Approval notice and statement of reasons

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

Interest holder	Tamboran B2 Pty Ltd ACN 105 431 525 Falcon Oil and Gas Ltd ABN 53 132 857 008
Petroleum interest(s)	Exploration Permits 98 and 117 (EP98 and EP117)
Environment management plan (EMP) title	Beetaloo Basin Shenandoah South E&A Program
EMP document reference	TB2-HSE-MP-08, Rev 3, (TAM1-3) prepared by Tamboran B2 Pty Ltd dated 26 April 2024
Regulated activity	• 2D seismic 77 km • 119.26 hectares (ha) of additional disturbance (139.66 ha total) • civil works - existing wells pad maintenance & upgrade, well pads, access tracks, camp pads, three temporary 75 person camp, helipads, fence lines, firebreaks, gravel pits • gas flaring, extended production testing of sixteen wells across four well sites • suspension and decommissioning (if required) of all wells & infrastructure • drilling and hydraulic fracturing of fifteen horizontal wells • on-site wastewater management • construction and operation of wastewater gathering lines • transportation, handling and storage of bulk chemicals, fuels and wastes • operation, maintenance and decommissioning of the existing Kyalla 117 N2 1H E&A well
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

[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.

Has an Authority Certificate under the Northern Territory *Aboriginal Sacred Sites Act 1989* been issued for the regulated activity?	Yes Authority Certificates C2024/030 and C2024/031
Date an EMP compliant with reg 8 was first submitted under reg 6	1 December 2023
Dates within which the EMP was published for comment under reg 8A, if applicable	12 December 2023 to 9 January 2024
Date further information was required and submitted under reg 10, if applicable	29 February 2024 (requested) 28 March 2024 (received) 19 April 2024 (requested) 26 April 2024 (received)
Date of resubmission notice under reg 11(2)(b), if applicable	29 February 2024 (requested) 28 March 2024 (received)
Date EMP was resubmitted under reg 11(3), if applicable	19 April 2024 (requested) 26 April 2024 (received)
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
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: 10 May 2024
Date of decision	23/05/2024
Decision maker	 Signature Hon Kate Worden MLA, Minister for Environment, Climate Change and Water Security

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

Notification Conditions

Condition 1: By 1 September of each year, the interest holder must submit to onshoregas.DEPWS@nt.gov.au a notification if either:

i. seismic activities; or

ii. civil works activities (being all ground disturbing activities, including earth moving, land clearing, installation of gravel pits, establishment of well pads, and establishment of access tracks),

are proposed to be conducted during the upcoming Wet Season (as defined in the Code of Practice: Onshore Petroleum Activities in the Northern Territory (2019) (the **Code**)). The notification must include:

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i. the location of the proposed activities; and

ii. the proposed timeframe for conducting the activities.

Condition 2: Within 24 hours of either the commencement or cessation of:

i. seismic activities; or

ii. civil works activities (being all ground disturbing activities, including earth moving, land clearing, installation of gravel pits, establishment of well pads, and establishment of access tracks);

the interest holder must submit to onshoregas.DEPWS@nt.gov.au a notification that such activities have commenced or ceased, including the date the activities commenced or ceased and the location of the activities, if the period between ceasing and restarting activities exceeds 28 days.

Condition 3: Within 24 hours of either the commencement or cessation of:

i. drilling of a petroleum well; or

ii. hydraulic fracturing of a petroleum well;

the interest holder must submit to onshoregas.DEPWS@nt.gov.au a notification that such activities have commenced or ceased, including the date the activities commenced or ceased and the location of the activities, including the location of the relevant activity.

Condition 4: Within 30 days of installing a groundwater bore or within 30 days of determining an existing groundwater bore is proposed to be used, 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.

Reporting Conditions

Condition 5: By 1 October of each year, the interest holder must submit to onshoregas.DEPWS@nt.gov.au a completed Annual Environmental Performance Report (AEPR) for the preceding 12 month period of 1 July to 30 June using the AEPR template. The AEPR Template must be completed in accordance with the *Onshore Petroleum Annual Environmental Performance Reporting Guideline* (21 December 2023) as updated from time to time.

Condition 6: Within three business days of 31 March, 30 June, 30 September and 31 December of each year, the interest holder must submit to onshoregas.DEPWS@nt.gov.au a report with the following information:

i. regulated activities completed in the previous quarter;

ii. regulated activities to be conducted in the next quarter, including estimated duration;

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iii. the date any conditions of this approval were completed in the previous quarter;

iv. the date any conditions of this approval are due for completion in the next quarter; and

v. monitoring and compliance activities to be conducted in the next quarter based on commitments in the approved EMP, relevant to the stage of a regulated activity.

Condition 7: During the Wet Season (as defined in the Code), the interest holder must submit to onshoregas.DEPWS@nt.gov.au weekly reports by 5pm ACST each Monday for the preceding week or part thereof that include the following information:

i. whether unsealed access roads were used by any vehicle or machinery, other than a light vehicle;

ii. daily inspection reports of erosion and sediment control measures and, where relevant, the type and date of corrective actions taken, or date proposed to be taken, in response to issues identified in the daily inspection reports;

iii. daily inspection reports for secondary containment in use and, where relevant, the type and date of corrective actions taken, or date proposed to be taken, in response to issues identified in the daily inspection reports; and

iv. all dates the regulated activity was stopped due to Wet Season events and the date and time that the regulated activity recommenced, or is proposed to recommence.

Condition 8: During either drilling activities or hydraulic fracturing activities, the interest holder must record the date, time and position title of the officer who conducted the daily inspection, and must submit to onshoregas.DEPWS@nt.gov.au a weekly report by 5pm ACST each Monday for the preceding week or part thereof with the following information:

i. for drilling activities, the daily freeboard available in drill cutting pits (in cm) and the time of measurement;

ii. for hydraulic fracturing activities, the daily freeboard available in wastewater tanks (in cm) and the time of measurement; and

iii. in relation to both drilling and hydraulic fracturing, whether any non-compliances were identified in the daily inspections and, if relevant, any corrective actions taken, or proposed to be taken, and the timeframe for implementation of corrective actions, in response to the non-compliances.

Condition 9: Notwithstanding regulation 35, the interest holder must submit recordable incident reports to onshoregas.depws@nt.gov.au no later than 5 pm ACST 15 days after the end of each quarter, being 15 April, 15 July, 15 October and 15 January each year while the approved plan remains in force, and must be submitted regardless of whether an incident occurred during the reporting period or not.

Condition 10: Within 30 days of completing seismic activities, land clearing or other ground disturbing activities (being all ground disturbing activities, including earth moving, land clearing, installation of gravel pits, establishment of well pads, and establishment of access tracks), the interest holder must submit to

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onshoregas.DEPWS@nt.gov.au geospatial files (as shapefiles and inclusive of metadata).

Greenhouse Gas Emissions Condition

Condition 11: By 31 October of each year, the interest holder must submit to onshoregas.DEPWS@nt.gov.au the emissions report required by clause D.6.2 of the Code, which must:

i. calculate emissions in accordance with the National Greenhouse and Energy Reporting (Measurement) Determination 2008;

ii. document 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 (TAM1-3);

iii. demonstrate 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;

iv. include a summary of all regulated activities conducted which have contributed to greenhouse gas emissions during the reporting period; and

v. account for differences between actual and predicted emissions with reference to all parts of the regulated activity with potential to create greenhouse gas emissions.

Incident Management Conditions

Condition 12: The interest holder must record all releases of liquid contaminant or hazardous chemicals in a site spill register, which records:

i. the liquid contaminant or hazardous chemical spilled or leaked;

ii. the GPS co-ordinates of the location of the spill or leak;

iii. the source and volume of the spill or leak;

iv. the volume of impacted soil removed for disposal and the depth of any associated excavation; and

v. the corrective actions taken or proposed to be taken to prevent recurrence of an incident of a similar nature.

Condition 13: References to "reportable" in the EMP (TAM1-3) as referred to below must be disregarded:

i. all references in Table 64 on page 268;

ii. all references in Table 66 on page 276; and

iii. the reference to "reportable" the column titled "Environmental performance standards" in Table 67 on page 280.

Groundwater Monitoring Conditions

Condition 14: The interest holder must:

i. undertake groundwater level/pressure monitoring at each impact monitoring bore and control monitoring bore using a logger to record water level at a minimum of every five minutes for:

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a. one week prior to hydraulic fracturing;

b. during hydraulic fracturing; and

c. one week following hydraulic fracturing; and

ii. within 14 days of completion of groundwater level/pressure monitoring in each impact monitoring bore, the interest holder must submit to onshoregas.DEPWS@nt.gov.au the logger data in Excel format;

iii. undertake quarterly groundwater monitoring at each control and impact monitoring bore for a minimum of three years after establishment, unless otherwise advised by DEPWS;

iv. within 60 days of each groundwater monitoring event, the interest holder must submit to onshoregas.DEPWS@nt.gov.au the results of groundwater monitoring in a format to be determined by DEPWS;

v. within 90 days of the anniversary of the approval date of the EMP (TAM1-3), and each subsequent year, the interest holder must submit to onshoregas.DEPWS@nt.gov.au an interpretative report of groundwater quality which includes:

(a) 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;

(b) interpretation of any statistical outliers observed from baseline measured values for each of the analytes listed in Table 6 of the Code;

(c) a summary of the results including descriptive statistics;

(d) discussion of any trends observed;

(e) description of the layout of the groundwater monitoring bores and wells, indicative groundwater flow directions and levels; and

vi. within 12 months of commencement of groundwater monitoring under the EMP (TAM1-3), the interest holder must submit to onshoregas.DEPWS@nt.gov.au a report on the suitability of groundwater quality data collected to date, including all groundwater quality data collected under EMPs superseded by this approval, for development of site-specific trigger values for groundwater quality at each of the impact monitoring bores established or used under the EMP (TAM1-3).

Condition 15: Within 60 days of completion of well flowback operations for the first well where flowback fluid has been reused, the interest holder must provide to onshoregas.DEPWS@nt.gov.au a risk assessment of the returned flowback fluid following the reuse, which must be:

a) prepared by a suitably qualified person; and

b) prepared in accordance with the monitoring wastewater analytes specified in section C.8 of the Code.

Seismic Survey Conditions

Condition 16: Prior to the commencement of seismic activities using sub-surface charges, the interest holder must provide to onshoregas.DEPWS@nt.gov.au written confirmation that relevant stakeholders have been advised of the procedure the interest holder intends to employ in the event of a misfire.

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Condition 17: 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;

iv. observations on the efficacy of use of seismic charges as an alternative approach for conducting seismic activities;

v. the observed rate of misfire for the program; and

vi. information on the location of misfires where sympathetic detonation appears to be unsuccessful.

Record Keeping Conditions

Condition 18: The interest holder must create and retain records for all inspections, monitoring and maintenance activities and impact mitigation commitments made in the EMP (TAM1-3) to demonstrate these commitments have been complied with.

2 Material considered

1. The following material has been taken into account in making this decision:
   a. Beetaloo Basin Shenandoah South E&A Program, dated 26 April 2024.
   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 (Code) 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 Tamboran B2 Pty Ltd, version 3.0 dated 16 November 2023.
   h. All public comments submitted under reg 8B.

3 Statement of reasons

1. 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)**
2. 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. Civil construction of up to four exploration and appraisal well sites and associated infrastructure (access tracks, camp pads, helipads, laydown yards, fence lines, firebreaks, water bore, gravel pits and all other ancillary infrastructure) as well as expansion of the existing Kyalla 117 N2 well site.
      ii. Drilling, hydraulic fracture stimulation and well testing of up to fifteen wells (14 new, 1 approved under an existing EMP) at four new exploration locations, and the existing Kyalla 117 N2 well site.
      iii. Construction and operation of up to two hydrocarbon and wastewater gathering line networks between well sites.
      iv. Acquisition of 2D seismic data over approximately 77 km.
      v. Construction of on-site wastewater storage.
      vi. Transportation, handling and storage of bulk chemicals, fuels and wastes.
      vii. Decommissioning of all sites and associated infrastructure.
   b. The scale of the regulated activity is as follows:
      i. The 2D seismic acquisition involves clearing for 38 km of seismic lines, totalling 19 ha, which will be progressively rehabilitated.
      ii. Land clearing associated with the remaining activities is 100.26 ha, with an additional 20.40 ha of already approved clearing at the Kyalla 117 N2 site.

iii. The gathering line network is 8.61 km in length.

iv. An estimated total groundwater usage of 1174.8 ML.

v. The peak traffic movement for the regulated activity is 44 vehicles per day during site mobilisation.

vi. Approximately 10-60 hydraulic fracturing stages for each petroleum well established, requiring a water volume of approximately 72 ML per well.

vii. Extended production testing for 90 days per well (average), with worst case greenhouse gas emissions totalling just over 400,000 tonnes of CO_2 equivalent for the project.

3. 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)**

4. 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 activities form one component of a broader onshore petroleum exploration program in the region.

      ii. Public consultation on the EMP was required under the Petroleum (Environment) Regulations 2016, as the EMP proposes drilling and hydraulic fracturing activities. The public comment period was from 12 December 2023 – 9 January 2024.

      iii. The Department received 30 public submissions on the EMP. None of the submissions were generated through internet campaigns. NT submissions represent approximately 83% of the total number of submissions received and interstate submissions represent approximately 10%. The balance of the submissions (7%) were from undisclosed geographical regions.

      iv. I note the issues raised in public submissions across the following broad environmental themes:

Theme	Overview of issue raised
Chemicals	• Adequacy of human health risk assessment • Impacts of chemicals on human health • Consideration of exposure pathways to humans, bats, birds, insects, amphibians and reptiles • Impact of chemicals and mixtures of chemicals on human health and the environment • Volume of chemicals stored and flood risk • Disposal of drilling muds • Remoteness and emergency response
Climate change	• Impact of greenhouse gas emissions on climate • Scope 3 emissions not (adequately) addressed • Cumulative greenhouse gas emissions • Lack of a Greenhouse Gas Abatement Plan (GGAP) • Downplay of emissions and inconsistent emission totals • Incomplete consideration of estimated GHG emissions • Prevention of flaring and venting • Offsetting capacity and effectiveness of CCS • Non-credible assertions about climate neutrality of gas • Disregard of ESD principles • Frequency of leak detection monitoring • Flare efficiency • Regional greenhouse gas emissions monitoring • Compliance with the Commonwealth Safeguard Mechanism • Recommendation 9.8 of HFI • Consideration of the Ambient Air Quality National Environment Protection Measure (NEPM) • Chemical threats to air quality
Flora and fauna (environment)	• Lack of baseline ecological surveys and extent of SREBA • Impacts on birds and amphibians from wastewater • Loss of feeding areas for granivorous birds • Impact on traditional food sources • Impacts on groundwater dependent ecosystems, including stygofauna • Chemical exposure pathways for fauna • Pollution of country • Habitat fragmentation and introduction of weeds • Cumulative impacts, including from emissions and groundwater use • Contamination of aquifers • Spread of weeds • Rehabilitation contingency
Social and Cultural	• Consent for onshore petroleum activities • Inclusion of Authority Certificate • Concerns as to the extent of stakeholder engagement • Impacts to cultural values • Public comment period
Water	• Groundwater over-extraction

	• Adequacy of baseline groundwater monitoring and understanding of groundwater • Contamination of groundwater • Downstream impacts and flooding • Hydrological connections between aquifers • Risk of groundwater contamination related to faults • Drawdown impacts
Wastewater	• Improper disposal of wastewater • Use of open treatment ponds for wastewater • Management of stormwater and sediment basins • Errors in units • Use of gathering lines for wastewater and environmental risk • Wet weather contingency plan • Discharge of wastewater to surface water • Monitoring of freeboard and emergency response
Regulation and compliance	• Significance of impacts and referral under the Environment Protection Act 2019 (NT) (EP Act) and the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) • Application of precautionary principle of ecologically sustainable development • Adequacy of Northern Land Council consultation of affected Aboriginal stakeholders • Assessment of sand mining • Inclusion of an AAPA Certificate • Interest holder environmental performance • Compliance with the Code • Management of impacts and risks to ALARP and acceptable levels • Compliance with the Commonwealth Safeguard Mechanism
Uncertainty in regulated activity	• Insufficient detail provided on the proposed seismic program • Inclusion of sand mining

i. The NTG agencies', public submissions and NT EPA Onshore Gas Committee comments were addressed by the interest holder via an updated EMP.

ii. 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 the 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.

iii. I am satisfied that the community has had a reasonable opportunity to be involved in processes in relation to this decision.

iv. 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.

v. The information before me suggests short-term environmental impacts are acceptable and ALARP with the proposed mitigations in place.

vi. The information before me suggests long-term environmental impacts are acceptable and ALARP if the regulated activities are undertaken in the manner detailed in the EMP and the conditions of approval. I note the predicted cumulative greenhouse gas emissions exceed the threshold for a large emitter in at least one year and, as such, Greenhouse Gas Abatement Plan has been prepared by the interest holder to demonstrate how the project will contribute to the Territory's net zero emissions target.

vii. 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 have applied the precautionary principle as follows:

i. There is some information that indicates the regulated activity may threaten serious or irreversible environmental damage, namely from the contribution of greenhouse gas emissions to climate change impacts.

ii. Where a threat of serious or irreversible environmental damage does warrant the application of the principle, it is necessary to consider if there is a significant degree of uncertainty as to the nature and scope of the environmental damage that may occur, in relation to the regulated activity under consideration. There is some uncertainty as to the contribution the emissions from the proposed activities in this EMP will have on climate change. The effect of the uncertainty is reduced on the basis that the interest holder must meet the obligations of the Australian Government's safeguard mechanism if the trigger value of 100,000 tCO_2-e per annum is exceeded. The effect of the uncertainty is also reduced given the interest holder has produced a Greenhouse Gas Abatement Plan in line with the NT Greenhouse Gas Emissions Management for New and Expanding Large Emitters policy. The interest holder commits to a number of emissions reduction measures including restrictions on venting, regular leak detection inspections and choking wells where possible. On this basis, I do not consider that the threat involves scientific uncertainty of a degree that triggers the application of the precautionary principle.

iii. To ensure greenhouse gas emissions are understood, I have imposed a condition requiring provision of an annual report of actual emissions, confirmed by an auditor registered under the Register of Greenhouse and Energy Auditors.

iv. 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 negligible short-term and minor environmental impacts, I am satisfied the measures identified by the interest holder are effective to prevent a threat of serious of irreversible environmental damage.

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. The EMP was developed by persons who have professional qualifications, training, skills and experience on the subject matter of environment, safety, risk management, and petroleum development and operations, as well as consultants with experience working 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 available for public comment to identify any deficiencies or additional evidence required from 12 December 2023 to 9 January 2024.

   iv. The EMP has undergone review and assessment by a multi-disciplinary team in DEPWS and NT government agencies, which has informed my decision on the EMP.

   v. The interest holder provided further information to clarify aspects of the EMP and modified 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:

      Chemicals

      (1) Concerns were raised regarding chemicals. These concerns covered the adequacy of the human health risk assessment and the impacts of chemicals on human health, impact of chemicals and mixtures of chemicals on human health and the environment, consideration of exposure pathways to humans, bats, birds, insects, amphibians and reptiles, the volume of stored chemicals, flood risk and emergency response and the disposal of drilling muds.

      (2) I note that the human health risk assessment of proposed chemicals was prepared by an independent third party, in accordance with regulation 4A, and considered both acute and chronic toxicity. The human health risk assessment in the draft EMP was amended based on matters raised in relation to identification of chemicals, exposure pathways and classification of chemicals. It is noted there is no complete exposure pathway for the community from petroleum activities, based on the distance to the nearest public receptors, the radial extent of a worst-case spill scenario and the controls in place to avoid a loss of containment event, including during flood conditions.

      (3) I note that Regulations 37A(2A) and 37B(2A) require human health risk assessments to be conducted on flowback fluid (primarily consisting of hydraulic fracturing fluid and water) and produced water (primarily consisting of naturally occurring formation water). Additionally, the Code requires testing to be undertaken on wastewater, which is a mixture of produced water and flowback fluid, to inform environmental risks associated with that wastewater. This testing is undertaken once those fluids and wastewater are produced, so cannot be described in the EMP.

(4) The revised risk assessment demonstrates all chemicals were considered low concern when standard chemical handling, storage and disposal practices were applied. None of the chemicals proposed for use in drilling and hydraulic fracturing were identified to be both persistent and bio-accumulative. The EMP has been amended to include details on these aspects.

(5) The EMP has been amended to include additional details on the volume of stored chemicals, flood risk and emergency response procedures. The EMP has been amended to be clear that on-site disposal of drilling muds can only occur subject to certification by an EPA-accredited auditor that no environmental harm will arise from doing so, noting tests for leachability of drilling muds can only occur after drilling has occurred and so certification cannot be included in the EMP.

Climate Change

(6) Concerns were raised regarding the impacts of the project on climate change, covering: air quality, impact of greenhouse gas emissions, scope 3 emissions, cumulative greenhouse gas emissions, the requirement for a Greenhouse Gas Abatement Plan (GGAP), emissions calculations, flaring and venting, offsetting, leak detection, the Commonwealth Safeguard Mechanism and the ambient air quality National Environment Protection Measure (NEPM).

(7) A GGAP has been developed for the regulated activities under this EMP consistent with the NT Greenhouse Gas Emissions Management for New and Expanding Large Emitters policy requirements. Emissions have been calculated in accordance with the National Greenhouse and Energy Reporting Scheme (**NGERS**).

(8) The EMP considers fugitive emissions, provides detail on compliance with NGERS calculation methods and assumptions, considers potential impacts to climate from cumulative greenhouse gas emissions and emissions reduction methods.

(9) The EMP itself demonstrates a commitment to minimise emissions to ALARP and acceptable levels and offset residual emissions unable to be avoided or mitigated.

(10) The EMP is not required to account for emissions that may result from a full production scenario, as that is not the subject of regulated activities proposed in the EMP. Cumulative impacts from a full production scenario will be required to be considered in future approvals for production activities, which will be informed by the outcomes from the current proposed activities.

(11) There is no proposal under the EMP to use carbon, capture and storage as a mechanism for emissions reduction.

Flora and Fauna

(12) Submissions raised concerns about the projects impacts to flora and fauna covering: baseline ecological surveys and the extent of the Strategic Regional Environmental and Baseline Assessment (**SREBA**), impacts on birds and amphibians from wastewater, feeding areas for granivorous birds, traditional food sources, impacts on groundwater dependent ecosystems, including stygofauna, chemical exposure pathways for fauna, pollution of country, habitat fragmentation and introduction of weeds cumulative impacts, including from emissions and groundwater use,

contamination of aquifers, spread of weeds and rehabilitation contingency.

(13) The EMP demonstrates an adequate understanding of the listed species and sensitive receptors that may occur in the area of the regulated activities, informed by a range of previous ecological assessments across the interests, targeted assessments of areas of proposed ground disturbance, sufficient to understand the potential impacts of the proposed regulated activity, and desktop database searches, including use of SREBA data. As the area of suitable habitat proposed to be cleared is very small compared to the area of remaining suitable habitat for the identified listed species, it is considered unlikely that the proposed regulated activities pose a significant risk to the listed species, with implementation of the controls proposed. The EMP commits to avoiding clearing of hollow-bearing trees that provide nesting sites.

(14) Impacts to stygofauna from chemicals is avoided through compliance with requirements of the Code. Interest holders are required to use only drilling fluids that are non-toxic while drilling through aquifers to avoid impacts to groundwater. Hydraulic fracturing does not interact with groundwater and cannot have an impact on stygofauna.

(15) The EMP demonstrates the proposed activities were informed by SREBA data and clearly indicates the contribution of past activities to cumulative impacts. The EMP considers the cumulative effect of land clearing from this and other petroleum activities, and concludes that 0.0227% of the region surrounding the EPs has been cleared for petroleum exploration to date. The proposed activity falls within the Georgina Wiso Water Allocation Plan 2023-2031, gazetted 10 November 2023. The Plan estimates a sustainable annual yield of 186,154 ML for the Georgina Basin, against a storage capacity of 660,000,000 ML. Of this, 8,000 ML may be allocated to petroleum activities per annum. When considered against all other current users, the total extraction for all users of the Gum Ridge aquifer is currently less than 2,000 ML per annum, which is well below the sustainable annual use. The proposed increase of the current water extraction licence to 450 ML/annum is not considered significant. Cumulative GHG emissions are assessed, and the EMP concludes that publically available data shows forecast emissions for the four year program across all approved EMPs emissions to date represent 2.5% of the total 2022 NT emissions.

(16) The EMP considers the full range of listed species which may be present, based on advice from the Flora and Fauna Division.

(17) No wastewater may be stored in open tanks. Where wastewater is placed into open tanks for treatment, these tanks have vertical sides, which prevents access by ground-dwelling fauna, and therefore there is unlikely to be any impact from wastewater treatment. Similar operations conducted in the NT and other jurisdictions have found impacts to birdlife from open cuttings pit are considered low due to the saline nature of the water not being attractive or injurious to bird species. Open drill cutting pits may be accessed by fauna and the interest holder has included in the EMP a trigger and proposed actions should observations of impact on fauna from open drill cutting pits be detected.

(18) All land disturbance from onshore petroleum activities is required to be rehabilitated, thereby minimising long term habitat fragmentation. Progressive rehabilitation has been committed to and the EMP includes

contingencies should natural regeneration of areas for rehabilitation does not progress adequately.

(19) Weed management was informed by baseline weed assessments and the EMP commits to ongoing application of vehicle hygiene measures and annual weed assessment, and control activities. All weed management activities are also subject to oversight of a dedicated government Petroleum Regional Weeds Officer, who is also an authorised inspector under the *Weeds Management Act 2001*.

(20) The EMP includes amendments which more clearly explain aquifer protection considerations in well design.

(21) The expansion of exposure pathways for fauna and chemicals has been addressed as part of the concerns related to chemicals, above.

Social and Cultural Impacts

(22) Concerns were raised regarding social and cultural impacts from the project. These covered consent for onshore petroleum activities, Authority Certificates for the activities, stakeholder engagement, impacts to cultural values and the timing of the public comment period.

(23) 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, as an agent or representative of Aboriginal stakeholders.

(24) The interest holder has elected to not progress activities at Shenandoah North B to ensure protection of culturally significant areas identified near this location.

(25) The EMP may not be approved without a valid Authority Certificate relevant to the location of the proposed regulated activities.

Comment period

(26) Public submissions raised concerns about whether a 28 day comment period over the Christmas and New Year period was sufficient for obtaining public feedback. The 28-day public comment period is a legislated period. Similarly, the Regulations require an EMP submitted for approval to be advertised within 14 days of receipt.

(27) Submissions can be made to the Minister in a range of forms, including via the Have Your Say website, email or written form (via post). The Department has released guidance on how to make a public comment on an EMP, *Guidance for Public Submissions on Petroleum Environment Management Plans*. The Minister has considered the submissions received during the legislated consultation period as outlined throughout this statement.

Water

(28) Submissions raised concerns about water which covered:

(a) Groundwater over-extraction

(b) baseline groundwater monitoring

(c) contamination of groundwater

(d) downstream impacts and flooding

(e) hydrological connections between aquifers

(f) risk of groundwater contamination related to faults and drawdown impacts.

(29) The proposed groundwater use is within the allocated sustainable yield for the Georgina Wiso Basin and the risk of impacts to groundwater availability for other users is considered very low. The interest holder has also committed to reuse flowback fluid collected to reduce the overall take of groundwater.

(30) The interest holder has incorporated the outcomes of SREBA groundwater studies into the assessment of the potential for impacts to groundwater for the proposed activities. Some submissions raised concern about methane having been recorded during SREBA in Bitter Springs and the link to petroleum activities. Bitter Springs is a well-known natural source of methane emissions and presence of dissolved methane in sedimentary basins is not considered unusual. A study of the hydrogeology of the Beetaloo also noted that the measured concentrations of dissolved methane in groundwater of the Beetaloo Sub-basin is low, which indicates limited influence from vertical mixing. Further, the transmission of water from the Georgina Wiso to the springs system of the Mataranka region is extremely slow and distant.

(31) The EMP meets groundwater monitoring requirements and has accumulated a substantive body of groundwater monitoring data which informs potential impacts to groundwater quality and quantity, including risks to surface water and groundwater in relation to naturally occurring faults.

(32) The potential for downstream impacts to the Newcastle Creek catchment, which feeds into Lake Woods, have been considered, and the risk determined to be low. Appendix E of the EMP includes an assessment of the potential for a spill to spread and infiltrate to groundwater, and considered a range of receptors including Lake Woods, Newcastle Creek and Aboriginal protected areas. In the unlikely event of a catastrophic release (defined in the modelling as 1 ML, which is greater than the largest possible amount of wastewater that could be released by a flowline), it was concluded that an area of up to 549 m radius could be affected. It was also concluded that it would take approximately 2,000 days to infiltrate through to 50 m below ground level in siltstone, or 200 days in fractured limestone. The EMP includes a spill management plan for spills of hazardous materials, and primary and secondary containment for all potentially hazardous materials stored. The risk of a major spill causing offsite contamination of surface waters or groundwater is considered unlikely. The nearest sensitive receptor is reported as being 4 km away (a pastoral bore), and notably, the nearest surface water stream is 8.5 km from the location of a well proposed to be hydraulically fractured.

Wastewater

(33) Submissions included concern about the impact of wastewater covering:

(a) wastewater disposal

(b) open wastewater treatment ponds

(c) management of stormwater and sediment basins

(d) use of flowlines

(e) wet weather contingency plan

(f) discharge of wastewater to surface water and monitoring of freeboard and emergency response.

(34) Storage tanks and pits are designed and operated to prevent overtopping due to rainfall and drill cutting sumps include sufficient freeboard to accommodate in excess of the anticipated rainfall, based on a 1:1000-year Average Recurrence Interval (ARI) for the duration of the regulated activity. The risk of overtopping is considered unlikely.

(35) The approach for management of wastewater from hydraulic fracturing activities in the EMP is compliant with the mandatory requirements of the Code, which allow for use of open tanks for the purpose of evaporation and recycling of wastewater where feasible to do so. All wastewater movements are required to be tracked, in accordance with the Regulations, and transporters are subject to licensing requirements specific to the type of wastewater being transported, in accordance with the *Waste Management and Pollution Control Act 1998*. The proposed approach to monitoring freeboard is also consistent with the mandatory requirements of the Code, such that the risk of an overtopping event is managed to ALARP and acceptable levels.

(36) Proposed management of stormwater is consistent with the requirements of the Code, in that only stormwater that has not had interaction with chemicals or wastewater may be allowed to leave a well site. The interest holder has established a system of testing uncontaminated stormwater retained in sediment basins prior to release, to confirm suitability for discharge.

(37) Use of gathering lines to transport wastewater and other substances is a widely accepted practice in Australia and elsewhere, and is strongly regulated by specific standards to ensure integrity of the gathering lines. The EMP includes information in relation to the construction, operation and abandonment of gathering lines.

Referral under the EP Act

(38) Concerns were raised regarding referral under the *Environment Protection Act 2019* (NT) (EP Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

(39) The interest holder has undertaken a self-assessment as allowed for in the legislation as to whether the EMP should be referred for assessment under the EP Act and the Commonwealth for assessment under the EPBC Act, and concluded a referral is not required.

(40) The EMP was considered by the NT EPA and advice was provided to me (see items (1.a) and (i) below). The NT EPA did not require the interest holder to refer the action.

(41) The EMP was also reviewed by a full range of NT government agencies, including by specialists in environmental impact assessment, fauna and flora, water quality and quantity, land management, bushfire, weeds, traffic, public health and social impacts. Feedback from those agencies has been incorporated into the assessment process.

Authority Certificates

(42) Concerns were raised regarding Authority Certificates. Regulated activities are only permitted if conducted in accordance with the applicable legislative framework. An EMP may not be approved in the absence of a certificate. Authority Certificates are not included in public facing information, due to the confidential nature of the information within them. Extraction of groundwater is governed under the provisions of the *Water Act 1992*, which includes consideration of sustainable use of groundwater resources.

Compliance

(43) Concerns were raised regarding interest holder compliance. The environmental performance of all interest holders is made public through a transparent process of publishing annual performance reports, as well as all incident reports, in accordance with the Regulations.

Seismic program and sand mining

(44) Submissions raised uncertainties in the regulated activities regarding the proposed seismic program and sand mining. The EMP has been modified to include additional detail on the proposed seismic program.

(45) Several submissions called for sand mining to be included in the EMP. Sand mining is subject to a different regulatory regime, and is not a petroleum activity; hence is not appropriate to be included as an activity under the petroleum regulatory regime in the EMP.

Appraisal gas

(46) While inclusion of possible future activities in an EMP improves transparency, it may also create confusion as to the actual scope of the EMP. Therefore the EMP was updated to remove reference to beneficial reuse of appraisal gas and any other activities which are discussed that are not proposed under the current EMP.

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 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 cumulative emissions are not significant when considered in context of 2022 NT and Australian emissions, which were approximately 16.73 million tonnes and 432.62 million tonnes respectively.

viii. Cultural values relating to sacred sites will be protected through the requirement for 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."*[4]

ii. I note the NT Government's implementation of all the recommendations of the HFI, including establishment of the NT Government's *Policy Statement on Management of Greenhouse Gas Emissions from the Onshore Gas Industry*. This Policy Statement commits to amendment of the NT legislative framework to require a Greenhouse Gas Abatement Plan for all applications for onshore gas production and complements the Australian Government's reforms to the Safeguard Mechanism.

iii. Tamboran has obtained a water extraction licence (GRF 10285) covering previous water usage for exploration activities. A new or amended water extraction licence will be required to cover the proposed exploration activities in this EMP. Sustainable use of the targeted aquifers will be considered as part of the water extraction licence application, under the *Water Act 1992*.

iv. I note that the EMP has assessed the cumulative impacts of groundwater extraction from the Gum Ridge Formation, and Tamboran's application to

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[4] 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

increase the current Water Extraction Licence is currently under assessment by the Department of Water Resources.

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 16 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 as low as reasonably practicable.

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 *Waste Management and Pollution Control Act 1998* and the *Radiation Protection Act 2004* by the interest holder at its own cost, as outlined in the relevant sections of the Environment Management Plan and 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:

(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; and

(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. All interest holders are required to provide an environmental security related to the activities in an EMP, prior to commencement of the activities.

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. Measures are in place to conduct continuous waste management and remediation. Wastewater will be evaporated on-site, with the brine disposed of at a licensed facility. General waste is collected in dedicated bins and skips for back-loading to approved facilities.

viii. With these measures are 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.

ix. 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.

x. 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 has elected to not require the interest holder to refer the action under the *Environment Protection Act 2019*. The NT EPA reviewed the EMP for the regulated activity against the approval criteria in regulations 9(3)(a) and

reg 9(3)

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 and made a series of recommendations. 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 recommendations, 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 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 section 4 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 M 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 management 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 M 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 conducted 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 N, N.1.1, N.1.2 and N.1.3). Stakeholder engagement records demonstrate that stakeholders raised objections about environmental impacts of the proposed activity that required specific changes from the interest holder. 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.