

Approval notice and statement of reasons

Petroleum (Environment) Regulations 2016 (NT) (Regulations)

Interest holder	Origin Energy B2 Pty Ltd ABN 42 105 431 525
Petroleum interest(s)	Exploration Permit 98 (EP98)
Environment management plan (EMP) title	Amungee NW Delineation Program EP98
EMP document reference	ORI11-3
Regulated activity	<ul style="list-style-type: none"> • acquisition of 2D seismic data • civil construction of 4 well pads and associated infrastructure • drilling, hydraulic fracture stimulation and well testing of up to 12 wells • site decommissioning and demobilising
Is the EMP a new plan submitted under reg 6 or a revision of a current plan submitted in accordance with reg 18, or regs 15 and 17?	This is a new plan submitted under reg 6.
Was the regulated activity referred ¹ for consideration whether environmental impact assessment was required?	No
Was environmental impact assessment ² required?	N/A
Has an environmental approval ³ been issued for the regulated activity?	N/A
Has an Authority Certificate under the Northern Territory <i>Aboriginal Sacred Sites Act 1989</i> been issued for the regulated activity?	Yes C2022/002
Date an EMP compliant with reg 8 was first submitted under reg 6	12 July 2022
Date within which the EMP was published for comment under reg 8A, if applicable	18 July 2022 to 15 August 2022
Date further information was required and submitted under reg 10, if applicable	23 August 2022 (requested) 1 September 2022 (requested) 14 September 2022 (submitted) 30 September 2022 (requested) 14 October 2022 (submitted)
Date of resubmission notice under reg 11(2)(b), if applicable	31 August 2022 (requested)
Date EMP was resubmitted under reg 11(3), if applicable	14 September 2022 (submitted) 7 October 2022 (requested) 14 October 2022 (submitted)
Date a notice setting out a proposed timetable for consideration of the EMP was issued under reg 11(2A), or reg 11(3)(c), if applicable	N/A
Proposed timetable given in notice under reg 11(2A), or reg 11(3)(c), if applicable	N/A

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

² This means a requirement for an environmental impact assessment to be conducted under the EP Act and/or the EPBC Act.

³ This means an approval granted under the EP Act and/or the EPBC Act.

Where provided under s29B of the *Northern Territory Environment Protection Authority Act 2012* (NT) (NT EPA Act), the dates the Northern Territory Environment Protection Authority (NT EPA) was requested to, and provided, advice on EMP

Date of Minister's request for advice:
25 February 2019
Date of NT EPA Advice: 28 October 2022

Date of decision

14/11/2022

Decision maker



Signature

Hon Lauren Moss MLA,
Minister for Environment

1 Approval notice

1. I approve the EMP under 11(3)(a)(i).
2. The approval is subject to the following conditions:

Condition 1:

The interest holder must submit to the Department of Environment, Parks and Water Security (DEPWS), via Onshoregas.DEPWS@nt.gov.au the following:

- i. Notification of the commencement of hydraulic fracturing activities prior to commencement.
- ii. An updated timetable for the regulated activity that is to be provided on the last day of each quarter (being 31 March, 30 June, 30 September and 31 December each year), that identifies activities completed in the current quarter and:
 - regulated activities in the next quarter, including estimated duration;
 - activities in the next quarter based on commitments in the EMP relevant to the stage of the activity, including estimated duration;
 - due dates for satisfaction of Ministerial approval conditions in the next quarter; and
 - due dates for regulatory reporting in the next quarter.
- iii. During civil works (and noting civil works is taken to include any type of earth moving, land clearing, installation of gravel pits, establishment of well pads, establishment of access tracks), weekly reports indicating:
 - the status and progress of vegetation clearing and civil works at each location the activity is conducted;
 - any fires potentially threatening the activity from external or internal sources;
 - the outcome of inspections of erosion and sediment control measures, and corrective actions taken; and
 - the outcome of inspections and risk assessments for determining suitability of use of unsealed roads by any vehicle or machinery other than a light vehicle in the wet season.

1 Approval notice

- iv. During drilling, daily on-site reports, to be consolidated and provided weekly, indicating:
 - status and progress of drilling at each location;
 - freeboard available in drill cutting pits (in cm); and
 - the outcome of general site inspections relevant to drilling and waste, and corrective actions taken.
- v. During hydraulic fracturing and flowback, weekly reports indicating:
 - status and progress of hydraulic fracturing;
 - weekly measurement of stored volume (in ML) and freeboard available (in cm) of wastewater storage tanks, unless operated in the wet season, during which it must be measured daily; and
 - the outcome of general site inspections relevant to hydraulic fracturing and waste, and corrective actions taken.
- vi. During the wet season, weekly reports indicating:
 - the outcome of inspections of erosion and sediment control measures, and corrective actions taken;
 - the outcome of daily inspections of any secondary containment in use, and corrective actions taken;
 - any halt to the regulated activity due to wet season conditions; and
 - daily measurements of freeboard available in drill cutting pits and wastewater treatment tanks (in cm) whenever operational.
- vii. For avoidance of doubt, if wastewater is present in tanks, or drill cutting pits contain waste drill fluids and cuttings at levels > 5% of the total capacity, these are considered to be operational. Reports must continue to be provided as per parts iv, v and vi above, irrespective of whether there is manned activity occurring on site if the wastewater infrastructure is operational.
- viii. In the event that multiple regulated activities under the EMP are being conducted concurrently, the weekly submission of consolidated daily reports may be further consolidated to a single submission, but must clearly identify the locations and activities to which the information pertains, in relation to each item listed in conditions iii to v above, inclusive.

Condition 2:

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), noting the following:

- i. The first report must cover the 12 month period from the date of the approval, and be provided within 3 calendar months of the end of the reporting period.

1 Approval notice

- ii. Each report must align with the template and Guideline 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.

Condition 3:

In support of clause D.6.2 of the Code of Practice: Onshore Petroleum Activities in the Northern Territory (the Code), an emissions report must be provided by 31 October each year to DEPWS, via Onshoregas.DEPWS@nt.gov.au, which:

- i. documents actual annual greenhouse gas emissions from conduct of the regulated activity estimated and reported under the Commonwealth *National Greenhouse and Energy Reporting Act 2007* (NGER Act) versus predicted emissions in the EMP;
- ii. demonstrates the actual emissions have been verified by an auditor registered under the Register of Greenhouse and Energy Auditors established under section 75A of the NGER Act;
- iii. includes a summary of all regulated activities conducted which have contributed to greenhouse gas emissions during the reporting period; and
- iv. accounts for differences between actual and predicted emissions with reference to all parts of the regulated activity with potential to create greenhouse gas emissions.

FOOTNOTE 1: Clause D.6.2(b) of the Code requires annual actual greenhouse gas emissions to be provided even where emissions are below the NGERs threshold of 25 ktCO₂-e for scope 1 and scope 2 emissions reporting.

FOOTNOTE 2: The timing for submission of the report in Condition 3 is to align with the timing for submission of reports to the Commonwealth Clean Energy Regulator, who may change submission due dates from time to time.

Condition 4: The interest holder must:

- i. comply with its Greenhouse Gas Abatement Plan (GGAP) prepared by Origin Energy B2 Pty Ltd, dated 25 October 2022 as updated annually in accordance with condition (ii) below;
- ii. by 30 September each year, provide an updated GGAP to Onshoregas.DEPWS@nt.gov.au, which meets the GGAP content requirements of the Greenhouse Gas Emissions Management for New and Expanding Large Emitters Policy version 1.1 dated 1 September 2021 and demonstrates:
 - a) the actual scope 1 and scope 2 greenhouse gas emissions produced, compared to the predicted scope 1 and scope 2 greenhouse gas emissions in the EMP;
 - b) the proposed method/s of offsetting residual cumulative scope 1 and scope 2 greenhouse gas emissions across all active EMPs for the preceding financial year;
 - c) any changes to predicted future cumulative scope 1 and scope 2 greenhouse gas emissions across all active EMPs; and
 - d) annual progress towards achieving net zero emissions by 2050; and

1 Approval notice

- iii. by 30 November each year, provide evidence of offsets obtained during the previous financial year to Onshoregas.DEPWS@nt.gov.au.

Condition 5:

To support clause C.7.2 of the Code, all accidental releases of liquid contaminant or hazardous chemicals must be immediately recorded in a site spill register. The register must include:

- i. The location, source and volume of the spill or leak;
- ii. Volume of impacted soil removed for appropriate disposal and the depth of any associated excavation;
- iii. The corrective actions taken or proposed to be taken to prevent recurrence of an incident of a similar nature; and
- iv. GPS co-ordinates of the location of the spill.

Condition 6:

In support of clause B.4.17.2 of the Code, the interest holder must:

- i. undertake quarterly groundwater monitoring at each control and impact monitoring bore for a minimum of three years after establishment, unless otherwise advised by DEPWS;
- ii. provide to DEPWS, via Onshoregas.DEPWS@nt.gov.au, the results of quarterly groundwater monitoring, as soon as practicable and no later than 2 months after collection, in a format to be determined by DEPWS; and
- iii. provide to DEPWS, via Onshoregas.DEPWS@nt.gov.au, 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. The interpretative report must be provided annually within 3 months of the anniversary of the approval date of the EMP and include:
 - identification of any change to groundwater quality or level attributable to conduct of the regulated activity at the well site(s) and discussion of the significance and cause of any such observed change;
 - interpretation of any statistical outliers observed from baseline measured values for each of the analytes;
 - discussion of any trends observed;
 - a summary of the results including descriptive statistics; and
 - description of the layout of the groundwater monitoring bores and wells, indicative groundwater flow directions and levels in accordance with the Preliminary Guideline Groundwater Monitoring Bores for Exploration Petroleum Wells in the Beetaloo Sub-basin.
- iv. develop site-specific performance standards for groundwater quality and interquartile ranges for analytes at each of the impact monitoring bores established, based on the first 3 years of groundwater monitoring, and provide to DEPWS, via Onshoregas.DEPWS@nt.gov.au within 6 months of the 3 year anniversary of approval of the EMP.

1 Approval notice

Condition 7:

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 each impact monitoring bore established, using a logger to record water level for 2 weeks prior to, during, and 4 weeks after completion of hydraulic fracturing operations at each well pad. 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 each impact monitoring bore.

Condition 8:

The interest holder must provide a report via Onshoregas.DEPWS@nt.gov.au within 8 weeks of completion of well flowback operations for the first well where flowback fluid has been reused, and include a risk assessment of the returned flowback fluid following the reuse. The risk assessment must be:

- i. prepared by a suitably qualified person; and
- ii. prepared in accordance with the monitoring wastewater analytes specified in section C.8 of the Code.

Condition 9:

Within 30 days of each occasion a groundwater bore is installed, the interest holder must send to Onshoregas.DEPWS@nt.gov.au:

- i. the registered number of the groundwater bore;
- ii. the aquifer the groundwater bore is targeting;
- iii. the purpose of the groundwater bore;
- iv. whether the bore is proposed to be included on an extraction licence and the proposed volume to be extracted per annum, or if already included on an extraction licence, the extraction licence number and date issued and the volume allowed for extraction per annum; and
- v. the GPS coordinates of the groundwater bore.

Condition 10:

Within 12 months of the start date of the proposed seismic acquisition, submit a report to Onshoregas.DEPWS@nt.gov.au outlining the success of the proposed trial with seismic charges, which considers:

- i. estimated difference in clearing footprint between vibroseis and seismic charges methods;
- ii. potential and observed impact to tree health within 20 m of the locations where seismic charges were used;
- iii. potential and observed surface disturbance from the release of seismic charges at the locations where seismic charges were used; and
- iv. observations on the efficacy of use of seismic charges as an alternative approach for conducting seismic activities.

2 Material considered

1. The following material has been taken into account in making this decision:
 - a. Amungee NW Delineation Program EP98 EMP, 14 October 2022 (ORI11-3).
 - b. The principles of ecologically sustainable development referenced in reg 5A and the approval criteria set out in reg 9(1).
 - c. The NT EPA advice provided at my request under s29B of the NT EPA Act.
 - d. The Authority Certificate issued under the *Northern Territory Aboriginal Sacred Sites Act 1989*.
 - e. The Code of Practice: Onshore Petroleum Activities in the Northern Territory as set out in reg 4A.
 - f. The Department of Industry, Tourism and Trade advice that the Well Operations Management Plan approved for the regulated activity meets the requirements of the *Code of Practice: Onshore Petroleum Activities in the Northern Territory*.
 - g. The Greenhouse Gas Abatement Plan prepared by Origin Energy B2 Pty Ltd, version 1.2 dated 25 October 2022.
 - h. All public comments submitted under reg 8B.

3 Statement of reasons

3. The EMP meets the approval criterion in reg 9(1)(a), because it contains all the information required by Schedule 1 of the Regulations. reg 9(1)(a)
4. I have taken into account the approval criterion in reg 9(1)(b) by noting the nature and scale of the regulated activity and bearing it in mind during my consideration of the impacts and risks. In particular, I note that: reg 9(1)(b)
 - a. The nature of the regulated activity is as follows:
 - i. Acquisition of 2D seismic data, inclusive of a trial using seismic charges.
 - ii. Civil construction of four well pads and the associated infrastructure (access tracks, camp pads, helipads, laydown yards, fence lines, firebreaks, water bore, gravel pits and all other ancillary infrastructure).
 - iii. Drilling, hydraulic fracture stimulation and well testing of up to twelve wells, inclusive of reuse of flowback fluid.
 - iv. Site decommissioning and demobilising.
 - b. The scale of the regulated activity is as follows:
 - i. The 2D seismic acquisition involves clearing of 60 km (31.66 ha), which will be progressively rehabilitated.
 - ii. Clearing associated with the remaining activities (75.2 ha).
 - iii. An estimated total groundwater usage of 430 ML.
 - iv. The peak traffic movement for the regulated activity is 44 vehicles per day during site mobilisation.
 - v. Approximately 10-30 hydraulic fracturing stages for each petroleum well established, requiring a water volume of approximately 25 ML per well.

- vi. Extended production testing for 135 days (average), with worst case greenhouse gas emissions totalling 522,172 tonnes of CO₂ equivalent for the project.
 - vii. Rehabilitation to be completed within 12 months of completion of petroleum activities.
5. The approval criteria in reg 9(1)(c) requires that I be satisfied that the activity will be carried out in a manner by which the environmental impacts and environmental risks of the activity will be reduced to a level that is both: (i) as low as reasonably practicable; and (ii) acceptable. In assessing whether the EMP meets the approval criteria, I note that my decision is a prescribed decision (under reg 5A) for s 6A of the Act, and as such requires me to consider and apply the principles of ecologically sustainable development. In accordance with reg 12(3), I provide the following information about how the EMP meets the approval criteria, and the manner in which I have taken into account the principles of ecologically sustainable development when considering whether or not the plan meets the approval criteria. reg 9(1)(c)
6. The principles of ecologically sustainable development are defined at section 18-24 of the *Environment Protection Act 2019*, and I address each in turn:
- a. The decision-making principle (s 18 *Environment Protection Act 2019*) requires effective integration of long-term and short-term environmental and equitable considerations, and for processes to provide for community involvement in relation to decisions and actions that affect the community. Related to this, I note the following:
 - i. The regulated activity is low impact and of short duration and forms one component of a broader onshore petroleum exploration program in the region. The regulated activity will inform decision-making about longer-term petroleum activities.
 - ii. 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 18 July 2022 to 15 August 2022.
 - iii. The Department received 2273 public submissions on the EMP, consisting of 2228 letters submitted via internet campaigns. NT submissions represent approximately 2.6% of the total number of submissions received and interstate submissions represent approximately 97%. One (1) submission was received from overseas. The submissions received identified new issues that have not already been addressed in this or previously approved EMPs, or the HFI. Additionally, I received 11 submissions directly from the community, of which nine were also received through the formal public submission pathway. These submissions did not raise any new concerns. The interest holder updated its EMP to address comments on the draft EMP.
 - iv. I note the issues raised in public submissions across the following broad environmental themes:

Theme	Overview of issue raised
Chemicals	<ul style="list-style-type: none"> • Use of rock-dissolving fluoride-containing acid • Consideration of exposure pathways to bats, birds, insects, amphibians and reptiles • Impact of chemicals on human health and environment
Climate Change	<ul style="list-style-type: none"> • Impact on climate change • Impact climate change on Northern Territory • Scope 3 emissions not (adequately) addressed • Lack of a GGAP • Downplay of emissions • Fugitive emissions calculation • Exclusion of wastewater management in estimated GHG emissions (treatment, transport) • Well testing duration (730 days) • Inconsistent emission totals • Inconsistent duration of flaring (average vs. maximum) • Offsetting capacity • Non-credible assertions climate neutrality of gas • Disregard of ESD principles
Cumulative impacts	<ul style="list-style-type: none"> • Cumulative impact does not consider other users, water extraction, flora and fauna, and future plans. • Exploration creep • Consideration of Territory Sands water licence • Cumulative waste
Flora and fauna (environment)	<ul style="list-style-type: none"> • Lack of baseline assessment (SREBA) • Adequacy of baseline assessment • Threat to listed species • Habitat fragmentation and edge effects not considered • Impacts to important habitat not adequately addressed. • Monitoring and protection of stygofauna • Wastewater storage in open ponds – fauna access • Threats of flaring to birds • Reliance on seed-bearing topsoil previously cleared for rehabilitation
Human health	<ul style="list-style-type: none"> • Impacted pregnancies in proximity to gas industry operations
Regulation and compliance	<ul style="list-style-type: none"> • Proposed beneficial reuse of appraisal gas • Referral under the <i>Environment Protection Act 2019</i> (NT) (EP Act) and the <i>Australian Government Environment Protection Biodiversity Conservation Act 1999</i> (EPBC Act) • Subjectiveness of self-assessment for EP Act referral • HFI recommendations not implemented by Origin • Commitments to other agreements/inquiries outside of the legislative framework • Absence of long-term waste management policy
Spills	<ul style="list-style-type: none"> • Wet season transport and storage risks • Trucking of large quantities (90 ML) of wastewater • Lack of acknowledgement of change in risk profile resulting from multiple wastewater movements

	<ul style="list-style-type: none"> • No consideration of the impact of the changing climate (extreme weather events).
Social and cultural	<ul style="list-style-type: none"> • Impacts to cultural heritage • Inadequate/lack of consultation with TOs • Risks to local pastoralists not adequately recognised • Informed consent • Economic benefit
Uncertainty in regulated activity	<ul style="list-style-type: none"> • Uncertainty and risk of reusing flowback and produced water. • Acceptability decision-making wet season transport • No assessment of impact to surface water flows from pipelines
Waste	<ul style="list-style-type: none"> • Reliance on WestRex disposal facility in Jackson, Queensland • Assessment of waste to be disposed, description of waste treatment process at facility and assessment of residual risk • Production of 90 ML of wastewater • Quality of flowback fluid (monitoring and publishing) • Drilling waste management
Water	<ul style="list-style-type: none"> • Impact on water availability • Reliance on Water Extraction Licence for analysis of impacts of extraction • Lack of a water allocation plan • Water licence expiry (Jan 2024) • Contamination of aquifers (through drilling fluid losses) • Inadequate monitoring methods (inconsistent with HFI recommendation 7.11)
Well integrity	<ul style="list-style-type: none"> • Lack of suitable material to satisfactorily repair damaged well casing • Corrosion of wells
Traffic	<ul style="list-style-type: none"> • Impact from increased heavy vehicles on roads (damage)

- v. The specific issues of concern raised in public submissions have been addressed in the NT EPA Advice which I have considered. I recognise the importance the community places overall, on assessment of cumulative impacts, environmental protection and ensuring decisions are based on the principles of ecologically sustainable development. 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.
- vi. I am satisfied that the community has had a reasonable opportunity to be involved in processes in relation to this decision.
- vii. Next, I have considered short-term and long-term environmental impacts of carrying out the regulated activity. Environmental impacts include direct and indirect effects on the physical, biological, economic, cultural and social aspects of the environment, and may include cumulative impacts or occur over time.

- viii. The information before me suggests short-term environmental impacts are manageable with the proposed mitigations in place.
 - ix. The information before me suggests long-term environmental impacts are manageable with the proposed mitigations in place.
 - x. There is no particular contest between economic, social and environmental considerations that requires further mention.
 - xi. Taking an integrated view of long-term and short-term environmental and equitable considerations, I am satisfied that the considerations on balance and taken together support approval of the EMP.
- b. The precautionary principle (s 19 *Environment Protection Act 2019*) applies when there are threats of serious or irreversible environmental damage, and requires that lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. I am satisfied that the regulated activity does not pose a threat of serious or irreversible environmental damage. While conduct of the regulated activity will likely result in minor and short-term impacts, I am satisfied the measures identified by the interest holder are effective to prevent a threat of serious or irreversible environmental damage.
- i. I have carefully evaluated the proposed precautionary measures against the risk-weighted consequences of impacts given the options available, and with a view to avoiding serious or irreversible damage to the environment wherever practicable. The EMP combined with the conditions I have imposed mitigates risks of serious or irreversible damage due to lack of full scientific certainty to a level that is both as low as reasonably practicable and acceptable.
- c. The principle of evidence-based decision-making (s 20 *Environment Protection Act 2019*) requires decisions to be made on the best available evidence in the circumstances that is relevant and reliable. I am of the view that the evidence before me satisfies this requirement for the following reasons: I am satisfied that the best available evidence has been obtained because:
- i. The EMP was developed by an ecologist, archaeologist and environmental consultants, with experience in the Beetaloo Sub-basin.
 - ii. The interest holder employed a comprehensive process to obtain relevant information including baseline assessments, archaeological assessments, stakeholder engagement and consultation with relevant NT government agencies.
 - iii. The EMP was made available for public comment to identify any deficiencies or additional evidence required from 18 July 2022 to 15 August 2022.
 - iv. The EMP has been assessed by a multi-disciplinary team, which has informed my decision on the EMP.
 - v. The interest holder provided further information to clarify aspects of the EMP and amended the EMP to ensure it meets the requirements of the Regulations and the Code.
 - vi. Some concerns have been raised as to whether the information before me satisfies the principle of evidence-based decision-making. I now turn to consideration of these concerns:
 - (1) Concerns were raised about the impact of chemicals on human health and the environment, inclusive of the impacts from rock-dissolving fluoride-containing acid. A chemical risk assessment has been completed for all chemicals to be used in drilling and hydraulic fracturing. All chemicals

were considered low concern when standard chemical handling, storage and disposal practices are applied.

- (2) Some submissions raised concern about an inadequate consideration of exposure pathways from chemicals to bats, birds, insects, amphibians and reptiles. The chemical risk assessment was undertaken in a manner consistent with national guidance.
- (3) Many submissions raised concerns about the impact of the project on climate change in general. Some submissions also raised concerns about the impact of the project on climate change in the Northern Territory specifically, stating these impacts are not described in the EMP. The requirements of the NT Government's Greenhouse Gas Emissions Management for New and Expanding Large Emitters policy (Large Emitters Policy) is adhered to. A GGAP has been developed, which commits to an offsetting regime that achieves net zero by 2050. This is consistent with the NT Government's expectations for large emitting projects to reduce and manage emissions in a way that enables development to occur while contributing to the Territory's emission target of net zero greenhouse gas emissions by 2050.
- (4) Concerns were raised about the inadequate consideration of scope 3 emissions, with transportation of wastewater to the disposal facility in Queensland not being included, as well as wastewater treatment and transport of wastewater between well pads. The EMP was updated to include emissions associated with management of wastewater.
- (5) Concern was raised about the absence of a GGAP. The interest holder provided its GGAP consistent with the activities proposed in this EMP.
- (6) Submissions included concerns about a downplay of emissions and the calculation of fugitive emissions. The emissions in the EMP are calculated in accordance with the National Greenhouse and Energy Reporting Scheme.
- (7) Many submissions raised concerns about the well testing duration of 730 days. The EMP included this testing scenario for a situation where gas would be able to beneficially reused. The EMP was updated to remove reference to beneficial reuse of gas, which is not allowed for under the current legislation. The proposed well testing duration of 730 days per well was also removed.
- (8) Concern was raised about inconsistent emission totals in the EMP, and many submissions included concerns about the proposed beneficial reuse of gas. The EMP was amended to ensure the total emissions are consistent throughout the EMP and remove any reference to beneficial reuse of gas, which is not allowed under the current legislation.
- (9) Concern was raised about the inconsistent duration of flaring, noting that the 135-day flaring period was sometimes referred to as average, and sometimes as maximum duration. It is clear throughout the EMP that the proposed maximum flaring period averages to 135 days per well.
- (10) Submissions raised concern about the offsetting capacity, noting that technologies such as carbon capture storage are not proven on large scales. Additionally, concerns noted the EMP contains non-credible assertions regarding climate neutrality of gas, and that the emissions of the project disregard ESD principles. The NT Government's Greenhouse Gas Emissions Offsets Policy gazetted in September 2022 guides the use

of offsets as a tool to support the decarbonisation of industry in the Territory.⁴ While submissions questioned the credibility of low emission technologies such as carbon capture storage, the EMP itself demonstrates a commitment to minimise emissions to as low as reasonably practicable (ALARP) and acceptable levels and offset residual emissions unable to be avoided or mitigated, in accordance with NT Government's target and policy.

- (11) Submissions included concern about the proposed activities disregarding the ESD principles, particularly with regards to climate change. The potential environmental impacts and risks associated with the regulated activity can be adequately avoided or managed through the mitigation measures proposed in the EMP. Where appropriate, I have imposed conditions on the approval of this EMP, consistent with the ESD principles.
- (12) Several submissions included concerns with regards to the description of cumulative impacts, which did not consider other users, water extraction, flora and fauna and future plans. The EMP was updated to provide further information on cumulative impacts, and include consideration of other users near the permit area. In the current exploration and appraisal stage, future plans hold no certainty and would heavily reduce the accuracy of the cumulative impact assessment if included.
- (13) Concerns were raised about exploration creep, noting that the proposed activities are production masquerading as exploration. The proposed activities are genuine exploration and appraisal activities.
- (14) Concerns were raised about the consideration of the Territory Sands water licence, given its plans to supply sand to gas companies in the Beetaloo. The EMP does not state it will use locally sourced sands for hydraulic fracturing, and impacts associated with sand mining are regulated under different legislation, under which relevant impacts will be required to be considered.
- (15) Concern was raised about the absence of a long-term waste management policy, the need of an assessment of the waste to be disposed, and the lack of consideration of waste disposal in other jurisdictions when assessing cumulative impacts, noting the increasingly large volumes of hazardous waste associated with the gas companies. Disposal of wastes in another jurisdiction is tightly regulated under legislation of both the originating and receiving jurisdictions.
- (16) Many public submissions raised concerns about the lack of a baseline assessment for the region. A comprehensive Strategic Regional Environmental and Baseline Assessment is being undertaken before granting any production approvals.
- (17) Submissions raised concerns about the adequacy of the baseline assessment, with several submissions stating the survey did not include enough effort to find threatened species. The baseline assessment undertaken as part of the EMP provides an adequate understanding of

⁴ <https://depws.nt.gov.au/environment-information/northern-territory-offsets-framework/greenhouse-gas-emissions-offsets-policy>

the threatened species that may occur in the area of the regulated activities, based on data from multiple surveys and various datasets.

- (18) Concerns were raised about the threat to listed species posed by the regulated activities. Implemented mitigation measures, such as visual checks for fauna (habitat) prior to clearing and avoidance of clearing large trees, are deemed adequate to minimise potential harm.
- (19) A few submissions raised concern about the lack of consideration of habitat fragmentation and edge effects. As the area of suitable habitat proposed to be cleared is very small compared to the area of remaining suitable habitat for the identified threatened species, it is considered unlikely the proposed regulated activities will see significant impacts from habitat fragmentation and edge effects.
- (20) Several submissions included concerns that impacts to important habitat are not adequately addressed. The NTG Flora and Fauna division considered that the proposed activities in the EMP do not pose a significant risk to the environment with implementation of the controls proposed.
- (21) Submissions raised concerns about the lack of monitoring and protection of stygofauna. Claims that stygofauna will be significantly impacted by drilling and hydraulic fracturing are not substantiated. The EMP shows that available studies indicate stygofauna are likely to be present at low abundance at the observed groundwater depth within the project area. Further, the Code includes mandatory requirements for protection of groundwater aquifers, which the EMP demonstrates will be complied with.
- (22) A number of submissions expressed concern about wastewater storage in open ponds, noting the threats this would pose to fauna. Wastewater is not stored in open ponds, and mitigation measures are used to prevent fauna access to open treatment ponds. Previous operations have not identified any significant interaction of fauna with open wastewater treatment ponds.
- (23) A few concerns were raised regarding the threats of the proposed activities to birds, and more specifically to the incineration of birds by flaring. It is highly unlikely that offsite impacts to wildlife will be created as a result of noise, light and traffic. The duration of drilling and stimulation activities is short and lighting levels will be minimised to the level required to complete work safely. There have been no reported instances of birds being incinerated as a result of flaring during onshore petroleum activities.
- (24) Concern was raised about the reliance on seed-bearing topsoil, previously cleared for rehabilitation. The rehabilitation plan shows that if required, additional native seed mix from the area could be respread to speed up the rehabilitation process.
- (25) One submission raised concerns regarding the impact to pregnancies in proximity to gas industry operations. There is no complete exposure pathway for the community to gas industry operations, with the nearest homestead at 16 km and the nearest community at 50 km.
- (26) Many submissions raised the EMP should be referred under the *Environment Protection Act 2019* (NT) (EP Act) and the *Australian Government Environment Protection Biodiversity Conservation Act 1999*

(EPBC Act). Additionally, one submission noted a concern that the process of self-assessment for EP Act referral is a subjective one. The EMP was considered by the NT EPA. In accordance with advice by the *Referring a proposal to the NT EPA* guidance, a self-assessment against both the EP Act and the EPBC Act was undertaken by the interest holder, concluding no referral is required. Additionally, the NT EPA may 'call-in' a project that should be referred. The NT EPA has not elected to call in the proposal.

- (27) Concerns were raised that the HFI recommendations have not been implemented by Origin. Origin's EMP is consistent with the regulatory framework established in response to HFI recommendations related to exploration activities.
- (28) Several submissions included concerns about the proposed activities not being consistent with commitments to other agreements/inquiries outside of the legislative framework, such as international climate agreements. Regulated activities are only permitted if conducted in accordance with the applicable legislative framework.
- (29) Wet season transport and storage risks were raised as concerns in several submissions, including in the context of climate change resulting in extreme weather events. The EMP was updated to provide the risk assessment for wet season transport. The risk of overtopping is minimised by the use of enclosed tank storage and conservative freeboard levels. A water balance is provided which confirms that the wastewater tanks will have enough capacity to store and treat the wastewater. Flood modelling has informed the proposed controls to mitigate a 1:100 year flood event, which include the elevation of well pads and installation of topsoil stockpiles around the lease pad, preventing overland flow entering the site in the event of a significant regional flood.
- (30) Many submissions included a concern about the trucking of large quantities (90 ML) of wastewater. Flowback fluid will be treated by means of enhanced evaporation, so that the final disposal volume to be trucked interstate is approximately 0.5 ML per site (2 ML total for the 4 well pads), not 22.5 ML per site.
- (31) Concern was raised about the lack of acknowledgement of the change in risk profile resulting from multiple wastewater movements. All proposed wastewater movements, including trucking between well pads, trucking interstate and transfer between tanks, have adequate mitigation measures in place to minimise the risk of spills during both dry season and wet season conditions.
- (32) Many submissions included concerns about impacts to cultural heritage. A heritage assessment has been undertaken of the project area and the EMP commits to avoiding areas of cultural heritage. No EMP can be approved without provision of an Authority Certificate issued by the Aboriginal Areas Protection Authority, which sets out any requirements and conditions for preventing impact to sacred sites.
- (33) Many submissions raised concerns about inadequate consultation with Traditional Owners, and the lack of free, informed and prior consent. Concern was also raised with regards to inadequate recognition of risks to local pastoralists. The EMP includes a stakeholder engagement log, which demonstrates that the interest holder has engaged with a range of stakeholders including direct engagement with the relevant leaseholders,

Aboriginal stakeholders and the Northern Land Council. Where required, changes to the EMP were made to address concerns raised during the engagements. Onshore petroleum activities cannot commence unless the identified stakeholders have been properly engaged. For Aboriginal stakeholders the processes administered by the Land Councils under the *Native Title Act 1993* and the *Aboriginal Land Rights (Northern Territory) Act 1976* serve to ensure that stakeholder engagement is conducted.

- (34) Some concerns were raised with regards to the economic benefit of the proposed activities. Northern Territory businesses have been engaged on the scope of Origin's activities through information sessions and tender opportunities covering a range of material supply and support services, such as transport and logistics, accommodation and food, provision of temporary camps and camp services, civil construction work, freight and transport, water bore drilling and environmental and civil consulting.
- (35) Concerns were raised with regards to uncertainty in the regulated activity, such as the risks of reusing flowback and produced water, the decision-making process for wet season transport and the impact to surface water flows from pipelines. The EMP was updated to address the concerns and comply with the requirements of the Code. Pipelines were removed from scope of the regulated activities.
- (36) Concerns were raised about the reliance on the WestRex disposal facility in Jackson, Queensland. The WestRex Jackson waste processing, treatment and resource recovery facility is licensed to receive hazardous liquid, solid and packaged chemical wastes, located to service various waste streams originating predominantly from coal seam gas production and related industries.⁵
- (37) Many submissions voiced concern about the production of 90 ML of wastewater. The EMP states that flowback fluid is intended to be reused where technically feasible, which will reduce the wastewater volumes produced by the regulated activities.
- (38) Submissions raised concern about the quality of flowback fluid, regarding the monitoring of the fluid as well as publishing the data. Flowback fluid will be reused where technically feasible, which will reduce the wastewater volumes produced by the regulated activities. Flowback fluid will be monitored as required by the Code, and a report about flowback fluid will be published on the Department's website.⁶
- (39) Concern was raised about the management of drilling waste, especially during the wet season. Drilling waste will be managed in accordance with the Code, and the environmental risks, including the risk of overtopping of the drill cuttings sump, are considered ALARP and acceptable.
- (40) Many submissions voiced concern about the impact on water availability from the proposed activity, and the reliance on the water extraction licence for analysis of impacts. Additionally, concerns were raised regarding the lack of a water allocation plan. The interest holder has obtained a water extraction licence, which included a detailed assessment of resource availability by the Department. The Northern

⁵ <https://www.westrex.com.au/our-history/our-facilities/>

⁶ <https://depws.nt.gov.au/onshore-gas/onshore-gas-in-the-northern-territory/industry-compliance-and-reporting/flowback-fluid-monitoring-results>

Territory Water Allocation Planning Framework⁷ outlines how water is allocated outside of water allocation plan, which notes that contingent allocation rules are applied in the absence of directly related research. A licence decision must consider the water availability, existing and likely future demand for domestic purposes, any adverse effects likely to be created as a result of the activities under the permit and other relevant factors. This supports the sustainability of the proposed water take when no water allocation plan is available. Flowback fluid will be reused where technically feasible, which will reduce the groundwater volumes extracted for the regulated activities.

- (41) Several submissions raised concern about the expiry date of the water extraction licence in 2024. The interest holder intends to renew the water extraction licence prior to its expiry in 2024.
 - (42) Concern was raised about the contamination of aquifers, including contamination caused by drilling fluid losses. Mitigation measures are in place to minimise any spills or leakages from the activity, and the risk of water pollution has been demonstrated to be ALARP and acceptable. Low toxicity drilling fluids are used during drilling through aquifers, to minimise the impact on groundwater quality during drilling. In the event total losses occur (e.g. in cavernous zones expected in karstic formations), drilling fluid systems are reduced back to water to maintain dynamic well control while minimising drilling additive losses to the formation.
 - (43) Submissions included concerns about inadequacy of monitoring methods, noting the inconsistency of the proposed monitoring with Recommendation 7.11 of the HFI report. Groundwater monitoring will be undertaken in accordance with the Code.
 - (44) One submission raised concern about the lack of suitable material to satisfactorily repair damaged well casing. Wells are designed to be operated such that all materials and equipment installed in a well must maintain well integrity for the lifespan of its intended use. Well integrity will be validated before and after hydraulic fracturing operations, and must be maintained at all times.
 - (45) Concern was raised about the potential of wells to corrode. Petroleum wells are designed with multiple barriers, so that a single barrier failure will not lead to a loss of containment. Complete well integrity failure where all barriers fail is an extremely rare occurrence in contemporary petroleum wells including shale wells.
 - (46) Concern was raised about the impact from increased heavy vehicles on the roads. A traffic impact assessment was undertaken, which found that the total volume of traffic will be considerably lower than the capacity of the Carpentaria Highway. Large loads will have their own journey management plan outlining proposed controls such as load constraint and speed restrictions.
- vii. I believe the information regarding the proposed regulated activity adequately provides the best available evidence in the circumstances that is relevant and reliable to the evidence-based decision-making process.
- d. The principle of intergenerational and intra-generational equity (s 21 *Environment Protection Act 2019*) requires that the present generation should ensure that the

⁷ https://depws.nt.gov.au/_data/assets/pdf_file/0011/476669/nt-water-allocation-planning-framework.pdf

health, diversity and productivity of the environment is maintained or enhanced for the benefit of present and future generations. I have given consideration to the impact on present and future generations as follows:

- i. This criterion requires me to turn my mind to whether the benefits of the proposal disproportionately burden present or future generations, or particular groups or communities of present or future generations.
 - ii. I have considered the use of groundwater and am satisfied that the proposed use will not result in either short-term or long-term impacts to other groundwater users.
 - iii. I have considered the protection of cultural heritage and am satisfied that conduct of the regulated activity will not impact on preservation of cultural heritage for the benefit of future generations.
 - iv. I have considered the potential benefit for future generations from increased economic activity in the region and am satisfied that exploration is a necessary precursor for future economic gains that may be achieved through a viable onshore petroleum industry.
 - v. I have considered whether the health, diversity and productivity of the environment is maintained or enhanced for the benefit of each of these relevant groups and conclude that on the balance, the health, diversity and productivity of the environment is not reduced by the regulated activity for each identified group or community.
 - vi. The environmental burdens of the regulated activity will not disproportionately affect particular stakeholders.
 - vii. I consider that emissions from the proposed activity will adequately be offset in line with the NT Government's expectations for new large emitting projects to reduce and manage emissions in a way that enables development to occur while contributing to the Territory's emissions target of net zero greenhouse gas emissions by 2050.
 - viii. Cultural values relating to sacred sites will be protected through the application of Authority Certificates issued to the interest holder under the *Northern Territory Aboriginal Sacred Sites Act 1989* and measures for reporting on discovery of archaeological sites during civil maintenance activities.
 - ix. 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. The principle of sustainable use (s 22 *Environment Protection Act 2019*) requires that natural resources should be used in a manner that is sustainable, prudent, rational, wise and appropriate. In applying this principle, I have considered the following:
- 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."⁸

⁸ Refer section 9.7.4 of the *Scientific Inquiry into Hydraulic Fracturing in the Northern Territory*; p 233. Available at: <https://frackinginquiry.nt.gov.au/inquiry-reports?a=494286>

- ii. I note the NT Government's commitment to implementing all the recommendations of the HFI, including working with the Australian government to seek to ensure that there is no net increase in lifecycle GHG emitted in Australia from any onshore petroleum produced in the NT.
 - iii. I note the EMP has addressed the cumulative impact associated with current and future water takes – addressed in the Water Extraction Licence GRF 10285 Statement of Decision, which was assessed to be well within the sustainable yield of the Gum Ridge Formation (1,412,800 to 2,825,600 GL)
 - iv. A new groundwater licence will be required for 2025 onwards. Future consideration of groundwater use will include an application for an extraction licence.
 - v. Accordingly, I am satisfied that the concept of sustainable use of natural resources has been taken into account.
- f. The principle of biological diversity and ecological integrity (s 23 *Environment Protection Act 2019*) requires that biological diversity and ecological integrity should be conserved and maintained. I have applied this principle 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, is sufficient.
 - ii. The regulated activity does not pose a significant risk to any regional populations of threatened species. No core habitat for threatened fauna was identified in the project area, but seven threatened species potentially occur in the wider landscape.
 - iii. The Department's Flora and Fauna Division is satisfied that the regulated activity does not pose a significant risk to the threatened species, important habitats or significant vegetation types. The mitigation controls identified in the EMP are adequate to reduce risks associated with potential impacts on biodiversity, such as noise, vehicle strike, dust, erosion and spills to be ALARP and acceptable.
 - iv. The EMP outlines measures to minimise impacts on affected environmental values, including the management of threatening processes such as weeds and fire. Where relevant, management measures for the threatening processes are consistent with the requirements of the Code, NT Land Clearing Guidelines and Weed Management Planning Guideline: Onshore Petroleum Projects. Specific examples of mitigation controls include construction and maintenance of firebreaks, biannual weed inspections and the requirement to have weed hygiene declarations prior to accessing the site. The conservation of biological diversity and ecological integrity is vital to the achievement of ecologically sustainable development. 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 reg 9(1)(c) has been met.
 - v. It is often the case that the conservation of biological diversity and ecological integrity is vital to the achievement of ecologically sustainable development. By their nature, ecosystems are complex and interdependent systems and relationships; this needs to be considered in relation to what preserves their integrity. Biological diversity also represents a wealth of potential natural resources that may provide options for present and future generations. I have born this in mind when considering the weight to be given to the

- evidence before me regarding the potential impacts of the regulated activity on biodiversity and ecological integrity.
- vi. The measures to conserve and maintain biological diversity and ecological integrity in the EMP are appropriate, given the nature and scale of the regulated activity.
 - vii. If carried out in accordance with the EMP, the risks of the regulated activity to the conservation of biological diversity and ecological integrity are considered to be mitigated to an acceptable level.
- g. The principle of improved valuation, pricing and incentive mechanisms (s 24 *Environment Protection Act 2019*) requires that environmental factors should be included in the valuation of assets and services, through application of the 'polluter pays' principles, consideration of full life cycle costs of providing goods and services, and pursuing environmental goals in the most cost-effective way. I have applied the principle as follows:
- i. The pollution and waste that will be generated by the regulated activity in the general course of its operation includes domestic waste, drilling waste, and waste from hydraulic fracturing and emissions.
 - ii. I am satisfied that both hazardous and non-hazardous waste will be disposed of in accordance with the requirements of the WMPC Act and the *Radiation Protection Act 2004* by the interest holder at its own cost, as outlined in the Wastewater Management Plan.
 - iii. In relation to the risks of a pollution event that may occur unintentionally during the operations of the regulated activity, I consider that the following measures are in place to ensure the interest holder bears the costs of containment, avoidance, and abatement. This includes:
 - (1) impacts and risks associated with contamination of soil, surface water and groundwater, which are managed through meeting mandated requirements for well integrity and clean-up of spills and leaks and remediation of impacted soil
 - (2) impacts and risks associated with loss of containment of wastewater, which are managed through containment measures.
 - iv. In relation to full life cycle costs, it is expected that the regulated activity will have a life cycle of five years, and at the end of this cycle the interest holder will take action to remove any residual pollution and waste as detailed by the EMP.
 - v. In addition, the interest holder is required to provide an environmental security sufficient to allow third party intervention for rehabilitation and remediation should it be required, ensuring the interest holder bears the costs of pollution.
 - vi. The Spill Management Plan includes commitments to immediately remediate spills and leaks, so as to reduce the risk of long-term contamination of the environment and avoid environmental impact legacies.
 - vii. With these measures in place, I am satisfied that the EMP ensures that environmental costs are not left as externalities to be paid for by Territory taxpayers or the local community. They will be fairly paid for by those who stand to benefit from the regulated activity, such as the interest holder, and consumers who choose to purchase the interest holder's products. To the extent there are some costs to the Territory, I am satisfied that this is appropriate given the broader economic benefits.

- viii. In relation to options to pursue environmental goals in relation to the regulated activity, I have taken into account that these goals should be pursued in the most cost-effective way.
- ix. I believe approval of the EMP with the conditions I have imposed is consistent with 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*, as the regulated activity does not have the potential to cause a significant impact on the environment. reg 9(3)
- i. The NT EPA reviewed the EMP for the regulated activity against the approval criteria in regulations 9(3)(a) and 9(3)(c) of the Regulations and other matters the NT EPA considered relevant, and has provided advice about the EMP.
- 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 against the approval criteria in regulation 9(1) 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 eight 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 ALARP and acceptable.
- ii. I have considered the NT EPA's advice and recommendations and these have been incorporated where relevant into 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 chapter 5 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 L 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.
- l. The interest holder's risk assessment is applicable to activities in all seasons and the outcomes are reflected in the EMP that includes, for example; a weed management plan; bushfire management plan; wastewater management plan; rehabilitation plan; emergency response plan; stakeholder engagement management plan; chemical risk assessment; and spill management plan. The EMP also includes the required elements for the ongoing management of erosion and sediments. 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 and minimum freeboard in wastewater infrastructure is maintained.

- m. The anticipated environmental impacts are appropriately identified in Appendix L of the EMP. The regulated activity are a continuation of current activities and cumulative effects have been identified and assessed. In EMPs for subsequent stages (if they proceed) the interest holder will need to continue to address cumulative effects.
- n. The EMP demonstrates how the interest holder will comply with relevant requirements of the Code in undertaking these regulated activity. This includes reference to applicable Australian and international standards that have been adopted for 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 activities comply with the Code, as applicable. The EMP provides water management commitments and management plans that meet the requirements of the Code.
- o. I am satisfied that the interest holder has committed to conducting ongoing stakeholder engagement in accordance with the Regulations. The EMP provides details of stakeholder engagement that meets Regulation 7 and Schedule 1, Clause 9 of the Regulations (Appendix M). Stakeholder engagement records demonstrate that stakeholders raised objections about environmental impacts of the proposed activity that required the interest holder to amend the wording in the activity description. The EMP provides details of written feedback and input from stakeholders as part of the stakeholder engagement records. The risk assessment in the EMP details the potential environmental impacts of the activity and proposed environmental outcomes to manage impacts on social and cultural surroundings.
- p. I recognise the importance the community places on the protection of water, human health management of chemicals and waste, stakeholder engagement, social impacts and regulation and compliance. The EMP appropriately identifies the risks and potential impacts from the regulated activity and commits to mitigation and management measures to address these risks and potential impacts.
- q. There are no environmental impacts or environmental risks relating to the proposed regulated activity that I consider to be unacceptable.
- r. Overall, having regard to the above, I am satisfied that the EMP is appropriate for the nature and scale of the activity, and 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.