

## Approval notice and statement of reasons

### *Petroleum (Environment) Regulations 2016 (NT) (Regulations)*

Interest holder	Imperial Oil & Gas Pty Ltd (IMP3-4) ABN 92 002 699 578
Petroleum interest(s)	Exploration Permit 187 (EP187)
Environment management plan (EMP) title	2021 Carpentaria 1 Work Program EP187
EMP document reference	IMP3-4
DEPWS EMP assessment document reference	NTEPA2020/0022-007~0007
Regulated activity	Hydraulic fracturing and extended production testing of the existing Carpentaria-1 vertical exploration well on EP187
Is the EMP a new plan submitted under reg 6 or a revision of a current plan submitted in accordance with reg 18?	This EMP is a new plan submitted under regulation 6
Was the regulated activity referred <sup>1</sup> for consideration of whether environmental impact assessment was required?	No
Was environmental impact assessment required and by which assessment method?	N/A
Has an environmental approval under the <i>Environment Protection Act 2019</i> been issued for the regulated activity	N/A
Has an Authority Certificate under the <i>Northern Territory Aboriginal Sacred Sites Act 1989</i> been issued for the regulated activity?	Yes Authority Certificate C2021/004 (variation to 2020/012)
Date an EMP compliant with reg 8 was first submitted under reg 6	17 November 2020
Date within which the EMP was published for comment under reg 8A, if applicable	The EMP was made available for public comment for 28 days from 23 November to 21 December 2020.
Date further information was required and submitted under reg 10, if applicable	Letter 1 issued 21 December 2020, EMP resubmitted 24 December 2020 (IMP3-3) Letter 2 issued 29 January 2021, EMP resubmitted 2 February 2021 (IMP3-4)
Date of resubmission notice under reg 11(2)(b), if applicable	N/A
Date EMP was resubmitted under reg 11(3), if applicable	N/A
Date a notice setting out a proposed timetable for consideration of the EMP was issued under reg 11(2A) if applicable	N/A
Proposed timetable given in notice under reg 11(2A) if applicable	N/A
Where provided under s 29B of the <i>Northern Territory Environment Protection Authority Act 2012 (NT) (NT EPA Act)</i> , the dates the Northern	Date of Minister's request for advice: 25 February 2019 Date of NT EPA Advice: 5 February 2021

<sup>1</sup> This means a referral under the *Environment Protection Act 2019 (NT)* or the *Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)*.

---

Territory Environment Protection Authority (NT  
EPA) was requested to, and provided, advice on  
EMP

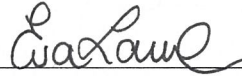
---

Date of decision

15 / 2 / 2021

---

Decision maker



Signature

Hon Eva Dina Lawler MLA,  
Minister for Environment

---

## 1 Approval notice

1. The EMP is approved.

reg 11(2)(a)

2. The approval is subject to the following conditions:

reg 12(2)

**Condition 1:** The interest holder must submit to the Department of Environment, Parks and Water Security (DEPWS) via [Onshoregas.DEPWS@nt.gov.au](mailto:Onshoregas.DEPWS@nt.gov.au):

- i. notification of the commencement of hydraulic fracturing activities one week prior to planned commencement;
- ii. a timetable for the regulated activity that is to be provided one week prior to the commencement of the activity and each quarter thereafter, or more frequently should other constraints, such as seasonal weather forecasts or travel restrictions emerge, and including:
  - time-bound commitments in the EMP;
  - due dates for satisfaction of Ministerial approval conditions;
  - due dates for regulatory reporting;
- iii. daily on-site reports indicating the status and progress of vegetation clearing and hydraulic fracturing, and the freeboard available in open wastewater tanks;
- iv. a seven-day activity forecast for the duration of the activity during the wet season (1 October – 30 April each year);
- v. written notification of any halt to the activity due to wet season conditions, within 24 hours of the halt;
- vi. immediate written notification of any fires potentially threatening the activity from external or internal sources;
- vii. weekly reports that detail the outcome of site inspections, and corrective actions taken, and inclusive of all commitments in the approved EMP, from the commencement of the regulated activity and continuing while the EMP remains in force.

## 1 Approval notice

**Condition 2:** In the event of any accidental release of contaminants<sup>2</sup> that exceeds 200 litres (for liquids), the interest holder must provide a written report to DEPWS within 24 hours of the incident being detected. The report must include:

- i. details of the incident specifying material facts, actions taken to avoid or mitigate environmental harm; and
- ii. the corrective actions taken including the volume and depth of impacted soil removed for appropriate disposal if required; and
- iii. any corrective actions proposed to be taken to prevent recurrence of an incident of a similar nature.

**Condition 3:** The interest holder must provide to DEPWS within 6 weeks of completion of well flowback operations at the Carpentaria-1 well site on EP187 a report on the risk assessment of flowback wastewater from the hydraulic fracturing phase, via Onshoregas.DEPWS@nt.gov.au. The risk assessment must be:

- i. prepared by a suitably qualified person;<sup>3</sup> and
- ii. prepared in accordance with the monitoring wastewater analytes specified in Section C.3 of the *Code of Practice: Onshore Petroleum Activities in the Northern Territory*.

**Condition 4:** In support of schedule 1, item 11 of the Petroleum (Environment) Regulations 2016 (NT) and clause A.3.5 of the Code, the interest holder must provide geospatial files of the land disturbance footprint(s) to DEPWS, via Onshoregas.DEPWS@nt.gov.au, within 2 months of completion of each land clearing activity.

**Condition 5:** The interest holder must provide an annual report to DEPWS via Onshoregas.DEPWS@nt.gov.au on its environmental performance, in accordance with item 11(1)(b) in schedule 1 of the Petroleum (Environment) Regulations 2016 (NT). The first report must cover the 12 month period from the date of the approval, and be provided within three calendar months of the end of the reporting period. The annual environmental performance report must align with the template prepared by DEPWS for this purpose and be provided each year until such time a notification is made to the Minister under regulation 14 that the activity is complete, or until the EMP is revised and re-approved.

---

<sup>2</sup> 'Contaminant' is defined in section 117AAB(1) of the Petroleum Act 1984 (NT).

<sup>3</sup> Defined in the Code as: A person who has professional qualifications, training or skills or experience relevant to the nominated subject matters or tasks and can give authoritative assessment, advice and analysis about performance relevant to the subject matters using relevant protocols, standards, methods or literature or conduct tasks in accordance with requirements.

## 1 Approval notice

**Condition 6:** An emissions report must be provided to DEPWS by 30 September each year, via Onshoregas.DEPWS@nt.gov.au, which summarises actual annual greenhouse gas emissions reported under the *Commonwealth National Greenhouse and Energy Reporting Act 2007* versus predicted emissions in the EMP.<sup>4</sup>

**Condition 7:** Audits of compliance must be undertaken by a suitably qualified and independent person, to be approved by DEPWS, and the audit report provided to DEPWS via Onshoregas.DEPWS@nt.gov.au, no later than two weeks after the completion of the audits, with the focus of the audits as follows:

- i. conduct a readiness audit prior to commencement of hydraulic fracturing to confirm that EMP commitments have been met and that facilities are suitable to manage all foreseen risks that could occur during hydraulic fracturing; and
- ii. conduct an operational audit during extended production testing to confirm that EMP commitments in relation to wastewater and spill management have been met.

**Condition 8:** In support of clause 16 of the *Water Act 1992* (NT) and clause B.4.2 of the Code, the interest holder must undertake groundwater level/pressure monitoring at the Carpentaria-1 impact monitoring bore using a logger to record water level for 4 weeks prior to, during, and 4 weeks after completion of hydraulic fracturing operations on Carpentaria-1 well. Data logging should record at a minimum of every 4 minutes for the duration of the recording period. The logging data should be provided to DEPWS via Onshoregas.DEPWS@nt.gov.au within 2 weeks of completion of groundwater level monitoring in the Carpentaria-1 impact monitoring bore.

**Condition 9:** A register must be provided to DEPWS via Onshoregas.DEPWS@nt.gov.au, of the key service providers that will be engaged for the regulated activity, prior to undertaking the relevant scope of work.

**Condition 10:** In support of clause B.4.17.2 of the Code, the interest holder must provide to DEPWS, via Onshoregas.DEPWS@nt.gov.au, groundwater monitoring data and an interpretative report of groundwater quality based on the groundwater monitoring required to be conducted at the well site(s) in accordance with Table 6 of the Code. Groundwater data must be provided within one month of collection and be provided quarterly, in a format to be determined by DEPWS. The interpretative report must be provided annually within three months of the anniversary of the approval date of the EMP and include:

---

<sup>4</sup> Clause D.6.2(b) of the Code requires actual annual greenhouse gas emissions to be provided even where emissions are below the NGERs threshold of 25 ktCO<sub>2</sub>-e for scope 1 and scope 2 emissions reporting.

## 1 Approval notice

- i. demonstration that there is no change to groundwater quality or level attributable to conduct of the regulated activity at the well site(s);
- ii. interpretation of any statistical outliers observed from baseline measured values for each of the analytes;
- iii. discussion of any trends observed; and
- iv. a summary of the results inclusive of descriptive statistics.

## 2 Material considered

1. The following material has been taken into account in making this decision:
  - a. 2021 Carpentaria 1 Work Program EP187 EMP, dated 1 February 2021
  - b. the principles of ecologically sustainable development (ESD) referenced in the *Environment Protection Act 2019* (NT)
  - c. the NT EPA advice provided at my request under s 29B of the NT EPA Act;
  - d. the Authority Certificate issued under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT) and associated response provided by the Aboriginal Areas Protection Authority
  - e. the Code of Practice: Onshore Petroleum Activities in the Northern Territory (Code) as defined in regulation 4A
  - f. all public comments submitted under reg 8B.

## 3 Statement of reasons

1. The EMP meets the approval criterion in regulation 9(1)(a), because it contains all the information required by Schedule 1 of the Regulations. reg 9(1)(a)
2. The EMP meets the approval criterion in regulation 9(1)(b) for the following reasons: reg 9(1)(b)
  - a. The nature of the regulated activity is as follows:
    - i. civil works to expand the Carpentaria-1 well site
    - ii. hydraulic fracture stimulation of the existing Carpentaria-1 vertical exploration well
    - iii. completion and workover maintenance of the Carpentaria-1 well
    - iv. extended Production Testing (EPT) of the Carpentaria-1 well, with EPT estimated to take up to 90 days
    - v. well suspension of the Carpentaria-1 well
    - vi. volume reduction of hydraulic fracturing wastewater by evaporation and subsequent removal of residual wastewater to an authorised treatment facility
    - vii. routine maintenance and monitoring activities at the Carpentaria-1 well site
    - viii. any other minor works ancillary of the above
    - ix. site decommissioning and rehabilitation.
  - b. The scale of the regulated activity is as follows:
    - i. clearing of up to 10.5 hectares (ha) for Carpentaria-1 well pad extension to accommodate wastewater tanks, firebreaks and access tracks
    - ii. establishing bunded tanks pads and tanks fitted with leak detection at the well site
    - iii. operation of a 30 person accommodation camp at existing highway campsite
    - iv. estimated groundwater use approximately 7.5 ML (based on 5 hydraulic fracturing stages) on the Carpentaria-1 well targeting the Velkerri shale formation; cumulative groundwater extracted to date by the interest holder under water license GRF10316 is 3.013 ML which is less than the annual permitted extraction of 22 ML

- v. estimated total greenhouse gas emissions (GHG) for the activity of approximately 10,000 tCO<sub>2</sub>-e assuming 90-days extended production test by flaring of the Carpentaria-1 well
  - vi. estimate of average traffic movements of ~10 –30/week for the first three months and ~1-10/week for the remaining duration of the activity.
- c. The EMP contains an appropriate level of detail for the nature and scale of the activities proposed. The regulated activity is clearly described. The description of the existing environment is informed by adequate field surveys and desktop assessments. Uncertainty relating to environmental data is clearly stated. The identification of environmental impacts and risks is comprehensive and contains a sufficient level of detail to inform the assessment. The EMP provides detail on environmental outcomes and performance standards, implementation strategy, personnel, emergency response plan, stakeholder engagement, legislative requirements, recording, monitoring, reporting and notifications, to an appropriate level of quality and applicability.
- d. Having regard to the above, the information in the EMP is appropriate for the nature and scale of the regulated activity to which it relates.
3. The EMP meets the approval criterion in regulation 9(1)(c) for the following reasons: reg 9(1)(c)
- a. In making my decision, I have considered regulation 5A, which requires that I give fundamental consideration to the principles of ESD, including the decision-making principle (s 18 *Environment Protection Act 2019* (NT)) as follows:
    - i. Conduct of the regulated activity is indicatively forecast over a six month period in quarter 2 and quarter 3 2021, is small scale and constrained to one location, and will inform decision-making about longer-term petroleum activities.
    - ii. The regulated activity includes hydraulic fracturing, and the EMP was made available for public comment for 28 days, in addition to ongoing stakeholder engagement conducted by the interest holder. Stakeholder feedback has informed the EMP development and public comments have been considered when making the approval decision.
    - iii. In carrying out the regulated activity, there is no particular contest between economic, social and environmental considerations that requires further mention. Environmental considerations have been considered through the use of the existing well site to minimise impacts.
    - iv. I believe the information regarding the proposed regulated activity adequately enables the integration of both long-term and short-term environmental and equitable interests, and has regard to community input.
  - b. In making my decision, I have considered regulation 5A, which requires that I give fundamental consideration to the principles of ESD, including the precautionary principle (s 19 *Environment Protection Act 2019* (NT)) as follows:
    - i. The EMP outlines the interest holder's previous investigations into the physical, biological and cultural environment and demonstrates a sound understanding of the environment at EP187, providing a satisfactory scientific basis to assess potential environmental impacts and risks for the activity, and to identify measures to avoid or minimise those impacts and risks.
    - ii. The interest holder has adopted mitigations and controls to manage risks and the EMP demonstrates adherence to the Code that establishes best practice management measures for conduct of the regulated activity.

- iii. The EMP includes the assessment of impacts and risks for wet season operations and management strategies, including measures such as halting activities and ongoing inspection of erosion and sediment control measures and access roads, if there is significant rainfall.
  - iv. I have imposed a condition requiring the interest holder to periodically provide to DEPWS an updated schedule of works and immediate written notification of any halt to the regulated activity due to the wet season as well as weekly reports from commencement of the regulated activity and continuing while the EMP remains in force.
  - v. The precautionary principle has been considered in assessing the regulated activity. The regulated activity does not pose a threat of serious or irreversible environmental damage arising from the regulated activity and there is a satisfactory scientific basis to assess potential impacts and risks.
- c. In making my decision, I have considered regulation 5A, which requires that I give fundamental consideration to the principles of ESD, including evidence-based decision-making principle (s 20 *Environment Protection Act 2019* (NT)) as follows:
- i. The EMP demonstrates an adequate understanding of the environment in which the regulated activity will be undertaken, and considers all relevant aspects of the environment that have potential to be affected. Particular focus is placed on prevention of erosion and sedimentation, site design to avoid flooding impacts, including wet season and dry season freeboard on all sumps and wastewater storage infrastructure (1.1 m and 0.5 m, respectively).
  - ii. The EMP includes additional Tier 2 toxicity screening of the cumulative risks to workers from chemicals of potential concern through exposure pathways such as aboveground storage and handling of flowback water. The information in the EMP confirms that the calculated risks associated with chemicals of potential concern in flowback water, and combination hydraulic fracturing fluid systems are considered low and acceptable. The information in the EMP further indicates there are no potentially complete exposure pathways from hydraulic fracturing chemicals to impact potable groundwater sources in proximity to the regulated activity.
  - iii. The EMP has undergone review and assessment by NT Government agencies. Feedback from NT Government agencies was forwarded to the interest holder and has been adequately addressed, including amendments to the EMP. In addition, the interest holder has undertaken stakeholder engagement (Appendix 11) with landholders and land managers, traditional owners and the Northern Land Council, in accordance with regulation 7.
  - iv. The interest holder will be required to undertake continual monitoring and maintenance of erosion and sediment controls under an existing approved plan, which provides mitigations for avoiding mobilisation of soils during the wet season.
  - v. A Bushfire Management Plan (BMP) is in place and has been included in the EMP (Appendix 8). The BMP incorporates mitigation controls that are considerate of regional fire management protection strategies. The BMP includes collaboration on fire management with pastoralists.
  - vi. The Wastewater Management Plan (Appendix 6) includes the sources and estimated volume of wastewater to be generated in conduct of the regulated activity, and establishes use of freeboard in open treatment tanks that can accommodate a 90-day 1 in 1,000 year rainfall event. The wastewater tanks



- are double lined and fitted with leak detection. The tank pad is bunded to contain 110% of the largest wastewater tank volume.
- vii. The Rehabilitation Management Plan (RMP) (Appendix 12) establishes a three-year monitoring program to determine rehabilitation success. The interest holder commits to undertaking progressive rehabilitation when sites are no longer required for future operations. The RMP includes measurement criteria such as flora abundance and canopy cover; weed species and density; plant establishment rates; surface disturbance from cattle, feral animals and fire, across rehabilitation stages.
  - viii. Potential impacts and risks from spills are adequately mitigated through the Spill Management Plan (SMP) (Appendix 7), which includes bunding, leak detection and telemetered water level monitoring; containment of hydrocarbons in double-lined diesel storage tanks and spill prevention and response procedures for hazardous spill prevention, monitoring, assessment, response and clean-up. The SMP considers procedures and processes for large spills and leaks, and all spills are to be remediated.
  - ix. I have imposed a condition requiring that the interest holder must report, in writing, any spill incidents that exceed 200 litres within 24 hours of the incident being detected.
  - x. A traffic impact assessment has been completed, and assessed to be minor. The peak maximum anticipated traffic flow increase is approximately 30 vehicles per week, during rig and heavy equipment demobilisation from the site. This is a short duration increase in traffic and not materially different to traffic impacts previously assessed.
  - xi. The proposed environmental outcomes are likely to be achieved based on the best available information on the nature and scale of the activity, and the environment in which the regulated activity will be conducted. The studies undertaken by the interest holder to inform the EMP affords the interest holder with a detailed and reliable knowledge of the potential environmental impacts and risks and the most appropriate measures for mitigation of those impacts and risks.
  - xii. I believe the information regarding the proposed regulated activity adequately provides the best available evidence in the circumstances that is reliable and relevant to the decision-making process.
- d. In making my decision, I have considered regulation 5A, which requires that I give fundamental consideration to the principles of ESD, including the principle of intergenerational and intra-generational equity (s 21 *Environment Protection Act 2019* (NT)) as follows:
- i. The potential environmental impacts and risks associated with the regulated activity can be adequately avoided or managed through the management measures and monitoring programs proposed in the EMP, to ensure no long-term adverse impacts to the environment in which the activity is conducted, if carried out in accordance with the EMP.
  - ii. Protection of cultural interests is achieved through compliance with the requirements of Authority Certificates issued by the Aboriginal Areas Protection Authority under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT) and the previously completed archaeological assessment at the site to avoid archaeological heritage impacts.
  - iii. The proactive measures included in the EMP regarding bushfire and weed management (such as fuel monitoring, and weed surveys and control) will have

- an overall positive impact on the condition of the environment for future generations.
- iv. The EMP commits the interest holder to progressive rehabilitation throughout the life of the activity which, combined with the Code requirements, is considered to reduce the risks to biodiversity and soil contamination to as low as reasonably practicable and acceptable levels.
  - v. Interactions between the regulated activity and landholder operations have been assessed and the interest holder is committed to regular engagement on the progress of activities. Ongoing engagement and the level of satisfaction with the interest holder's activities shows the interest holder is committed to not leaving a lasting negative legacy for future generations.
  - vi. The environmental burdens of the regulated activity will not disproportionately affect particular stakeholders. Cumulative GHG emissions generated by the regulated activity are not considered significant when considering the regulated activity will result in an overall increase in NT GHG emissions of approximately 0.06%, based on three (3) months flaring.
  - vii. The interest holder has included an assessment of the maximum combined cumulative greenhouse gas emissions from the regulated activity and previously approved regulated activities. The total cumulative emissions are approximately 20,000 tCO<sub>2</sub>-e over a 2 to 3 year period. This represents approximately 0.12% increase in annual Northern Territory emissions reported for 2018-19.<sup>5</sup>
  - viii. I consider that cumulative emissions are not significant when considered in context of 2018-19 NT and Australian emissions, which were approximately 16.0 million tonnes and 537.4 million tonnes respectively.
  - ix. The environmental values will be protected in the short and long term from the activities outlined in the EMP and the health, diversity and productivity of the environment will be maintained for the benefit of future generations. Accordingly I do not believe that the carrying out of the regulated activity in accordance with the EMP would have an effect contrary to the principle of inter or intra-generational equity.
- e. In making my decision, I have considered regulation 5A, which requires that I give fundamental consideration to the principles of ESD, including sustainable use of natural resources (s 22 *Environment Protection Act 2019* (NT)) as follows:
- i. I note the findings of the Scientific Inquiry into Hydraulic Fracturing (HFI) in the NT that states: "... in the short to medium term, the Australian National Energy Market is likely to require higher levels of flexible, gas-fired generation, which can provide a reliable, low emissions substitute for ageing coal-fired generation, and essential security services to complement variable renewable electricity generation."<sup>6</sup>
  - ii. I also note the NT Government's commitment to implementing all the recommendations of the HFI, including seeking to ensure that there is no net increase in life cycle GHG emitted in Australia from any onshore petroleum produced in the NT.
  - iii. Cumulative impacts of groundwater extraction from the Gum Ridge Formation have been assessed by the interest holder and are considered insignificant. Annual cumulative groundwater extraction from the Gum Ridge Formation

---

<sup>5</sup> DISER 2020. State Greenhouse Gas Inventory. <https://ageis.climatechange.gov.au/SGGI.aspx>.

<sup>6</sup> Refer section 9.7.4 of the [Scientific Inquiry into Hydraulic Fracturing in the Northern Territory](#); p 233.

from all licensed bores (approximately 850 ML) is currently well below the storage ranges of 1,766,000 to 3,532,000 GL.<sup>7</sup>

- iv. Accordingly, I am satisfied that the concept of sustainable use of natural resources has been taken into account.
- f. In making my decision, I have considered regulation 5A, which requires that I give fundamental consideration to the principles of ESD, including the conservation of biological diversity and ecological integrity (s 23 *Environment Protection Act 2019* (NT)) as follows:
  - i. I believe the information I have regarding the existing biodiversity and ecosystems that are to be affected by the regulated activity, the effects that are likely, and the mitigation measures reasonably available, are sufficient.
  - ii. Site selection for conduct of the regulated activity was informed by a previous detailed ecological assessment and supports the establishment of one lease pad for a potential future multi-well configuration, thus minimising impacts from additional land clearing.
  - iii. The proposed location for the regulated activity does not include groundwater dependent ecosystems; nor is it within proximity to a declared ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).
  - iv. The regulated activity poses a low risk to the ecosystem within the Sturt Plateau bioregion and does not pose a significant risk to any regional populations of threatened species. Six threatened species were identified as having a 'low to medium' likelihood of occurrence within the regulated activity area. Due to the management strategies outlined in the EMP and the relatively small area of impact, it is unlikely that the regulated activity will pose a risk to the identified threatened species. Impacts and risks to flora, fauna, and ecosystems have been mitigated to an acceptable level.
  - v. The DEPWS Flora and Fauna Division is satisfied the proposed activities do not pose a significant risk to threatened species or significant habitats and vegetation types.
  - vi. The EMP outlines measures to minimise impacts on affected environmental values, including the management of threatening processes such as erosion, weeds and fire through implementation of existing management plans, monitoring and corrective actions.
  - vii. The conservation of biological diversity and ecological integrity is vital to the achievement of ESD. Given the fundamental nature of this consideration, I have given central importance to the conservation of biodiversity and ecological integrity in weighing whether I am satisfied the approval criterion in regulation 9(1)(c) has been met.
  - viii. If carried out in accordance with the EMP, the risks of the regulated activity to the conservation of ecological integrity and biological diversity are considered to be mitigated to an acceptable level.
- g. In making my decision, I have considered regulation 5A, which requires that I give fundamental consideration to the principles of ESD, including the promotion of improved valuation, pricing and incentive mechanisms (s 24 *Environment Protection Act 2019* (NT)) as follows:

---

<sup>7</sup> Tickell, SJ & Q Bruwer, 2019. *Georgina Basin Groundwater Assessment: Daly Waters to Tennant Creek*. Water Resources Division, Report 17/2017 (Version 2, April 2019).

- i. In accordance with the 'polluter pays principle':
  - (1) The interest holder has committed to the remediation of impacts of the regulated activity, as is set out in the EMP.
  - (2) If the interest holder fails to remediate the impacts, an environmental rehabilitation bond will be provided by the interest holder, which is considered to be adequate to cover the resulting costs.
  - (3) As with any business undertaken in the NT, the interest holder is required to pay full life cycle costs for goods and services used.
  - (4) The EMP commits to progressive rehabilitation when sites are no longer required for future operations.
- ii. I do not believe that the carrying out of the regulated activity in accordance with the EMP would have an effect contrary to the principle of improved valuation, pricing and incentive mechanisms.
- h. The NT EPA did not require the EMP to be referred under the *Environment Protection Act 2019* (NT), as the regulated activity does not have the potential to cause a significant impact to the environment. reg 9(3)
- i. The NT EPA has provided the following in relation to the regulated activity and the EMP:
  - i. In accordance with my request under s 29B of the NT EPA Act, the NT EPA reviewed the EMP for the regulated activity against the approval criteria in regulations 9(1)(b), 9(1)(c) and 9(2)(a) of the Regulations and other matters the NT EPA considered relevant, and has provided advice about the EMP. Relevantly:
    - (1) The NT EPA recommended that should the EMP be approved, it be subject to 10 conditions. The NT EPA's recommendations have informed the conditions of this approval. All conditions are outlined in section 1(2) of this Approval Notice.
    - (2) The NT EPA concluded that the EMP for the regulated activity, subject to the recommended approval conditions, is appropriate for the nature and scale of the regulated activity and demonstrates that the regulated activity can be carried out in a manner that environmental impacts and environmental risks of the activity will be reduced to a level that is as low as reasonably practical and acceptable.
  - ii. I have considered the NT EPA's advice and recommendations and these have been incorporated where relevant into the comments in this statement of reasons and the conditions in the Approval Notice.
- j. The existing environment along with its particular values and sensitivities is appropriately identified in Appendix 1 of the EMP, and to the extent I do not agree or there is some uncertainty, I have imposed conditions to address the relevant risk or risks. reg 9(1)(c)
- k. I agree with the risk assessment set out in Appendix 4 of the EMP, and to the extent I do not agree I have imposed a condition or conditions to address the relevant risk or risks. The cumulative effects of the regulated activity have been identified and assessed to the extent possible.
- l. The interest holder's risk assessment is applicable to activities in all seasons and the outcomes are reflected in the EMP that includes a weed management plan; bushfire management plan; wastewater management plan; rehabilitation management plan; emergency response plan; stakeholder engagement

management plan; spill management plan; compliance with the erosion and sediment control plan; and a methane emissions management plan. This is consistent with the requirements of the Code that allows for the regulated activity to occur in the wet season months when contingency planning is provided.

- m. Public consultation on the EMP was required under the Petroleum (Environment) Regulations 2016, as the EMP proposes drilling and hydraulic fracturing activities. The EMP was made available for public comment for 28 days from 23 November to 21 December 2020.
- n. DEPWS received 166 public submissions on the EMP, consisting of 165 form letters via an internet campaign, and 1 submission via the advertised departmental public engagement modes. NT submissions represent approximately 45% of the total number of submissions received. Interstate submissions represent approximately 33% of the total number of submissions received. Less than 2% of submissions (3) were received from overseas. The balance of the submissions (20%) were from undisclosed geographical regions. Issues raised in the 166 public submissions were already addressed in the EMP, generated through previous EMP assessments. The NTG agencies and NT EPA Onshore Gas Committee comments were addressed by the interest holder via an updated EMP.
- o. I note the issues raised in public submissions across the following broad environmental themes:

Theme	Overview of issue raised
Flora and fauna (environment)	<ul style="list-style-type: none"> <li>• toxicity of hydraulic fracturing chemicals to aquatic life</li> <li>• ingestion of contaminated wastewater/materials impacting, for example, reptiles, birdlife in general and threatened species – e.g. Gouldian Finch</li> <li>• birds may be impacted by potential interaction with hydraulic fracturing flowback wastewater</li> <li>• impact to birds by bathing in flowback water containing chemicals</li> <li>• stygofauna impacted by chemicals</li> <li>• potential ignition sources and flaring on total fire ban days</li> </ul>
Social and cultural	<ul style="list-style-type: none"> <li>• concerns as to the lack of stakeholder engagement</li> </ul>
Air quality	<ul style="list-style-type: none"> <li>• impacts to air quality due to venting of methane or the use of a combustion device creates a fire or safety hazard</li> </ul>
Water	<ul style="list-style-type: none"> <li>• potential impacts to downstream catchment from spills and/or loss of containment, particularly during the wet season resulting in contamination of soils</li> <li>• contamination of groundwater caused by well corrosion</li> <li>• impacts from the Moroak Sandstone formation</li> </ul>
Waste	<ul style="list-style-type: none"> <li>• use of open tank wastewater storages</li> <li>• transportation of toxic waste interstate, as opposed to treatment options in the NT</li> </ul>
Chemical disclosure for hydraulic fracturing fluid	<ul style="list-style-type: none"> <li>• hydraulic fracturing chemicals not disclosed in the EMP</li> <li>• chemical use is too vague and not transparent</li> </ul>

- p. The specific issues of concern raised in public submissions have been addressed in the NT EPA Advice which I have considered. I have taken into account any public

submissions in making my decision. The EMP appropriately identifies the risk and potential impacts from the regulated activity and commits to mitigation, management and monitoring measures to address these risks and potential impacts.

- q. The EMP demonstrates how the interest holder will comply with relevant requirements of the Code in undertaking the regulated activity. This includes reference to applicable Australian and international standards that have been adopted for the regulated activity, as applicable. The EMP cross references relevant sections of the Code that apply to the mitigation and management measures to enable the reviewer to identify and confirm that the proposed regulated activity complies with the Code, as applicable. The EMP provides management plans that meet the requirements of the Code.
- r. There are no environmental impacts or environmental risks relating to the proposed regulated activity that I consider to be unacceptable.
- s. Overall, having regard to the above, I am satisfied that the EMP demonstrates that the regulated activity is to be carried out in manner by which the environmental impacts and environmental risks are reduced to a level that is:
  - i. as low as reasonably practicable; and
  - ii. acceptable.