

Onshore Petroleum Activity – NT EPA Advice

FRONTIER OIL AND GAS PTY LTD FOG1-4 – ENVIRONMENT MANAGEMENT PLAN (EMP) FOR THE ZEVON SEISMIC TEST LINE EP115

BACKGROUND

The Minister for Environment has formally requested under section 29B of the *Northern Territory Environment Protection Authority Act 2012* (NT EPA Act) that the Northern Territory Environment Protection Authority (NT EPA) provide advice on all Environment Management Plans (EMPs) received under the Petroleum (Environment) Regulations 2016 (the Regulations).

That advice must include a recommendation on whether the EMP should be approved or not, supported by a detailed justification that considers:

- whether the EMP is appropriate for the nature and scale of the regulated activity to which the EMP relates (regulation 9(1)(b))
- the principles of ecologically sustainable development (regulation 2(a)), as set out in sections 18 to 24 of the *Environment Protection Act 2019* (NT)
- whether the EMP demonstrates 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 as low as reasonably practicable and acceptable (regulation 9(1)(c))
- any relevant matters raised through the public submission process; for this EMP, no public consultation was required.

In providing that advice, the NT EPA Act provides that the NT EPA may also have regard to any other matters it considers relevant.

ACTIVITY

Subject	Description
Interest holder	Frontier Oil and Gas Pty Ltd (FOG)
Petroleum interest(s)	Exploration Permit 115 (EP115)
Environment Management Plan (EMP) title	Zevon Seismic Test Line Environmental Management Plan
EMP document reference	FOG1-4
Regulated activity	<p>EP115 is located approximately 280 km south-west of Alice Springs within the Amadeus Basin of the Northern Territory. The regulated activity includes:</p> <ul style="list-style-type: none"> • 2D seismic activities along a 30.4 km seismic line • Up to 150 km of stub lines associated with seismic activities (38 stub lines which are 4 km in length) • Development of a new access track approximately 0.5 km in length • Approximately 12.4 ha of land clearing for the seismic line and new access track

	<ul style="list-style-type: none"> • Operation of one temporary camp (if required) No drilling or hydraulic fracturing is proposed in the EMP.
Public consultation	Public consultation on the EMP was not required under regulation 8A(1)(b); as the EMP does not propose drilling or hydraulic fracturing.

NT EPA ADVICE

1. Is the EMP appropriate for the nature and scale of the regulated activity (regulation 9(1)(b))

Information relating to the nature and scale of the regulated activity is provided in the EMP in a clear format. Table 1 provides an overview of the key components of the regulated activity. The proposed work program will take approximately 27 days and scheduled to take place in 2023.

Table 1: Key components of the proposed work program

Component/aspect	Proposed
AAPA certificate	C2022/043
Total area of EP115	11,470 km ²
Total area of surface disturbance	~12.4 ha
Seismic lines	30.4 km x 4 m (12.16 ha)
Access tracks	0.5 km x 4 m (0.2 ha)
Workforce	3-5 during line preparation, up to 30 during seismic exploration, 3-5 people during decommissioning and rehabilitation
Camps	~30 person temporary camp
Peak traffic movements	13 vehicles per day
Diesel	~46 kL
Greenhouse gas emissions	~138 tCO ₂ -e (total)

The proposed seismic program entails a 30.4 km seismic line and up to 150 km (38 x 4 km) of stub lines across the main seismic line. Access to the seismic line will be via an existing track which requires regrading except for 0.5 km of new access track required for the program. Accommodation for personnel will be at Central Petroleum's Mereenie Field Camp as a priority however, in the event contractor availability and timing does not align with vacancy at Mereenie, a temporary trailer mounted camp with capacity for up to 30 people will be established in a pre-disturbed area or area naturally devoid of mature trees.

The proposed work program is short-lived with seismic activities expected to take 27 days. The regulated activity includes rehabilitation of disturbed areas, which will continue to be monitored after the activity has finished, on an annual basis until the rehabilitation success criteria in the EMP have been met. Site selection has prioritised the use of existing access tracks such that only 0.5 km of new access tracks will be established, which minimises the clearing footprint of the project.

A multi-criteria analysis has been used to inform the location of the seismic line and stub lines. The stub lines which extend orthogonally to the main seismic line are 4 km long and will be accessed using Utility Terrain Vehicles. This will be done at slow speeds to enable manoeuvring around sensitive areas, keeping impact to existing vegetation low.

The EMP shows an adequate consideration of potential impacts and risks of the regulated activity and proposes appropriate controls, in line with the Code. Areas of particular interest in this EMP are

impacts to biodiversity as a result of land clearing and seismic activities, impacts to heritage and hazard management measures.

The potential impacts and risks of the regulated activity have been identified and controls are reflected in the relevant environmental outcomes, performance standards and measurement criteria in the EMP. Mitigations in the risk assessment are appropriate for the potential impacts identified and the EMP is clear on any uncertainties.

The level of detail and quality of information provided in the EMP is sufficient to inform the evaluation and assessment of potential environmental impacts and risks, and meets the EMP approval criteria under Regulation 9(1)(b).

2. Principles of ecologically sustainable development (regulation 2(a))

2.1 Decision-making principle

The EMP adequately assesses the environmental impacts and risks associated with the regulated activity and outlines appropriate avoidance and mitigation measures. Of the 22 risks identified, 15 are assessed as “low” if carried out in accordance with the mitigations and controls proposed in the EMP. In addition to the Erosion and Sediment Control Plan, wet season and bushfire contingencies and controls are proposed to mitigate potential erosion and sediment impacts associated with the regulated activity. The controls described in the EMP have been assessed as adequate.

The interest holder has demonstrated ongoing stakeholder engagement in the EMP as required by the Regulations with directly affected stakeholders identified.

2.2 Precautionary principle

The NT EPA considers there is a low threat of serious or irreversible damage from the regulated activity. The investigations into the physical, biological and cultural environment detailed in the EMP provide a satisfactory scientific basis to assess potential environmental impacts and risks. The EMP adequately identifies measures to avoid or minimise those impacts and risks and address scientific uncertainty.

The risk assessment clearly demonstrates consideration of risk events in the context of the environment in which the regulated activity is conducted. It demonstrates considerations for the particular values, sensitivities, spatial extent and duration of the potential impact. Uncertainty in relation to the environmental features was assessed, with environmental uncertainty identified as low. The risks of conducting the activity over the wet season are well understood, and the EMP demonstrates adherence to the Code.

The baseline studies identified that the listed Princess Parrot (*Polytelis alexandrae*) is known to occur in the proximity of the regulated activity. The EMP commits to a qualified ecologist undertaking a pre-commencement visual assessment of Marble Gums (*Eucalyptus gongylocarpa*), Desert Oaks (*Allocasuarina decaisneana*) or any tall or hollow bearing trees which are proximate to the proposed test line (i.e < 300 m from the location of the seismic activities). The interest holder will enact a 300 m exclusion zone should nesting of either species be detected.

The NT EPA is of the view that the precautionary principle has been considered in assessing the regulated activity and has not been triggered due to the low threat of serious or irreversible damage existing and the presence of a satisfactory scientific basis to assess potential impacts and risks. To demonstrate compliance with pre-commencement survey commitments, a condition is recommended requiring provision of a report documenting the outcomes of that assessment.

The existing environmental monitoring commitments contained in the EMP are compliant with the Code and provide measureable performance measures to ensure that the environmental outcomes are met. The EMP commits to the preparation and submission of an annual environmental performance report, however the NT EPA recommends a Ministerial condition outlining the timing and form of the submission.

2.3 Principle of evidence-based decision-making

The environmental considerations of the project footprint were informed by a combination of desktop and baseline ecological and archaeological assessments. The studies undertaken afford the interest holder with a reasonable knowledge of the potential environmental impacts and risks, and the most appropriate measures for mitigation of those impacts and risks.

The risk assessment demonstrates consideration of risk events in the context of the environment in which the regulated activity is to be conducted and its particular values and sensitivities, and the spatial extent and duration of the potential impact. The spill management plan outlines a satisfactory spill detection and response regime for spills and includes the reporting requirements. The mitigation controls described in the EMP include: portable bunding, double lined tanks and bunded refuelling stations. The risks of conducting the activity over the wet season are understood and appropriate for the arid environment in which the activity will be conducted, and the EMP demonstrates adherence to the requirements of the Code. As a precautionary step the NT EPA has recommended a Ministerial condition related to the recording of spills.

The proposed environmental outcomes detailed in the EMP are likely to be achieved based on the best available information, the nature and scale of the activity, and the environment in which the regulated activity will be conducted.

The NT EPA is of the view that the evidence-based decision making principle has been considered in assessing the regulated activity and that in the circumstances, decision can be based on the best available evidence that is relevant and reliable.

2.4 Principle of intergenerational and intra-generational equity

The potential environmental impacts and risks associated with the regulated activity can be adequately avoided or managed through the management measures and ongoing monitoring programs proposed in the EMP.

Protection of cultural interests is achieved through compliance with the requirements of an Authority Certificate (C2022/043) issued by the Aboriginal Areas Protection Authority under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT), which covers all activities in the EMP relevant to this NT EPA advice. In addition the NT Heritage Branch was contacted to confirm the absence of non-publicly listed Aboriginal heritage in the location of the seismic activities. The EMP commits to a final check with the NT Heritage Branch prior to ground disturbance in case items have been added to the non-publically listed Aboriginal heritage register. Based on the completed archaeological assessment, it is likely activities detailed in the EMP will avoid archaeological heritage impacts.

Total predicted greenhouse gas (GHG) emissions generated by the regulated activity are to be ~138 tonnes of CO₂ equivalent (tCO₂-e), based on the predicted vegetation clearing and use of hydrocarbons in vehicles and equipment. The project does not exceed the threshold for designation as a large emitter under the Large Emitter Policy and no offsetting regime is required.

The NT EPA considers that environmental values will be protected in the short and long term from the activities outlined in the EMP and that the health, diversity and productivity of the environment will be maintained for the benefit of future generations.

2.5 Principle of sustainable use

Exploration activities are necessary to enable commercial appraisal of resources in the absence of reliable data regarding the resource.

Land disturbance will be limited, with the seismic line to be routed to avoid Marble Gums and Desert Oaks in addition to avoiding or minimising clearance of any other large and or hollow bearing tree species. The seismic line will be rehabilitated to its original land use following the completion of the seismic program. The existing access track and new access track will be maintained and stabilised for improved access for use by traditional owners, as is currently the practice.

The water demand for the project is expected to be limited to potable water required to maintain the workforce of up to 30 people. It is estimated that 4,800 litres of potable water will be required per day and sourced from Alice Springs.

As described under section 2.4, the interest holder is not considered a large emitter and no greenhouse gas abatement plan was required. As emissions in the EMP are estimates, a Ministerial condition is recommended that requires the interest holder to provide an annual emission report to the Department that summarises greenhouse gas emissions reported under the Australian Government's *National Greenhouse and Energy Reporting Act 2007* versus the predicted emissions in the EMP.

The NT EPA is of the view that the sustainable use principle has been considered in assessing the regulated activity.

2.6 Principle of conservation of biological diversity and ecological integrity

The proposed location for the regulated activity does not include groundwater dependent ecosystems; nor is it within proximity to a declared threatened ecological community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The EMP for the regulated activity has been informed by a number of sources, including:

- desktop review of the environmental context of the project area and surrounds (e.g. land systems, land use, surface water, climate and bioregions)
- field surveys informed by desktop assessments
- archaeological assessment completed in November 2021.

No groundwater fed wetlands, springs or Aquatic Inflow Dependent Ecosystems were identified in proximity to the proposed regulated activity. No Groundwater Dependent Ecosystems or declared threatened ecological communities under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* are known to occur in proximity to the proposed regulated activity.

The regulated activity poses a low risk to the ecosystem within the Great Sandy Desert bioregion, which has an arid to semi-arid climate. The vegetation is dominated by hummock grasslands with areas of tall-shrubland or low open woodland, tall open-shrubland, and Samphire low open-shrubland fringing salt pans.

The EMP identifies three listed fauna species as having a 'high' or 'medium' likelihood of occurrence and an additional five species were identified as having a 'low' likelihood of occurrence. Feedback on the EMP was sought from the DEPWS Flora and Fauna Division, who noted the following listed species are likely to occur in the location of seismic activities:

- Princess Parrot (*Polytelis alexandrae*) (Vulnerable - TPWC Act, Vulnerable EPBC Act)
- Grey Falcon (*Falco hypoleucos*) (Vulnerable TPWC Act, Vulnerable EPBC Act)

The third species identified in the EMP, the Night Parrot (*Pezoporus occidentalis*) (Critically Endangered TPWC Act, Endangered EPBC Act) is unlikely to occur as suitable habitat (typically calcrete rises or calcareous alluvial land types) is not located in or near the location of the regulated activity. This is supported by Australian Government's Protected Matters search tool which indicates that the species or habitat may occur, not that the species or habitat is likely to occur.

The Flora and Fauna Division was satisfied that impacts to the Grey Falcon and Princess Parrot would be low and short term if a 300 m no work exclusion zone was implemented, should breeding be detected during pre-commencement surveys. Hence, the EMP commits to a qualified ecologist undertaking a pre-commencement visual assessment of Marble Gums, Desert Oaks or any tall or hollow bearing trees which are proximate to the proposed test line (i.e. < 300 m).

The EMP outlines additional measures to minimise impacts on affected environmental values, including the management of threatening processes such as erosion, weeds and fire. The proposed management plans are consistent with the requirements of the Code, the *NT Land Clearing Guidelines*, the *Weed Management Planning Guideline: Onshore Petroleum Projects*, and Commonwealth conservation advice and threat abatement plans. Specific precautions to ensure interaction with wildlife is avoided are included in the EMP. These include: pre-commencement inspections for presence of breeding activities for the Gey Falcon and Princess Parrot, avoidance of important habitat trees, speed limits on access roads and appropriate waste storage systems.

Due to the management strategies outlined in the EMP in addition to the relatively small area of commencement and duration of impact, it is unlikely that the regulated activity will pose a risk to the identified threatened species.

The NT EPA considers that implementation of, and compliance with, the EMP will ensure the conservation of biological diversity and ecological integrity is not impacted by the regulated activity.

2.7 Principle of improved valuation, pricing and incentive mechanisms

The interest holder is required to prevent, manage, mitigate and make good any contamination or pollution arising from the regulated activity, including contamination of soils, groundwater and surface waters through accidental spills.

All stages of the regulated activity, including disposal of waste, commercial purchase of groundwater, and progressive rehabilitation of all disturbed areas to an acceptable standard, are at the cost of the interest holder. The interest holder is required to provide an adequate environmental rehabilitation security bond to indemnify the NT Government. This is based on an assessment by the Department of the estimated rehabilitation cost submitted by the interest holder.

The NT EPA is of the view the principle of improved valuation, pricing and incentive mechanisms has been considered in assessing the regulated activity and is based on the interest holder bearing any environmental costs for the activity.

3. Environmental impacts and risks reduced to a level that is as low as reasonably practicable (ALARP) and acceptable (regulation 9(1)(c))

The interest holder commits to identified measures to avoid or minimise impacts on environmental values, informed by a baseline studies, surveys and data derived from previous operations in the area. The EMP systematically identifies and assesses environmental impacts and risks associated with the regulated activity. The key potential environmental impacts and risks considered in the EMP are:

- injury or death of conservation significant fauna from civil works, vehicle movements, earthworks and encouragement of pest species which compete with native fauna
- increased occurrence of weeds
- unauthorised disturbance to sacred sites or culturally sensitive areas
- bushfires as a result of activities under this EMP
- reduction in productivity of the land.

The EMP demonstrates why the controls to be implemented are considered ALARP and acceptable. Of the 22 environmental risks identified by the interest holder, 15 are considered 'low' risk, and therefore are ALARP and acceptable. The remaining seven risks (for which creation of bushfire occurs twice) are considered 'medium' and the interest holder has included mitigations that can/will be implemented such that the risks will therefore be managed at levels that are ALARP and acceptable. Specifically:

1. *Injury or death of conservation significant fauna from civil works, vehicle movements and earthworks*: undertaking pre-commencement surveys; undertaking selective clearing, such as avoiding clearing of Marble Gums or Desert Oak and minimising clearance of other large or hollow bearing trees; implementing appropriate speed limits.

2. *Encouragement of pest species which compete with native fauna*: Waste containers to be fauna and vermin proof; wastes to be removed from site daily and disposed at an appropriately licensed facility.
3. *Increased occurrence of weeds*: All vehicles, equipment, and machinery from known weed infested areas are to be cleaned and inspected for weeds prior to attending a site; implementation of Weed Management Plan; implementation of Rehabilitation Management Plan.
4. *Unauthorised disturbance to sacred sites or culturally sensitive areas*: NT Heritage Branch is to be contracted prior to undertaking ground-disturbing activities; exclusion zones around known finds, implement unexpected finds procedure.
5. *Bushfires as a result of activities under this EMP*: Implement Bushfire Management Plan; designate smoking areas onsite; Fire-fighting equipment available onsite and ensure personnel are adequately trained to use fire-fighting equipment.
6. *Reduction in the productivity of the land*: Implement the Weed Management Plan; all vehicles, equipment, and machinery from known weed infested areas are to be cleaned and inspected for weeds prior to attending a site; implement Rehabilitation Management Plan

The measures provided are appropriate to the nature and scale of the activity, and if implemented, the residual risk to the environment is likely to be acceptable.

The NT EPA considers that all reasonably practicable measures will be used to control the environmental impacts and risks, considering the level of consequence and the resources needed to mitigate them, and the nature, scale and location of the regulated activity. The NT EPA considers that the environmental impacts and risks will be reduced to a level that is ALARP and acceptable, considering the sensitivity of the local environment, relevant standards and compliance with the Code.

4. Summary of monitoring and inspections

Table 2: Monitoring and inspections relevant to the scope of the regulated activity

Aspect	Monitoring and Inspections
Weeds	<ul style="list-style-type: none"> • Annual weed survey of all disturbed areas • Vehicles and/or equipment coming from an area with Declared Weeds obtain a weed free certificate from qualified personnel before entry
Flora and Fauna	<ul style="list-style-type: none"> • Monitoring of unauthorised clearing using the incident management system • Monitoring of vehicle related fauna strikes with speeds above 70 km/hr using the incident management system
Erosion and Sediment Controls	<ul style="list-style-type: none"> • Daily visual inspections of Zevon area undertaken to ensure that a stable landform is being maintained • Inspections of erosion and sedimentation after significant rainfall events (>10 mm in 24 hours)
Pest species	<ul style="list-style-type: none"> • Monitoring of pest species interactions with waste or inappropriate waste storage and handling using the incident management system
Heritage	<ul style="list-style-type: none"> • Monitoring of incidents related to Restricted Work Areas, Indigenous Protected Areas and Sacred Sites using the incident management system
Waste, hazardous chemicals and fuels	<ul style="list-style-type: none"> • Daily inspections of vehicles • Daily check of tanks and secondary containment
Weather	<ul style="list-style-type: none"> • Daily monitoring of long-term and short-term forecasts • Daily monitoring of rainfall
Bushfire	<ul style="list-style-type: none"> • Daily review of NAFI fire tracking maps • Daily monitoring for fire alerts • Annual fire scar mapping, annual fire load estimates and maintenance of firebreaks
Rehabilitation	<ul style="list-style-type: none"> • Annual monitoring of rehabilitation success

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| | <ul style="list-style-type: none">Records from drone footage and photographic images prior to and post the Zevon program |
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5. Considerations under the *Environment Protection Act 2019*

In accordance with section 53(1) of the *Environment Protection Act 2019* (NT) (EP Act), the NT EPA may provide a written notice to the proponent requesting the proponent refer the action, if it is believed on reasonable grounds that a proponent is taking an action that should be referred to the NT EPA for assessment. Section 42(b) of the EP Act provides for actions to be subject to an environmental impact assessment process in order to ensure all actions that may have a significant impact on the environment are assessed.

The NT EPA has considered the proposed regulated activity in accordance with the purpose of environmental impact assessment as defined in section 42, and has determined:

- the action is unlikely to have an unacceptable impact on the environment, now or in the future
- the action is unlikely to create a significant impact to the environment, as defined in section 11 of the EP Act
- the EMP demonstrates the proponent has adopted alternative approaches and methodologies to minimise environmental damage
- the views of stakeholders have been taken into consideration
- the EMP includes actions to restore environmental quality through rehabilitation to the extent practicable.

Further, in accordance with requirements of section 26(1) of the EP Act, the NT EPA considers that the EMP demonstrates the interest holder has planned the regulated activity to avoid adverse impacts on the environment and where this is not possible has identified management options to mitigate adverse impacts on the environment to the greatest extent practicable.

On this basis, the NT EPA has elected to not require the proponent refer the action.

6. Other relevant matters

The proposed commencement of the regulated activity is late 2023 and conducted over a 27 day period. The NT EPA recommends the interest holder be required by Ministerial condition to submit an updated timetable at regular intervals, as well as regular updates during operational periods.

CONCLUSION

The NT EPA considers that, subject to the consideration of the recommended EMP approval conditions, the EMP:

- is appropriate for the nature and scale of the regulated activity
- demonstrates that the regulated activity can be carried out in a manner that potential environmental impacts and environmental risks of the activity will be reduced to a level that is as low as reasonably practicable and acceptable.

In providing this advice the NT EPA has considered the principles of ecologically sustainable development.

RECOMMENDATIONS

The NT EPA recommends that should the EMP for Frontier Oil and Gas Pty Ltd be approved, the Minister considers approval conditions to achieve the following outcomes:

1. Certainty of the timing of the regulated activity through provision of an updated timetable prior to commencement, weekly activity reports during conduct of the seismic activities or any other land clearing and quarterly timetable updates thereafter.
2. Certainty as to the extent and location of clearing through provisions of spatial data for areas cleared.
3. Certainty as to the extent and location of pre-commencement surveys.
4. Certainty as the implementation of buffers associated with Princess Parrot or Grey Falcon nesting areas (if identified) as committed to in the EMP.
5. Certainty as to the interest holder's compliance with the approved EMP through submission of an annual performance report and a rehabilitation progress report to DEPWS to demonstrate the interest holder has met environmental outcomes and complied with the requirements set out in the Regulations, the Code, the Ministerial conditions and the EMP.
6. Certainty as to the timing of the submission of annual performance reports and rehabilitation progress reports.
7. Certainty as the extent of greenhouse gas emissions through provisions of an annual emissions report to DEPWS that summarises greenhouse gas emissions reported under the Australian Government's *National Greenhouse and Energy Reporting Act 2007* versus the predicted emissions in the EMP.
8. Certainty that the land is free from contamination and can meet rehabilitation requirements through recording of all spills in an internal register that includes location, source and volume of the spill and corrective actions.
9. Clarity on incident regulatory reporting through the provision of a condition on recordable and reportable spills.



PAUL VOGEL AM
CHAIRMAN

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

5 OCTOBER 2023