovery Report acceptable?
No
Send Refusal of Discovery Report to Operator
Yes
Minister / Delegate accepts Discovery Report
Updates Resource Estimates Database
Operator undertakes Economic Assessment
Is Discovered Reservoir Commercial?
No
Yes
May apply for Retention Licence
Refer to Retention Licence or Production Licence Application and Grant
May apply for Production Licence

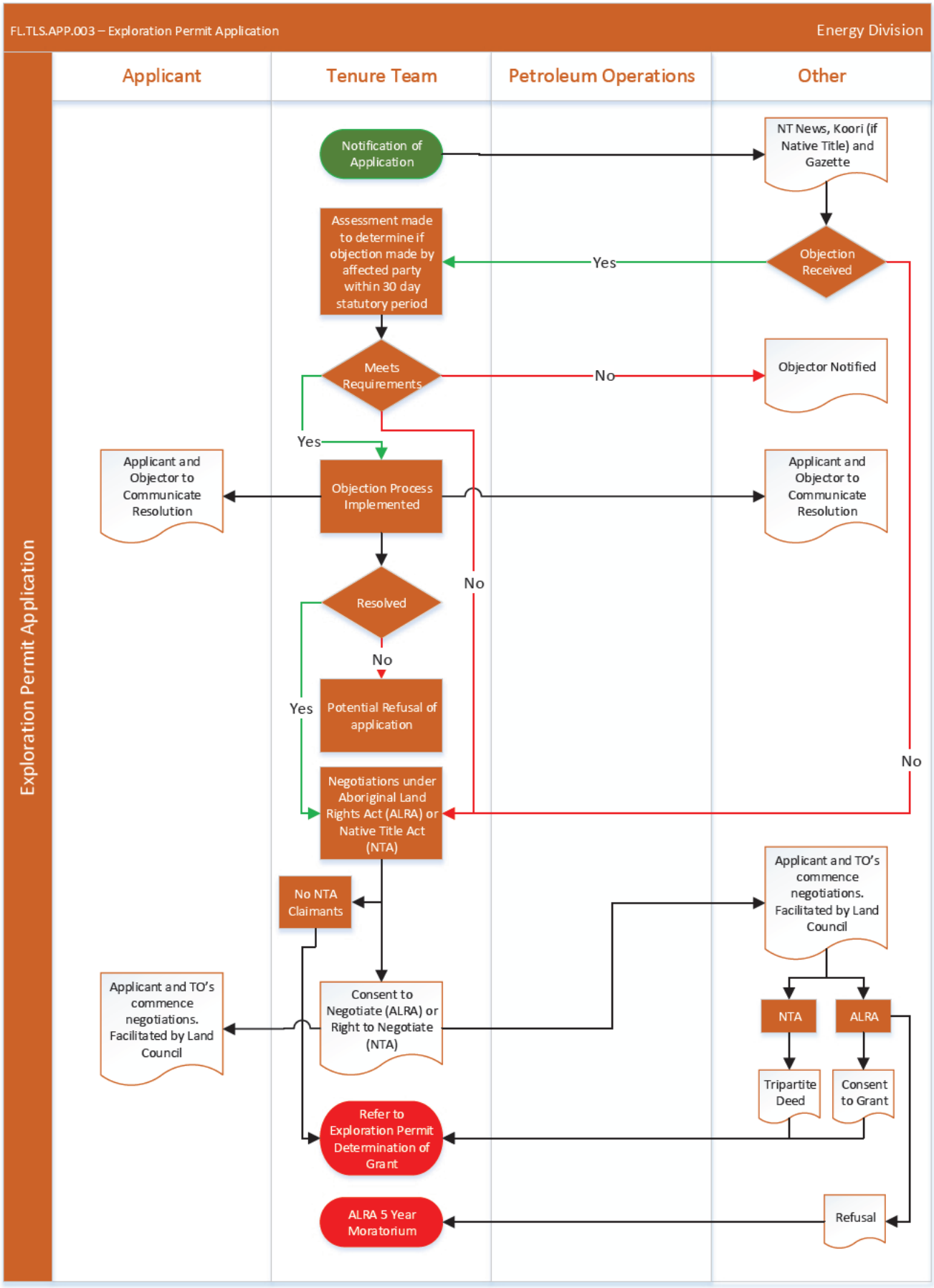
2) Flowcharts Titles

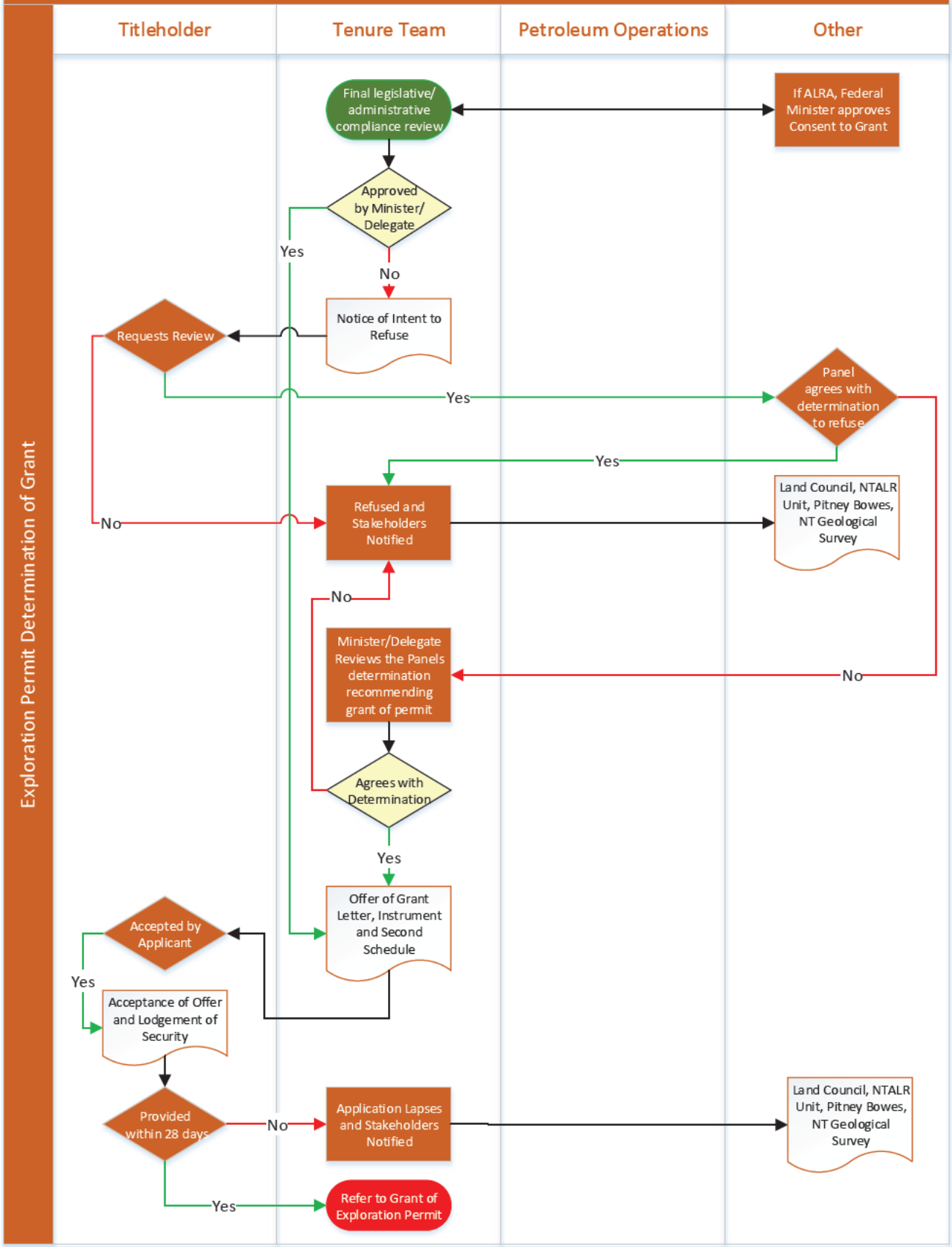

Land Release
Applicant
Tenure Team
Petroleum Operations
Other
Assessment Vacant Area. Land will not be released if it does not meet Government exclusion criteria
Assessment Vacant Area
NT Geological Survey Assessment Vacant Area
Comments requested from Stakeholders
Comments Provided
Landholders/ Managers Notified
Landholders/ Managers Receive Notification
Application for Exploration Permit
Notification of Land Release with Open and Close Date
Release announced at Conference/s and on Department Website
Petroleum Registrar Receives Applications and Coordinates Members for Petroleum Assessment Committee (PAC)
Included in PAC
PAC Assesses and Ranks Applications
Petroleum Advisory Board (PAB) Reviews Recommendation
Land re-released at later stage
No
Approved by PAB
No
Unsuccessful Applicant/s Notified
No
Suitable Applicant
Yes
Yes
Yes
Recommendation to Minister via Deputy Chief Executive and Chief Executive
Successful Applicant notified. If not accepted, may be provided to next suitable applicant.
Accepted by Successful Applicant
No
Approved by Minister
Yes
Yes
Refer to Exploration Permit Application
Landholders/ Managers Notified
Landholders/ Managers Receive Notification
Applicant may withdraw application at any time
Stakeholders Notified
Land Council, NTALR Unit, Pitney Bowes, NT Geological Survey

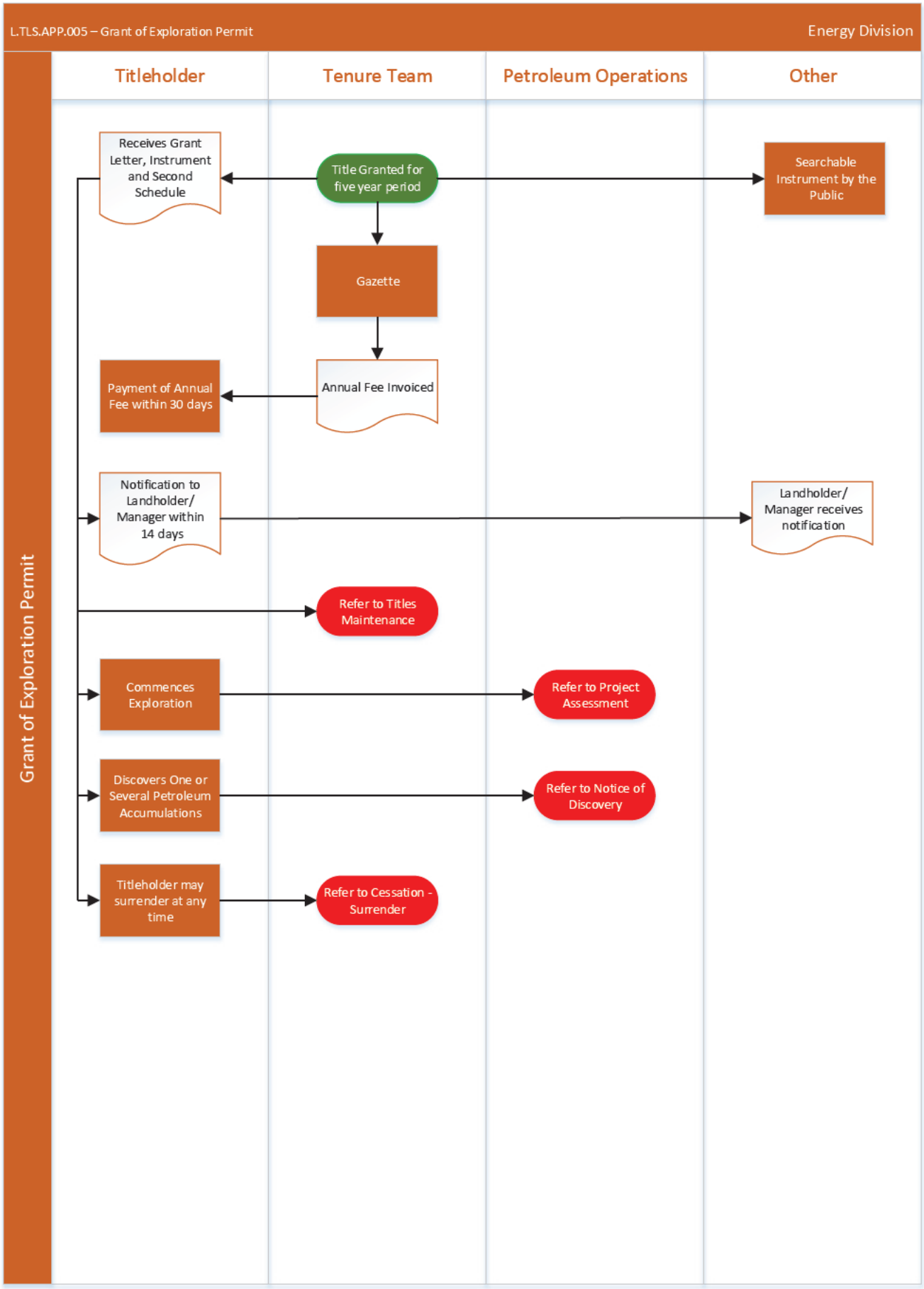
Petroleum Exploration Landholder Two Way Communication Consultation Process

Permitting and Approvals Process	Consultation Process
Determine Area for Release *Stakeholder Consultation*	**Stakeholder Consultation** DPIR seeks comments from Stakeholders regarding Acreage Release Area.
Release of Vacant Area **Notification to Stakeholders/Landholders** *Letter to Stakeholders/Landholders* **Advertise Acreage Release Area** ***Petroleum Act* (PA) s16(1)** Area opens for application – 3/6 months	DPIR notifies Stakeholder/Landholder/Manager of Release of Vacant Area. Letter will advise process. DPIR advertises Acreage Release Area.
	Selection of Applicant
Acreage Release application period closes Assessment and Evaluation of Applications **Notification of successful/unsuccessful applicants**	Applicant accepts offer and notifies Landholder/Manager within 14 days of the acceptance of offer to proceed through the application *process*[1].
	Application process
Notification/Objection Period (2 months – PA) (4 months – *Native Titles Act*)	DPIR advertises application in the NT Gazette, NT News, Koori Mail and publishes on the DPIR Website.
	The applicant will regularly update the Landholder/Manager throughout the application process
Objections provided to applicant, opportunity to respond. Objections will be taken into account prior to grant/conditions of grant.	DPIR issues grant of permit to applicant; notifies grant in NT Gazette and publishes on the DPIR Website
Permit granted	On acceptance of grant Permittee is required to notify the Landholder/Manager
	DPIR to post generic grant instrument on its website.
	Exploration activity
	Permittee commits to provide **14 days' notice** to Landholder/Manager of all aerial work and before first commencing reconnaissance activities[2]. Permittee to keep the Landholder/Manager informed about the nature and timing of activities.
Permittee applies to conduct exploration activity There is an expectation on the Permittee and Landholder/Manager that dialogue will continue throughout the term of the permit	Permittee and Landholder/Manager are required to reach an *agreement*[3] prior to the commencement of an *exploration program*[4]. DPIR requires evidence of an agreement prior to granting approval.
	Permittee is to provide 14 days' notice to Landholder/Manager before commencing an approved *exploration program*[4].

1. Section A and/or B of the *Notice of Application for the Grant of a Petroleum Exploration Permit*.
2. Reconnaissance activities are surveys, inspections and other activities that do not involve any disturbance to the land or vegetation and are undertaken before commencement of an exploration program.
3. Once the Permittee notifies the Landholder/Manager of its intention to commence negotiations, the parties have 60 days to reach a land access agreement and associated conditions. See the Stakeholder Engagement Guidelines Land Access for further details about agreement and arbitration process.
4. A group of activities (other than reconnaissance activities) forming an exploration program requiring approval by DPIR.


FL.TLS.APP.003 – Exploration Permit Application
Energy Division
Exploration Permit Application
Applicant
Tenure Team
Petroleum Operations
Other
Notification of Application
NT News, Koori (if Native Title) and Gazette
Assessment made to determine if objection made by affected party within 30 day statutory period
Yes
Objection Received
Meets Requirements
No
Objector Notified
Yes
Applicant and Objector to Communicate Resolution
Objection Process Implemented
Applicant and Objector to Communicate Resolution
No
Resolved
No
Yes
Potential Refusal of application
No
Negotiations under Aboriginal Land Rights Act (ALRA) or Native Title Act (NTA)
Applicant and TO's commence negotiations. Facilitated by Land Council
No NTA Claimants
Applicant and TO's commence negotiations. Facilitated by Land Council
Consent to Negotiate (ALRA) or Right to Negotiate (NTA)
NTA
ALRA
Tripartite Deed
Consent to Grant
Refer to Exploration Permit Determination of Grant
ALRA 5 Year Moratorium
Refusal


Exploration Permit Determination of Grant
Titleholder
Tenure Team
Petroleum Operations
Other
Final legislative/ administrative compliance review
If ALRA, Federal Minister approves Consent to Grant
Approved by Minister/ Delegate
Yes
No
Notice of Intent to Refuse
Requests Review
Yes
Panel agrees with determination to refuse
Yes
No
Refused and Stakeholders Notified
Land Council, NTALR Unit, Pitney Bowes, NT Geological Survey
No
Minister/Delegate Reviews the Panels determination recommending grant of permit
No
Agrees with Determination
Yes
Offer of Grant Letter, Instrument and Second Schedule
Accepted by Applicant
Yes
Acceptance of Offer and Lodgement of Security
Provided within 28 days
No
Application Lapses and Stakeholders Notified
Land Council, NTALR Unit, Pitney Bowes, NT Geological Survey
Yes
Refer to Grant of Exploration Permit



DEPARTMENT OF **PRIMARY INDUSTRY AND RESOURCES**
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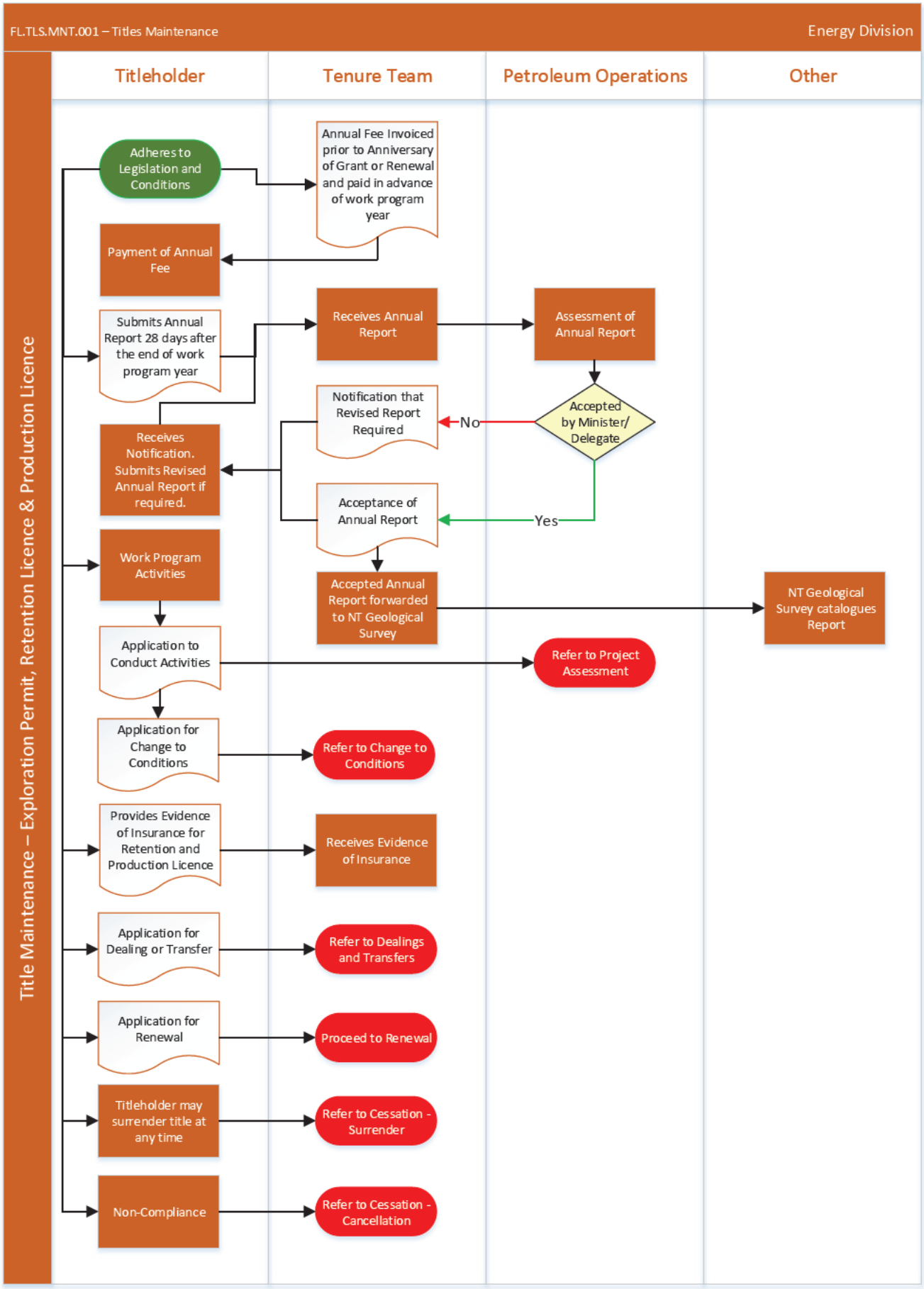
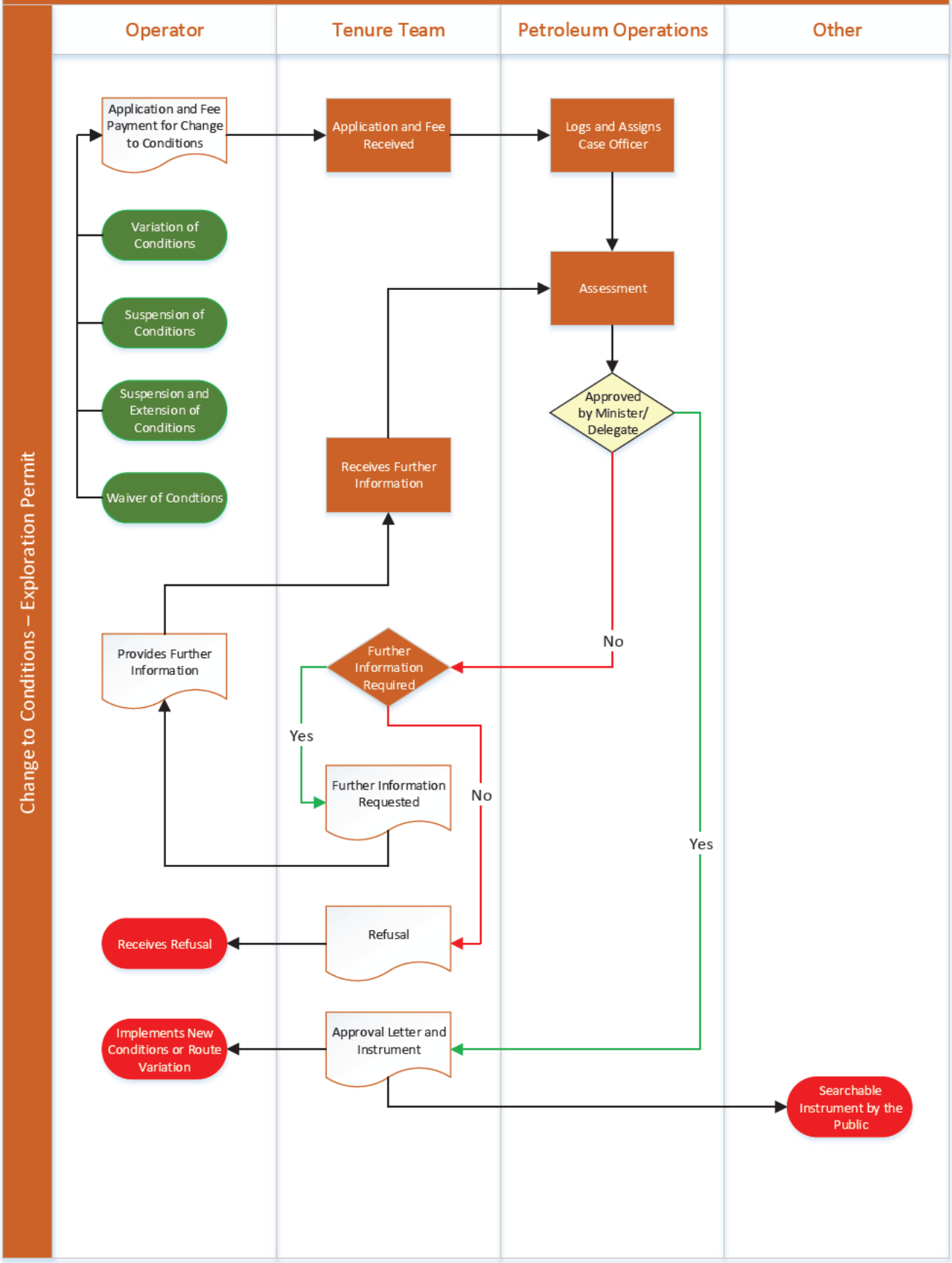
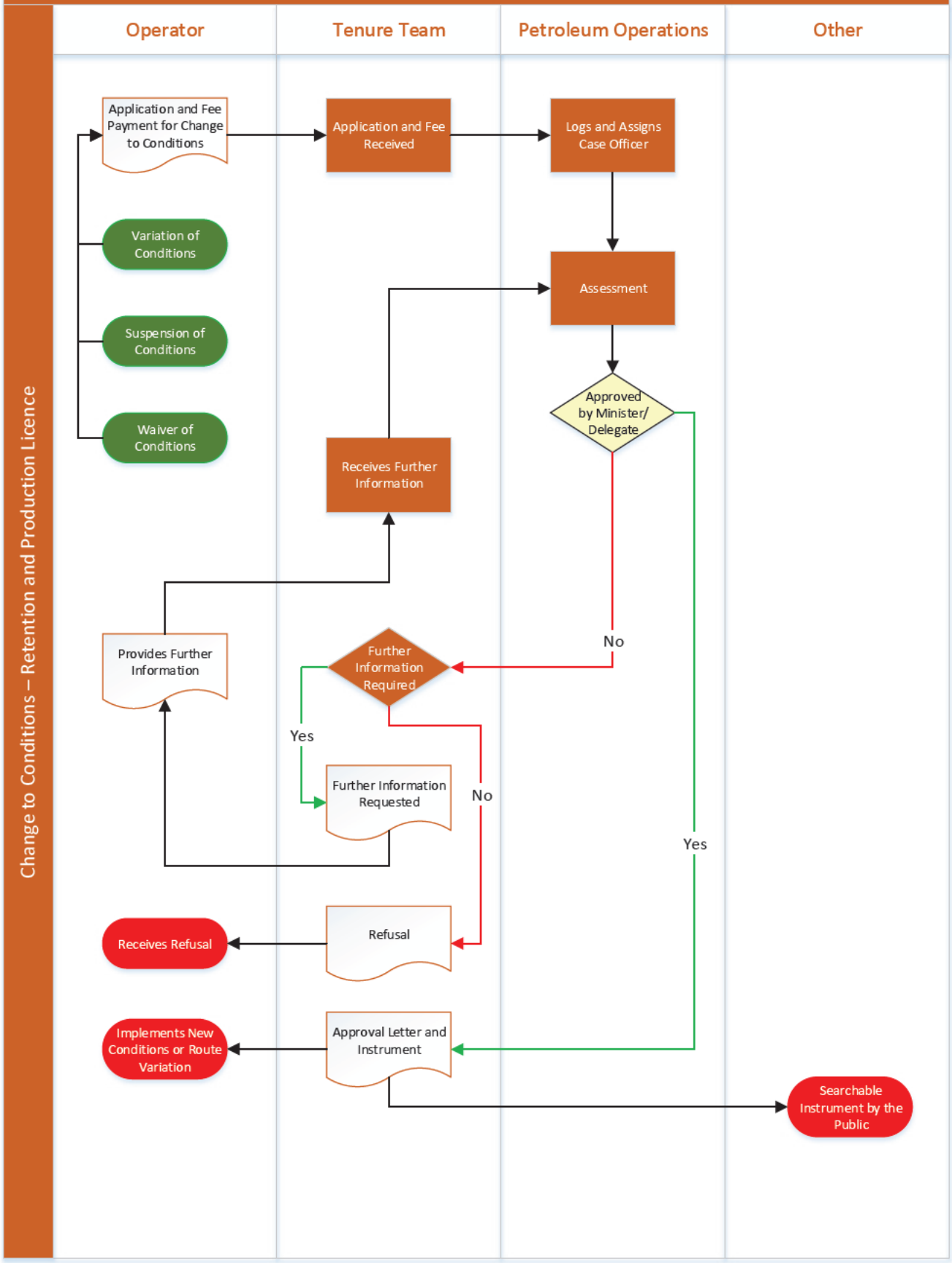
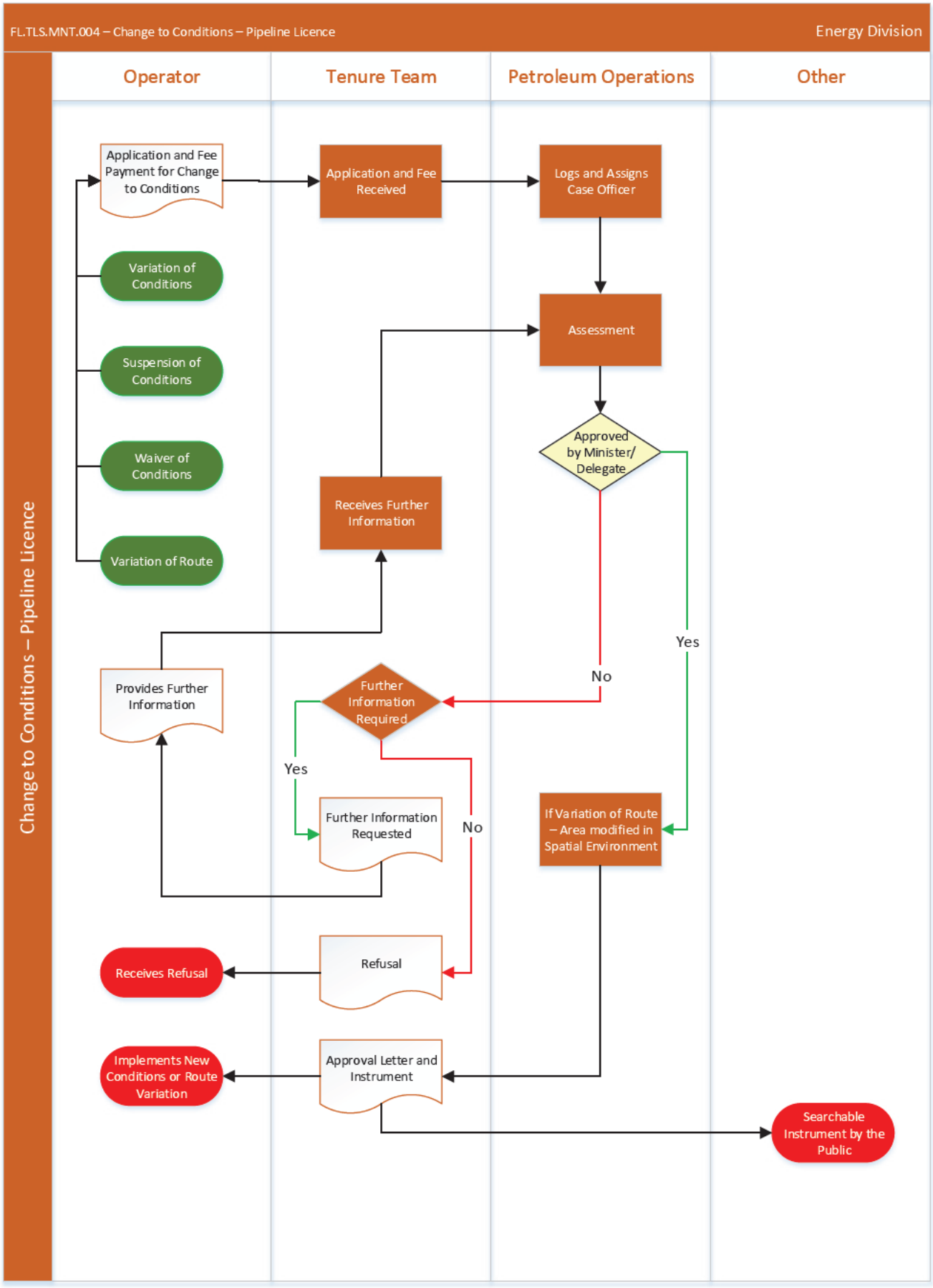
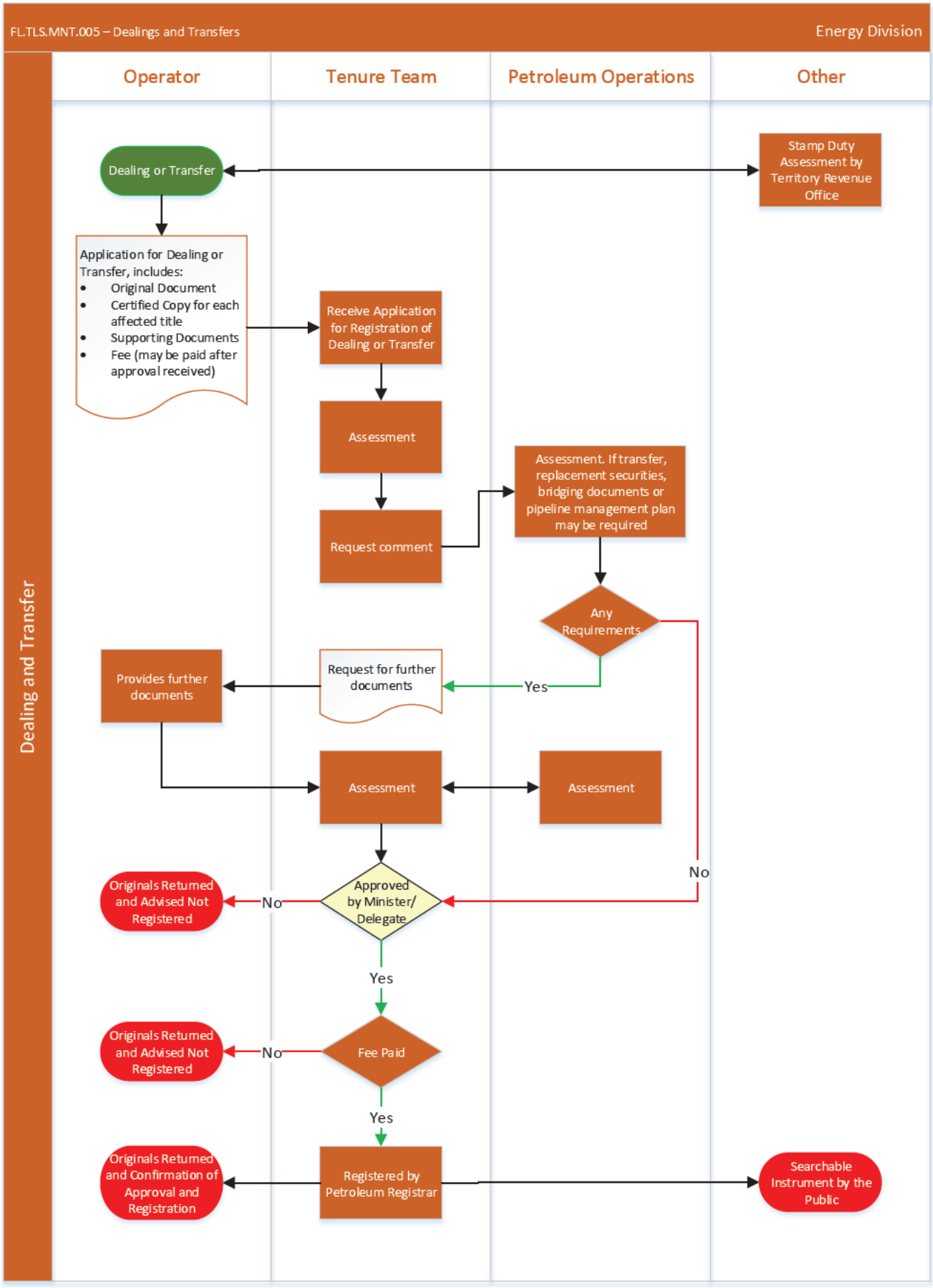
NORTHERN TERRITORY GOVERNMENT

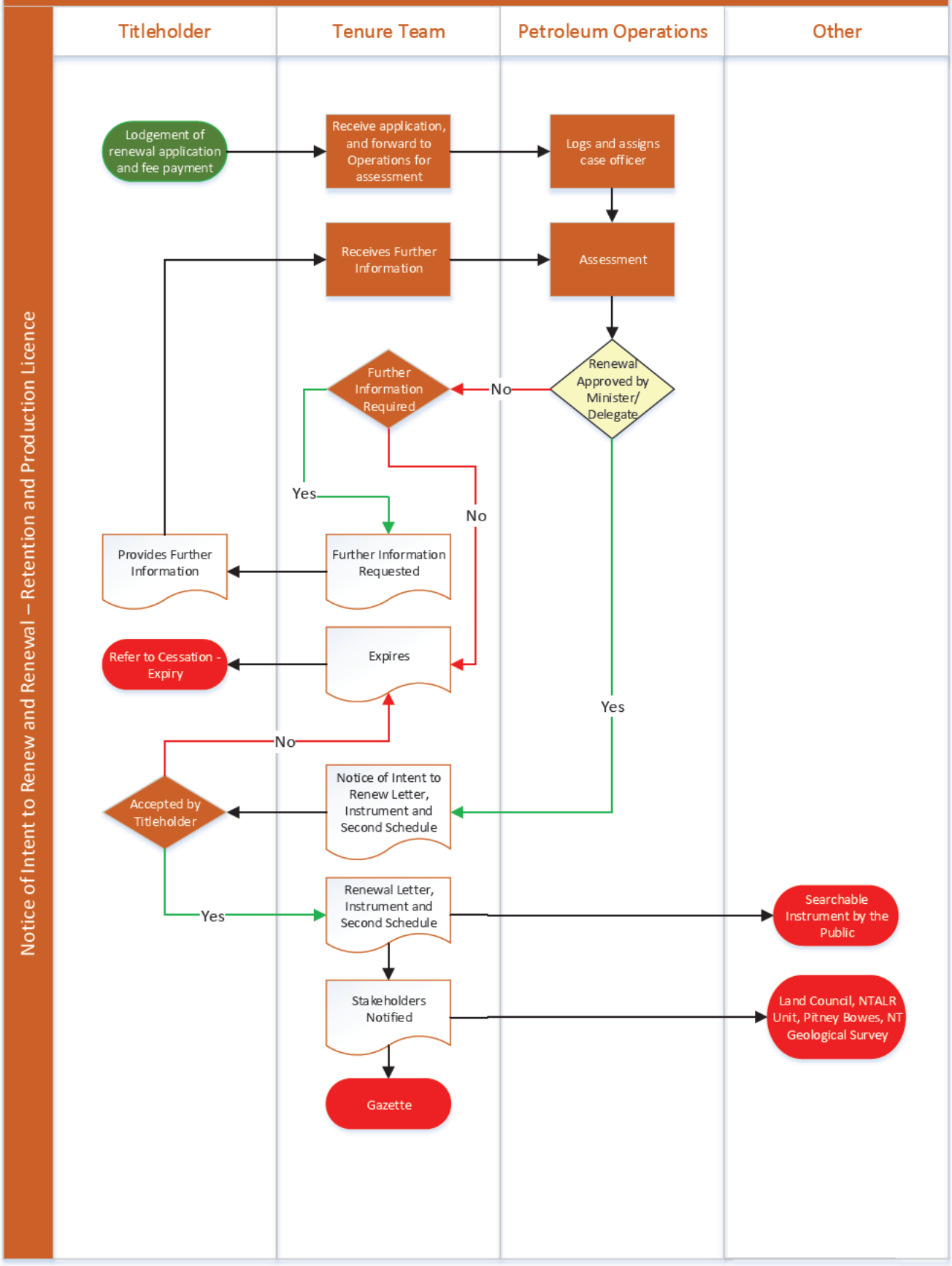

FL.TLS.MNT.001 – Titles Maintenance
Energy Division
Title Maintenance – Exploration Permit, Retention Licence & Production Licence
Titleholder
Tenure Team
Petroleum Operations
Other
Adheres to Legislation and Conditions
Annual Fee Invoiced prior to Anniversary of Grant or Renewal and paid in advance of work program year
Payment of Annual Fee
Submits Annual Report 28 days after the end of work program year
Receives Annual Report
Assessment of Annual Report
Accepted by Minister/ Delegate
No
Notification that Revised Report Required
Receives Notification. Submits Revised Annual Report if required.
Acceptance of Annual Report
Yes
Work Program Activities
Accepted Annual Report forwarded to NT Geological Survey
NT Geological Survey catalogues Report
Application to Conduct Activities
Refer to Project Assessment
Application for Change to Conditions
Refer to Change to Conditions
Provides Evidence of Insurance for Retention and Production Licence
Receives Evidence of Insurance
Application for Dealing or Transfer
Refer to Dealings and Transfers
Application for Renewal
Proceed to Renewal
Titleholder may surrender title at any time
Refer to Cessation - Surrender
Non-Compliance
Refer to Cessation - Cancellation

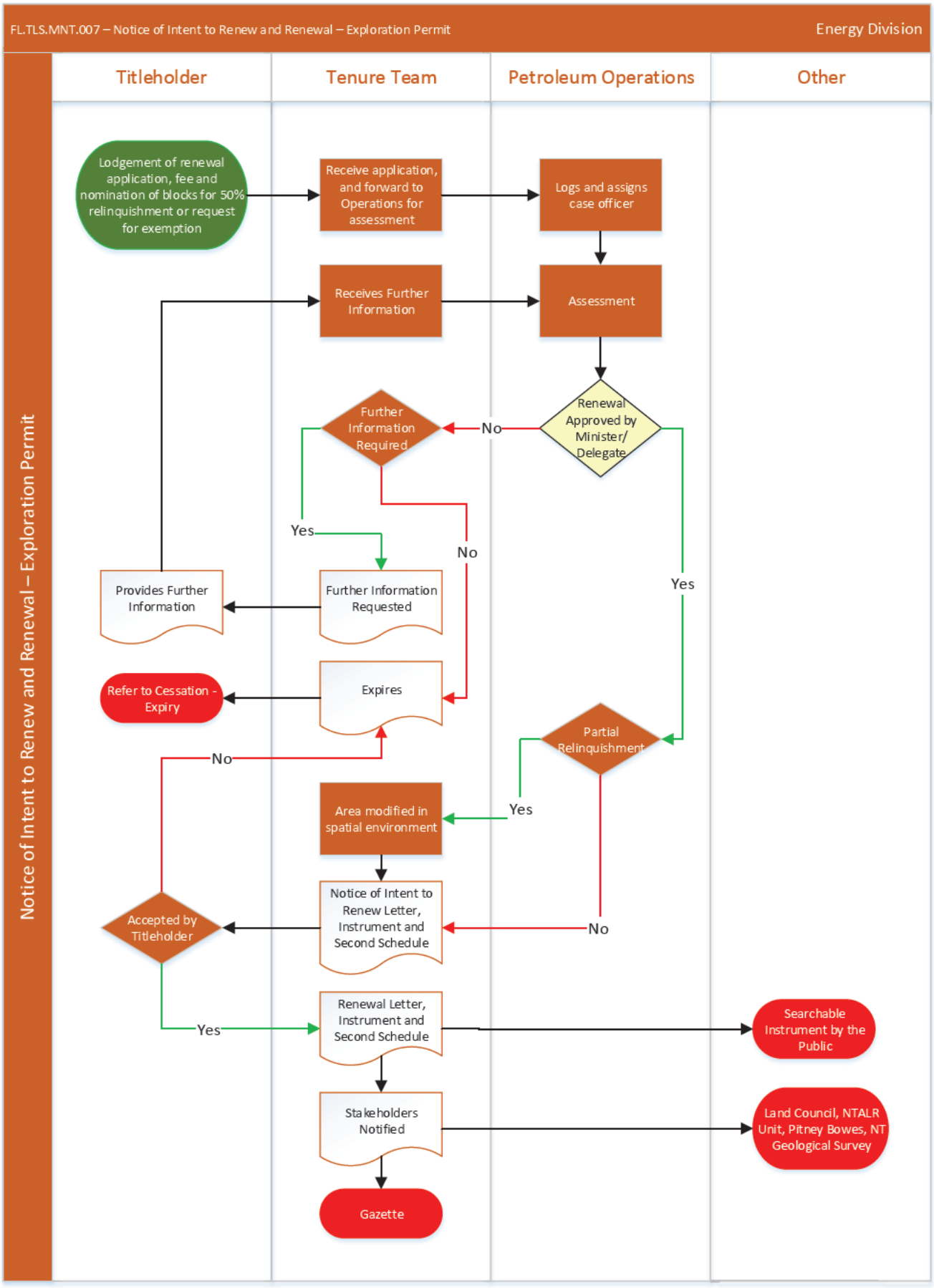

Change to Conditions – Exploration Permit
Operator
Tenure Team
Petroleum Operations
Other
Application and Fee Payment for Change to Conditions
Application and Fee Received
Logs and Assigns Case Officer
Variation of Conditions
Suspension of Conditions
Suspension and Extension of Conditions
Waiver of Condtions
Assessment
Approved by Minister/ Delegate
Receives Further Information
No
Provides Further Information
Further Information Required
Yes
Further Information Requested
No
Yes
Receives Refusal
Refusal
Implements New Conditions or Route Variation
Approval Letter and Instrument
Searchable Instrument by the Public

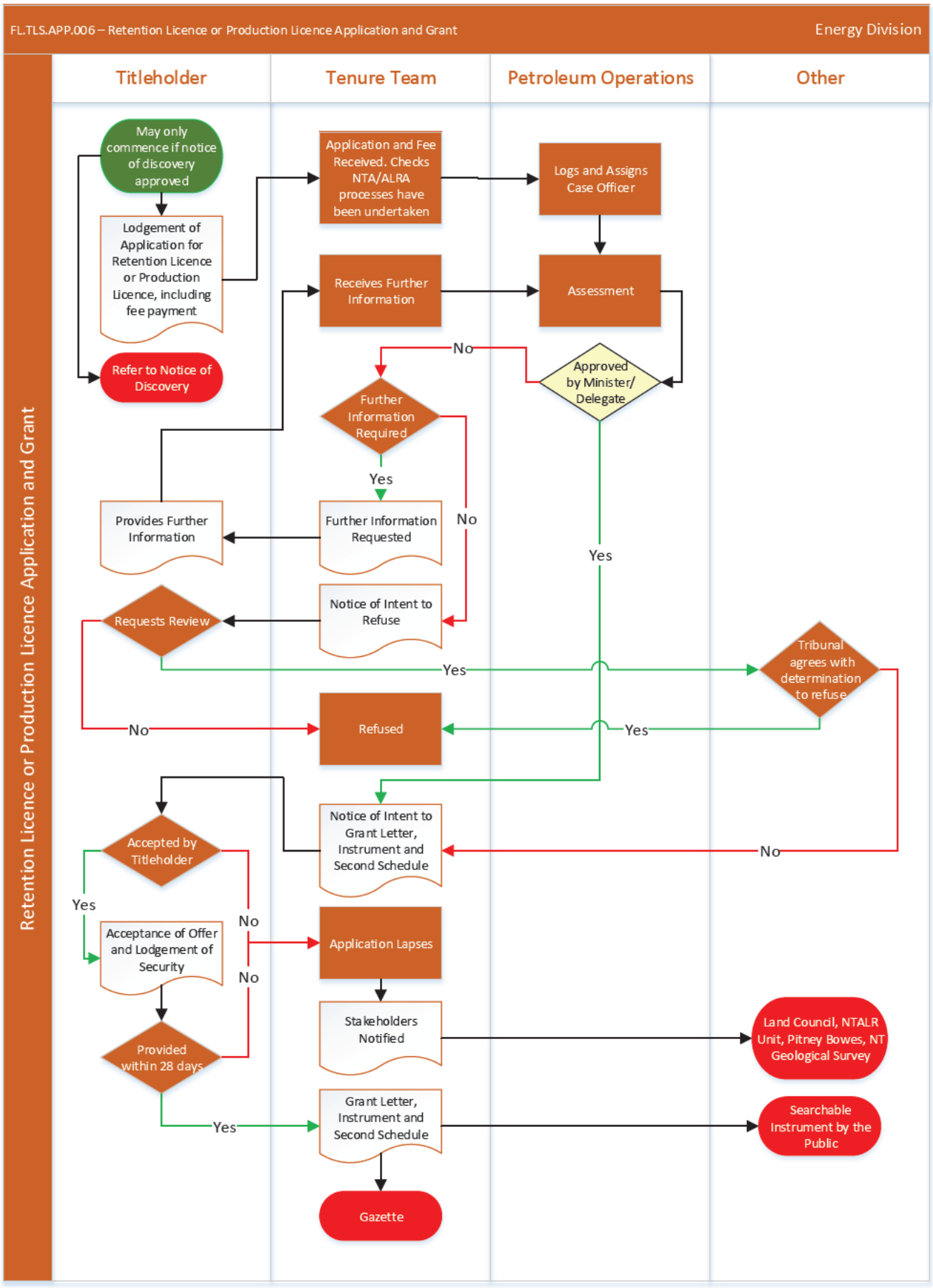

Change to Conditions – Retention and Production Licence
Operator
Tenure Team
Petroleum Operations
Other
Application and Fee Payment for Change to Conditions
Application and Fee Received
Logs and Assigns Case Officer
Variation of Conditions
Suspension of Conditions
Waiver of Conditions
Assessment
Approved by Minister/ Delegate
Receives Further Information
No
Provides Further Information
Further Information Required
Yes
Further Information Requested
No
Yes
Receives Refusal
Refusal
Implements New Conditions or Route Variation
Approval Letter and Instrument
Searchable Instrument by the Public

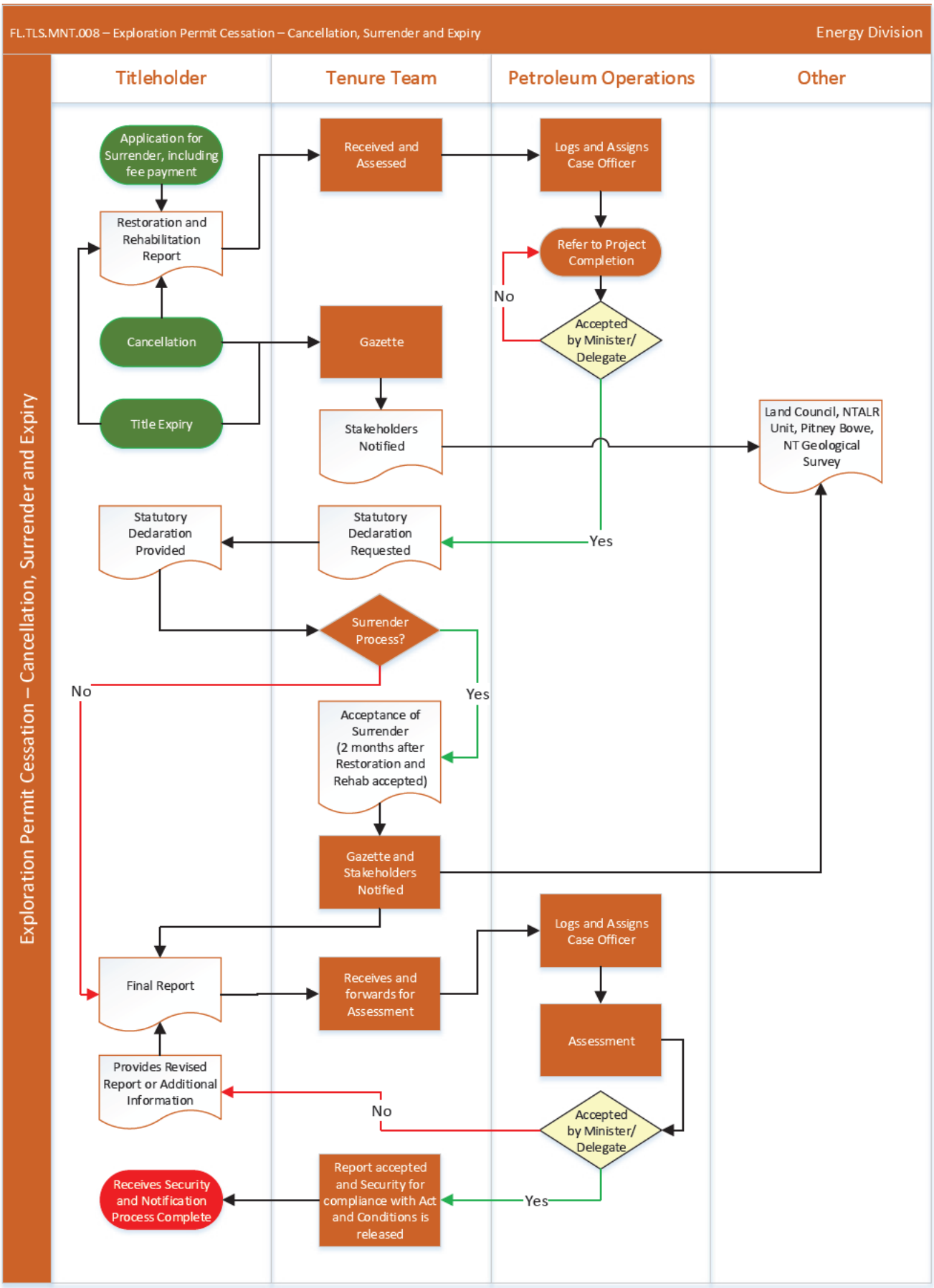

FL.TLS.MNT.004 – Change to Conditions – Pipeline Licence
Energy Division
Change to Conditions – Pipeline Licence
Operator
Tenure Team
Petroleum Operations
Other
Application and Fee Payment for Change to Conditions
Application and Fee Received
Logs and Assigns Case Officer
Variation of Conditions
Suspension of Conditions
Waiver of Conditions
Variation of Route
Assessment
Approved by Minister/ Delegate
Receives Further Information
Yes
No
Provides Further Information
Further Information Required
Yes
No
Further Information Requested
If Variation of Route – Area modified in Spatial Environment
Receives Refusal
Refusal
Implements New Conditions or Route Variation
Approval Letter and Instrument
Searchable Instrument by the Public

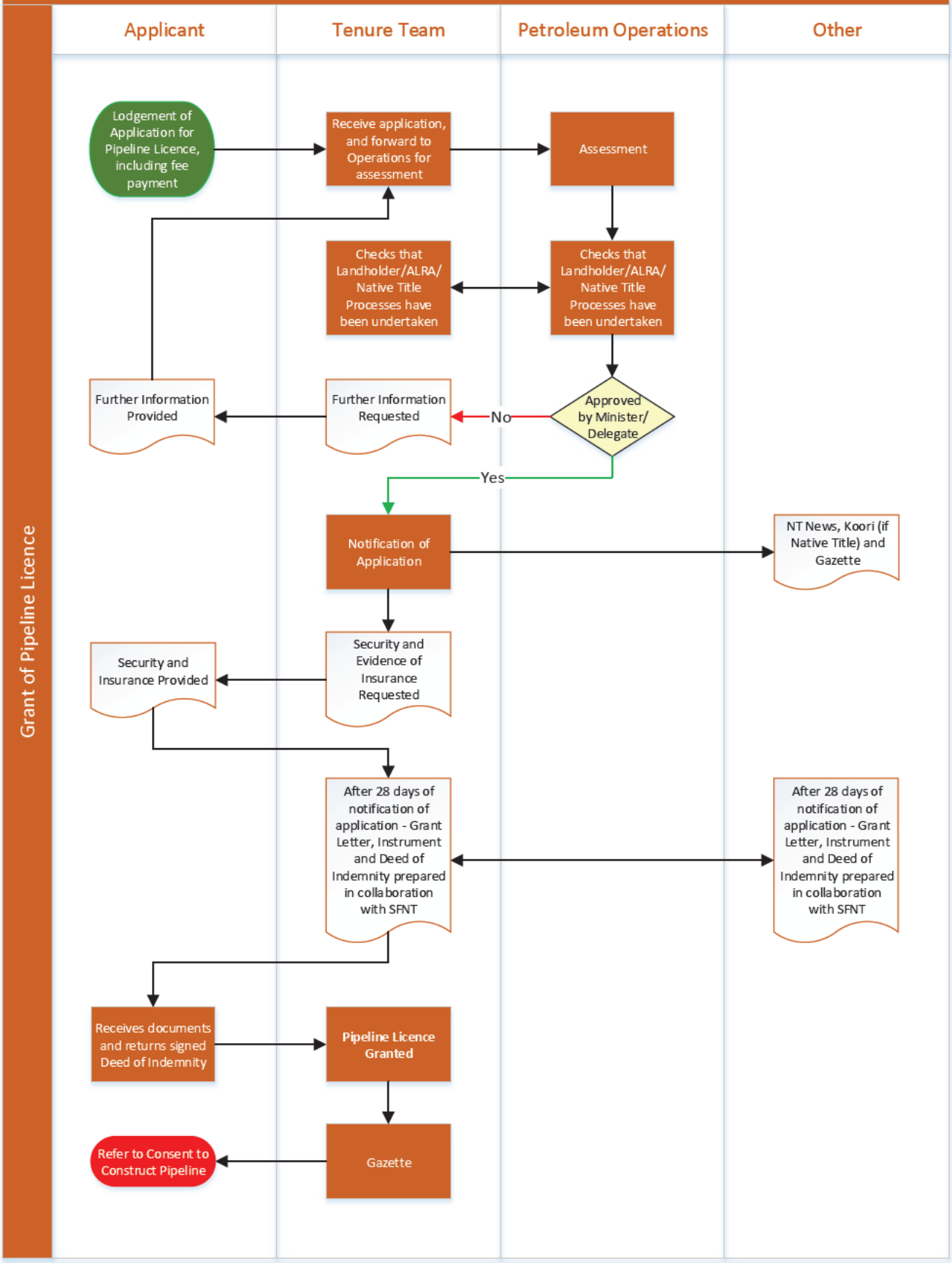

FL.TLS.MNT.005 – Dealings and Transfers
Energy Division
Dealing and Transfer
Operator
Tenure Team
Petroleum Operations
Other
Dealing or Transfer
Stamp Duty Assessment by Territory Revenue Office
Application for Dealing or Transfer, includes:
Original Document
Certified Copy for each affected title
Supporting Documents
Fee (may be paid after approval received)
Receive Application for Registration of Dealing or Transfer
Assessment
Request comment
Assessment. If transfer, replacement securities, bridging documents or pipeline management plan may be required
Any Requirements
Yes
Request for further documents
Provides further documents
Assessment
Assessment
No
Approved by Minister/ Delegate
No
Originals Returned and Advised Not Registered
Yes
Fee Paid
No
Originals Returned and Advised Not Registered
Yes
Registered by Petroleum Registrar
Originals Returned and Confirmation of Approval and Registration
Searchable Instrument by the Public


Notice of Intent to Renew and Renewal – Retention and Production Licence
Titleholder
Tenure Team
Petroleum Operations
Other
Lodgement of renewal application and fee payment
Receive application, and forward to Operations for assessment
Logs and assigns case officer
Receives Further Information
Assessment
Renewal Approved by Minister/ Delegate
No
Further Information Required
Yes
No
Provides Further Information
Further Information Requested
Refer to Cessation - Expiry
Expires
Yes
No
Accepted by Titleholder
Notice of Intent to Renew Letter, Instrument and Second Schedule
Yes
Renewal Letter, Instrument and Second Schedule
Searchable Instrument by the Public
Stakeholders Notified
Land Council, NTALR Unit, Pitney Bowes, NT Geological Survey
Gazette


FL.TLS.MNT.007 – Notice of Intent to Renew and Renewal – Exploration Permit
Energy Division
Notice of Intent to Renew and Renewal – Exploration Permit
Titleholder
Tenure Team
Petroleum Operations
Other
Lodgement of renewal application, fee and nomination of blocks for 50% relinquishment or request for exemption
Receive application, and forward to Operations for assessment
Logs and assigns case officer
Receives Further Information
Assessment
Renewal Approved by Minister/ Delegate
Further Information Required
No
Yes
No
Yes
Provides Further Information
Further Information Requested
Refer to Cessation - Expiry
Expires
Partial Relinquishment
No
Yes
Area modified in spatial environment
Notice of Intent to Renew Letter, Instrument and Second Schedule
No
Accepted by Titleholder
Yes
Renewal Letter, Instrument and Second Schedule
Searchable Instrument by the Public
Stakeholders Notified
Land Council, NTALR Unit, Pitney Bowes, NT Geological Survey
Gazette


FL.TLS.APP.006 – Retention Licence or Production Licence Application and Grant
Energy Division
Retention Licence or Production Licence Application and Grant
Titleholder
Tenure Team
Petroleum Operations
Other
May only commence if notice of discovery approved
Lodgement of Application for Retention Licence or Production Licence, including fee payment
Refer to Notice of Discovery
Application and Fee Received. Checks NTA/ALRA processes have been undertaken
Logs and Assigns Case Officer
Receives Further Information
Assessment
Approved by Minister/ Delegate
No
Further Information Required
Yes
Provides Further Information
Further Information Requested
No
Requests Review
Notice of Intent to Refuse
Yes
Tribunal agrees with determination to refuse
No
Refused
Yes
Notice of Intent to Grant Letter, Instrument and Second Schedule
No
Accepted by Titleholder
Yes
Acceptance of Offer and Lodgement of Security
No
Application Lapses
No
Provided within 28 days
Stakeholders Notified
Land Council, NTALR Unit, Pitney Bowes, NT Geological Survey
Yes
Grant Letter, Instrument and Second Schedule
Searchable Instrument by the Public
Gazette


Exploration Permit Cessation – Cancellation, Surrender and Expiry
Titleholder
Tenure Team
Petroleum Operations
Other
Application for Surrender, including fee payment
Restoration and Rehabilitation Report
Cancellation
Title Expiry
Received and Assessed
Gazette
Stakeholders Notified
Logs and Assigns Case Officer
Refer to Project Completion
No
Accepted by Minister/ Delegate
Yes
Land Council, NTALR Unit, Pitney Bowe, NT Geological Survey
Statutory Declaration Requested
Statutory Declaration Provided
Surrender Process?
No
Yes
Acceptance of Surrender (2 months after Restoration and Rehab accepted)
Gazette and Stakeholders Notified
Final Report
Receives and forwards for Assessment
Logs and Assigns Case Officer
Assessment
Provides Revised Report or Additional Information
No
Accepted by Minister/ Delegate
Report accepted and Security for compliance with Act and Conditions is released
Yes
Receives Security and Notification Process Complete


Grant of Pipeline Licence
Applicant
Tenure Team
Petroleum Operations
Other
Lodgement of Application for Pipeline Licence, including fee payment
Receive application, and forward to Operations for assessment
Assessment
Checks that Landholder/ALRA/ Native Title Processes have been undertaken
Checks that Landholder/ALRA/ Native Title Processes have been undertaken
Further Information Provided
Further Information Requested
No
Approved by Minister/ Delegate
Yes
Notification of Application
NT News, Koori (if Native Title) and Gazette
Security and Insurance Provided
Security and Evidence of Insurance Requested
After 28 days of notification of application - Grant Letter, Instrument and Deed of Indemnity prepared in collaboration with SFNT
After 28 days of notification of application - Grant Letter, Instrument and Deed of Indemnity prepared in collaboration with SFNT
Receives documents and returns signed Deed of Indemnity
Pipeline Licence Granted
Refer to Consent to Construct Pipeline
Gazette

Attachment E – Industry Terms and Definitions

Attachment E – Industry Terms and Definitions

All terms and definitions in this submission are consistent with those as defined in the NT's regulatory framework: the Act (p2), the Schedule (p8) and the Petroleum (Environment) Regulations (p1).

Links to the relevant legislative documents are provided below:

https://legislation.nt.gov.au/Legislation/PETROLEUM-ACT

https://nt.gov.au/__data/assets/pdf_file/0004/295906/schedule-of-petroleum-onshore-requirements-2016.pdf

https://legislation.nt.gov.au/en/Legislation/PETROLEUM-ENVIRONMENT-REGULATIONS

Attachment F – Compliance and Enforcement Policy

POLICY

Compliance and Enforcement Policy

Introduction

The Northern Territory (NT) Government recognises the importance of minerals and energy resources and the resources sector to the Territory's future economic prosperity.

The role of the Department of Primary Industry and Resources (the department) is to:

- Maximise the value of mineral and energy resources in the NT to Territorians
- Administer and regulate NT mineral and energy tenure
- Regulate the ecologically sustainable development of mineral and energy resources in the NT.

Purpose

This policy establishes the department's approach to compliance and enforcement activities associated with the legislation it administers.

Accountability and Responsibility

Rules and conditions of mineral and energy resources exploration, operations, production and remediation are defined in the legislation.

Accountability for complying with the legal requirements, including approved plans, lies with the title holder or operator, as per the legislation.

The department is responsible for monitoring and, if necessary, enforcing compliance with legislation.

Principles for Compliance and Enforcement

The department will be guided by the following principles when undertaking its compliance and enforcement role:

Certainty	Compliance and enforcement approaches will be consistent, clear and predictable. The department will provide clear guidance on what is required for compliance with minerals and energy legislation.
Openness	Policies and supporting guidance materials on how the department manages its compliance and enforcement activities will be publically available. Enforcement decisions will be explained and made public.
Targeted	Compliance and enforcement activities will target those areas that have the potential to cause greatest harm and where the biggest differences to managing the risks to ecologically sustainable development can be made.
Transparent	Regulations and guidance will be developed and enforced transparently.
Proportionate	Compliance monitoring will be appropriate to the level of risk or impact posed by the activity and track record of the operator.
Practical	Regulatory objectives will be meaningful, achievable and measurable.
Efficient	Enforcement action will be timely to minimise impacts on the environment and justified through a risk based approach.

Compliance and Enforcement Approach

The department will promote regulatory compliance, focussing on prevention rather than cure, by working to assist stakeholders to understand their responsibilities and fostering a culture of continuous improvement and innovation.

Early detection of non-compliance to avoid adverse impacts is preferred, however when needed enforcement measures used will be proportional to the level of risk.

The department's focus and effort will be on preventative measures but dependent on the seriousness of non-compliance more severe measures will be utilised to ensure that enforcement actions are both proportional and effective. See the figure below and supporting examples.

Preventative measures

- Clear, contemporary legislation
- Respectful relationships with key stakeholders
- Clear and direct communication of expectations to stakeholders
- Robust assessment of competence, capacity and track record prior to grant of title
- Thorough assessment of work plans to minimise risks and impacts
- Administration of security lodgement
- Active compliance monitoring through reporting and engagement with title holders
- Monitoring compliance through field audits and inspections

Persuasive measures

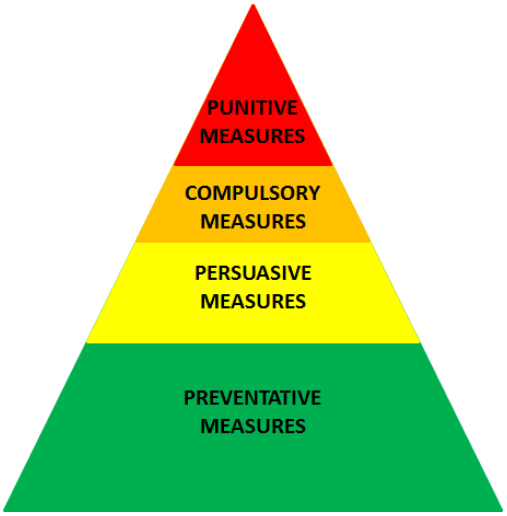
- Notification of non-compliance
- Requesting formal explanations of incidents

Compulsory measures

- Issuing specific and formal instructions and/or directions
- Investigating incidents
- Applying temporary injunction or suspension of operations

Punitive measures

- Fines, and prosecution
- Revoking Authorisations and cancelling titles
- Making a claim on the lodged security



Implementation

The department's development and implementation of supporting procedures and processes for compliance and enforcement activities will comply with this policy. The department will review and report on its processes and activities against this policy annually.

AUTHORISED ON 7 APRIL 2017 BY:

ALISTER TRIER
CHIEF EXECUTIVE OFFICER - DEPARTMENT OF **PRIMARY INDUSTRY AND RESOURCES**

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Attachment G – Overview of Key Department Roles and Responsibilities

APPENDIX G: Overview of Key Department Roles and Responsibilities

DEPARTMENT/DIVISION	ROLE	LEGISLATION ADMINISTERED
Department of Primary Industry and Resources		
• NTGS • Titles • Compliance and Assessment	• Geological research and analysis – propose acreage release and attract investment • Title administration: registering of transfers, dealings, permits and licences • Assessment of petroleum activity proposals, work programs, compliance and enforcement	*Petroleum Act* *Petroleum Regulations (fees)* *Energy Pipelines Act* *Schedule of Onshore Petroleum Exploration and Production Requirements* *Petroleum (Environment) Regulations* *Energy Pipelines Regulations*
Department of Trade Business and Innovation		
• Office of Major Projects , Infrastructure and Investment	• Major project facilitation and investment attraction	*Special Provisions for Projects*
Department of Environment and Natural Resources		
• Water branch • Weeds branch • Heritage • Parks and Wildlife Commission of the NT • NT Environment Protection Authority • Aboriginal Areas Protection Authority	• Water extraction licences and allocations • Weeds Management Plan • Heritage works approval • Wildlife management and conservation plan • Environmental impact assessment • Waste management plan and waste discharge licence • Sacred sites clearance certificate	*Water Act* *Weeds Management Act* *Soil Conservation and Land Utilisation Act* *Heritage Act* *Territory Parks and Wildlife Conservation Act* *Environmental Assessment Act* *Waste Management and Pollution Control Act* *Environmental Offences and Penalties Act* *Northern Territory Aboriginal Sacred Sites Act*
Department of Attorney General and Justice		
• NT WorkSafe	• Compliance with Work Health and Safety Legislation	*Public Interest Disclosure Act* *Dangerous Goods Act* *Work Health and Safety Legislation Act* *Transport of Dangerous Goods by Road and Rail Act*
Department of Infrastructure Planning and Logistics		
• Lands and Planning • Transport	• Consent-to-negotiate/tri-partite deed • Vegetation clearing permit • Traffic management plan	*Aboriginal Land Rights Act* *Crown Lands Act* *Crown Lands Freehold Act* *Pastoral Land Act (Vegetation clearing on pastoral land)* *Planning Act (Vegetation clearing on zoned and unzoned land)* *Control of Roads Act* *Traffic Act*
Department of the Attorney General (Cth)		
• National Native Title Tribunal	• Right-to-negotiate • Indigenous Land Use Agreement	*Native Title Act*
Department of Treasury and Finance		
• Royalty collection	• Collection of royalty payments	*Petroleum Act*
Department of Health		
		Public and Environmental Health Act
Department of the Environment and Energy (Cth)		
	• EPBC referral and approval	*Environmental Protection and Biodiversity Conservation Act*

Attachment H – Factsheet: Where Oil and Gas Activities Can Occur

Where oil and gas activities can occur

Oil and gas activities will not be approved in residential areas, rural residential areas or areas of other land use or classification where oil and gas activities do not meet the government's land use objectives.

What is the current situation?

Onshore oil and gas has been part of life in the Northern Territory for decades. During this time, there have been no developments on residential or rural residential land. To date, no exploration permits have been incompatible with other uses. The assessment of future land release for oil and gas activities against the criteria below will ensure this continues to be the case.

The method by which land for oil and gas is released has been reviewed to exclude areas where the activity is incompatible with existing land use. This will provide Territorians greater certainty that developments will only occur where the land uses are compatible.

Prior to 2014, companies could apply for exploration permits across the Northern Territory. In 2014, a new acreage release process was introduced whereby industry can only apply for land for oil and gas development that the Northern Territory Government has assessed as suitable.

Future land release

To date, exploration permits have been granted over defined areas in the Northern Territory. These permits cover areas where exploration activity can occur. All activities ranging from seismic activity to actual drilling within these permit areas must also be assessed and approved by government prior to the commencement of any activity.

Future land release for oil and gas activities will not be approved in residential areas, rural residential areas or areas of other land use or classification where oil and gas activities do not meet government land use objectives.

The Northern Territory Government will not grant acreage release and exploration permits based on the following criteria:

- **Urban living areas including rural residential areas** – i.e. land zoned as residential and land zoned as rural residential.

  Where land is not zoned, but the land use is consistent with these purposes, oil and gas activities will not be permitted. Should the rural residential Landowners seek co-existence, they will have the ability to negotiate on a case by case basis through land access agreements.
- **Areas of intensive agriculture** – the Department of Primary Industry and Resources will assess the compatibility of land use; however, intensive agriculture will exclude some operations including melon farms, mango orchards and aquaculture operations. Should the landholders agree to exploration on their land, they will have the ability to negotiate on a case by case basis through agreed land access agreements.
- **Areas of high ecological value** - as determined through the Northern Territory's robust environmental assessment process following implementation of the Hawke review into the Northern Territory's environmental assessment and approvals processes.

- **Areas of cultural significance as advised by the Aboriginal Areas Protection Authority**
- **Areas that include assets of strategic importance to nearby residential areas** – e.g. areas with high potential for other uses – tourism related development such as Bitter Springs at Mataranka.

In addition, the Northern Territory Government will retain the right to impose specific requirements on any development application. The underlying principle being that government reserves the right under the grant of a permit to allow development to occur in one area but not another.

Existing applications will also be assessed against the criteria above. Where an area is assessed as not meeting government land use objectives it may be refused. This approach is not inconsistent with the existing legislative mechanisms.

There is no change for Aboriginal land under the *Aboriginal Land Rights (Northern Territory) Act* or the *Native Title Act*.