

# Statement of Reasons

## IMPERIAL OIL & GAS PTY LTD – ENVIRONMENT MANAGEMENT PLAN (EMP) FOR 2D SEISMIC WORK PROGRAM ON EP187

### PROPOSAL

The Environment Management Plan (EMP) for 2D Seismic Work Program Exploration Permit 187 (EP187) (the Proposal<sup>1</sup>) was referred by Imperial Oil & Gas Pty Ltd (the Proponent<sup>2</sup>) to the Northern Territory Environment Protection Authority (NT EPA) on 8 July 2019 for consideration under the Environmental Assessment Act 1982 (EA Act).

The Proposal is to undertake a 231km two dimension (2D) seismic survey in EP187 to investigate sub-surface geological formations and structure for oil and gas exploration on an area where the eastern extent of the Beetaloo sub-basin overlaps the Broadmere sub-basin. The method uses the principles of reflective seismology to acquire and interpret seismic data to produce images of the various rock types and their location beneath the surface.

The Proposal surveys an area encompassing approximately 1200 km<sup>2</sup> in the North-western section of EP187. The activity includes land clearing up to 72 hectares (ha) of native vegetation along a 4 metre (m) wide track, across six (6) approximately linear intersecting survey lines. One of the E-W survey lines will use 20ha of a previously cleared road corridor, the Carpentaria Highway, which bisects EP187.

The EP187 tenement is located in the upper catchment of the McArthur River on the eastern side of the Beetaloo sub-basin. The proposed work schedule involves up to 19 employees for 25 days undertaking the activity during the 2019 Dry season. Progressive rehabilitation and stabilisation of disturbed areas will be undertaken immediately on completion of the seismic acquisition survey activity within an area, to reduce erosion and sediment risk and achieve the rehabilitation objectives outlined in the EMP. Erosion and sediment controls, weed survey and inspection of vegetation re-growth along seismic lines will be undertaken periodically for three years following the activity.

This Proposal does not involve civil construction works, water extraction, drilling, hydraulic fracturing or well testing of a petroleum exploration well. The key components of the Proposal are summarised in Table 1.

**Table 1: Key components of the Proposal**

| Component                               | Size/capacity   |
|---|---|
| Total area of exploration lease (EP187) | 442,700 ha  |
| Total area of disturbance               | 72 ha   |
| Life of Proposal                        | 25 days seismic activity and continuing rehabilitation until objectives are met |
| Operational workforce                   | 19  |
| Camp                                    | Existing infrastructure - Heartbreak Hotel                                      |
| 2D Seismic activity                     | 6 linear survey lines x 4m wide, 231km in total                                 |

<sup>1</sup> 'Proposal' has the same meaning as 'Regulated Activity' under the Petroleum Act 1984.

<sup>2</sup> 'Proponent' has the same meaning as 'interest holder' under the Petroleum Act 1984.

| <b>Component</b>              | <b>Size/capacity</b>  |
|-------------------------------|---|
| Equipment used                | Bulldozer, grader, 4wd utes, vibroseis buggy  |
| Water requirements and source | None required   |
| Waste                         | Removal by listed waste contractor  |
| Rehabilitation                | Progressive, photo-point monitoring reports provided quarterly                        |
| Existing infrastructure       | Road corridor – including 20ha of cleared area along the Carpentaria Highway (Line 1) |

## CONSULTATION

The EMP has been reviewed as a notification under the EA Act in consultation with Northern Territory Government (NTG) advisory bodies (see Attachment A) and the responsible Minister, in accordance with clause 8(1) of the Environmental Assessment Administrative Procedures.

The EMP did not require public consultation under the Petroleum (Environment) Regulations 2016 as it does not propose well drilling or hydraulic fracturing.

## JUSTIFICATION

The NT EPA assessed the potentially significant environmental impacts and risks associated with the Proposal in line with the NT EPA's environmental factors and objectives, and in accordance with the requirements under the EA Act. The NT EPA identified four environmental factors that could be significantly impacted by the proposal (Table 2). The NT EPA considered the importance of other environmental factors during the course of its assessment, however those factors were not identified as potentially impacted. As this activity is restricted to a seismic survey and does not include drilling or long term land disturbance, the NT EPA considers the greenhouse gas emissions to be minimal and the potential impact not significant.

**Table 2: Key NT EPA environmental factors**

| <b>Theme</b>           | <b>Key Environmental Factor</b>            | <b>Objective</b>  |
|------------------------|--|---|
| Land                   | Terrestrial flora and fauna                | Protect the NT's flora and fauna so that biological diversity and ecological integrity are maintained.  |
|                        | Terrestrial environmental quality          | Maintain the quality of land and soils so that environmental values are protected.  |
| Water                  | Inland water environmental quality         | Maintain the quality of groundwater and surface water so that environmental values including ecological health, land uses, and the welfare and amenity of people are protected. |
| People and Communities | Social, economic and cultural surroundings | Protect the rich social, economic, cultural and heritage values of the Northern Territory.  |

## 1. Terrestrial flora and fauna

**Objective:** Protect the NT's flora and fauna so that biological diversity and ecological integrity are maintained.

### Environmental values

The potential impacts of the Proposal on terrestrial flora and fauna are associated with habitat loss from land clearing. The EMP risk assessment is based on two separate field surveys from 2015 and post-Wet 2018, as well as opportunistic assessments at locations along the proposed seismic lines, observation via helicopter, a detailed desktop analysis incorporating a variety of sources and historical surveys, and anecdotal evidence.

The terrestrial vegetation is predominantly open forest and light density woodland with a *Chrysopogon* (mixed) tussock grass understory, and majority of the region dominated by Darwin Stringybark (*Eucalyptus tetrodonta*). Vegetation varies in response to the topography ranging from sparse grasslands through to thick stands of lancewood (*Acacia shirleyi*), bloodwood (*Corymbia*) with a *Triodia* hummock grassland and patches of monsoon forest associated with permanent springs. Of the 852 identified plant species documented within the bioregion, there are 20 rare and threatened species known to occur, with five threatened flora species recorded within the proposed activity area, all of which are identified as Data Deficient under the Territory Parks and Wildlife Conservation Act 2000 (TPWC Act).

The EMP identifies two threatened fauna species that have previously been recorded in the activity area: the golden-backed tree-rat, recorded over 100 years ago and now considered locally extinct; and the Gouldian finch, which was not identified through any official search methods but has been included based on anecdotal evidence. The DENR Flora and Fauna Division also identified four additional Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) vulnerable-listed species of the crested shrike-tit (northern), red goshawk, grey falcon and ghost bat as potentially occurring in the area (Table 3). None of the threatened species identified by DENR Flora and Fauna Division as having potential to occur in the area, are soil-dwelling, burrowing or subterranean fauna.

Table 3: Listed threatened fauna species assessed as potentially occurring in the vicinity of the regulated activity

| Common name                   | Scientific name                     | EPBC Act   | TPWC Act        |
|-------------------------------|-------------------------------------|------------|-----------------|
| Gouldian finch                | <i>Erythrura gouldiae</i>           | Endangered | Vulnerable      |
| Crested shrike-tit (Northern) | <i>Falcunculus frontatus whitei</i> | Vulnerable | Near Threatened |
| Red goshawk                   | <i>Erythrotriochis radiates</i>     | Vulnerable |                 |
| Grey falcon                   | <i>Falco hypoleucos</i>             |            | Vulnerable      |
| Ghost bat                     | <i>Macroderma gigas</i>             | Vulnerable |                 |
| Merten's water monitor        | <i>Varanus mertensi</i>             |            | Vulnerable      |

The Gouldian finch and crested shrike-tit (Northern) have specific requirements including suitable roost trees and appropriate food sources including grass seed and water. The crested shrike-tit (Northern) has not been recorded in the region for over 80 years. Larger trees with a trunk

diameter greater than 25cm at 1.3m above the ground will be avoided where practical during clearing to minimise disturbance to potential nesting trees. Ghost bat roosts are not likely to be disturbed by the seismic survey, although a small impact to foraging habitat is possible. Red goshawks and grey falcons are highly mobile and prefer large trees and riparian vegetation which have been excluded from the work area. The DENR Flora and Fauna Division considers that it is unlikely that the proposed disturbance area provides suitable breeding habitat and that the activities propose no significant risk to these species.

The Merten's water monitor is associated with freshwater waterways and riparian vegetation. The EMP proposes to avoid clearing for seismic lines within 50m of riparian vegetation and to avoid additional disturbance to dry watercourses by using existing pastoral access tracks.

The DENR Flora and Fauna Division considers that the proposed activities do not pose a significant risk to threatened species or significant habitats and vegetation types, and that mitigation measures outlined in the EMP are adequate to ensure that impacts on biodiversity have been reduced to as low as reasonably practicable.

The NT EPA will provide separate advice to the Minister that the Proponent be required to demonstrate compliance with the EMP and all aspects of the Code of Practice: Onshore Petroleum Activities in the Northern Territory (2019) (the Code) for minimising surface disturbance activities by providing an updated rehabilitation plan and a spatial assessment report on the disturbance footprint for the Proposal at completion of the activity.

### Threatening Processes

Potential impacts and risks to flora and fauna from the Proposal include increases in key threatening processes such as bushfires and weeds.

The proposed work area is subject to periodic fires, with almost all of the area having been burned up to eight times since the year 2000. A Bushfire Management Plan has been developed for the Proposal. Key mitigation measures include the slashing of grasses and shrubs in operational areas to eliminate the potential for prolonged contact with hot machinery to start a fire; training for all personal on the use of protective gear and bushfire awareness including practice drills to refresh knowledge; daily inspection of all machinery and vehicles for any trapped vegetation that may cause a spark or ignite a fire; monitoring weather conditions including notices of Fire Danger Periods; and the installation of fire extinguishers onto all vehicles.

A baseline weed survey of the region and more specifically on the areas that will be disturbed by the proposed activity have indicated evidence of weeds already existing in the area. Two Class B weeds are present, including Hyptis (*Hyptis suaveolens*) known to be along the Carpentaria Highway, and Parkinsonia (*Parkinsonia aculeata*), recorded at a stock water-bore north of the Carpentaria Highway. An additional five weeds have been previously recorded in the region but were not observed during the weed surveys undertaken for the Proposal. These include: Prickly acacia (*Vachellia nilotica*), Khaki Weed (*Alternanthera pungens*), Sida (*Sida acuta*), Lion's tail (*Leonotis nepetifolia*) and Bellyache bush (*Jatropha gossypifolia*).

Mitigation measures to limit spread of existing and/or introduction of new weeds to the area include: ensuring the proposed vehicle and machinery wash-down, inspection, certification and documentation process outlined in the weed management plan will be adhered to; training field workers in identification and reporting obligations under NT regulations; and scheduling the order of the seismic lines so the areas in which weeds are known to be present will be actioned last, to limit any spread or introduction into areas where weeds are not currently established.

The Proponent has committed to implementing a weed management plan to control weeds during the work period, and for three years after completion of the seismic lines.

The NT EPA considers that the potential impacts and risks to terrestrial flora and fauna can be mitigated through the implementation of the management measures presented in the EMP and that its objective for Terrestrial Flora and Fauna is likely to be met.

## 2. Terrestrial environmental quality

**Objective:** Maintain the quality of land and soils so that environmental values are protected.

The EMP describes four main soil types within the vicinity of the activity as Kandosols and calcareous earths, Tenosol loams, Rudolsol loams and Vertosols. The parent rocks are in at least their second cycle of erosion, producing mainly very infertile lateritic soils. Shallow stony soils with low moisture holding capacity are also widespread across the proposed work area.

Soil erosion is the most likely type of land degradation to occur in response to the activity. Other potential impacts include the loss of soil productivity as a result of topsoil compaction or contamination from a hydrocarbon spill. The area considered to have most significant risk is the exposed sandstone, in the north of the exploration permit area. To minimise the risk of erosion the Proponent has proposed a number of mitigation measures and controls and has prepared an Erosion and Sediment Control Plan (ESCP) specific to the seismic activities. The ESCP was developed by a certified practitioner in the field and satisfies the intent and standards of the IECA (2008) Best Practice Erosion and Sediment Control Guideline and relevant supporting Appendices (IECA, 2015). The ESCP notes that there is a very low erosion risk for the entire site and surrounding areas.

There are no drilling or hydraulic fracturing chemicals associated with this activity and as a result the only contamination risk is a spill associated with refuelling vehicles. All light vehicles and small trucks will be fuelled at Cape Crawford hardstand, while the refuelling truck for the vibrioesos buggy and land clearing machinery will be fitted with a spill kit, drip tray and has further controls and mitigation measures proposed in the EMP.

The route selected for seismic acquisition traverses open country utilising generally flat to gently sloping areas of cleared native pasture or lightly wooded land. Clearing will use “blade up” machinery (e.g. dozer and grader) in order to maintain root stock, avoid creating drainage lines and will avoid large trees.

An overarching rehabilitation plan to minimise the environmental impact of the activity and return the disturbed land to its original condition has been included in the EMP. The rehabilitation plan will be implemented progressively, and rehabilitation of disturbed areas will be undertaken to reduce erosion and sediment risk immediately on completion of seismic acquisition survey activity within an area. The rehabilitation plan includes an audit by an independent and suitably qualified person following the first Wet season, with the timing of subsequent additional audits based on regeneration rate and rehabilitation success of the site. The Proponent has committed to continuing rehabilitation until the disturbed land is restored to an environment similar to the original conditions. Following the completion of rehabilitation the Proponent will submit a final Environmental Report to DENR for approval.

The NT EPA considers that the potential impacts and risks to terrestrial environmental quality can be mitigated through implementation of the management measures presented in the ESCP and EMP, and that its objective for Terrestrial Environmental Quality is likely to be met.

### Hydrological processes

**Objective:** Maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.

EP187 includes part of the catchment area for both the McArthur River and Limmen Bight River and respective tributaries. The EP187 tenement includes the floodplains associated with the

Upper McArthur River catchment, the Leila Creek Catchment, Tooganginie Creek, Christmas Tree Creek and the upper reaches of the Balbirini Creek. Only limited freshwater flood plain habitat is associated with the Upper McArthur River and as reported in the Biodiversity Assessment - Gulf Coastal report (2009) no wetlands of significance occur in this bioregion.

The creation of seismic lines has the potential to impact on natural surface water flows by interrupting sheetflow across plains and associated processes of erosion and sediment deposition. The adoption of windrowed vegetation and rock as a primary sediment control will maintain sheet flow conditions, except where used for contour bunds. In these locations it is proposed that the windrow be returned upslope and flattened, to restore sheetflow conditions.

The EMP outlines mitigation measures to avoid surface water flow impacts, including maintaining appropriate buffers from riparian vegetation, ranging from 25m for first order streams, up to 100m for third order streams and drainage lines in accordance with the 2019 Northern Territory Land Clearing Guidelines. The proposed activity does not interact with 4th order or higher creeks or rivers. To ensure buffers are maintained, the Proponent has committed to installing buffer zones and distances into onsite tablets so that operators have visual and audible alerts when reaching buffer distances.

The NT EPA considers that the potential impacts and risks on hydrogeological processes can be mitigated through the implementation of the management measures presented in the EMP and that its objective for Hydrological Processes is likely to be met.

### 3. Social, economic and cultural surroundings

**Objective:** Protect the rich social, economic, cultural and heritage values of the Northern Territory.

#### Social considerations

The tenement is Aboriginal freehold land and held by the Mambaliya Rumburriya Wuyaliya Aboriginal Land Trust. The deed of agreement for access to the land is held with the Northern Land Council. The area is sparsely populated with no communities present on the land and one outstation existing on the Nathan River Road on the western boundary of the tenement. The nearest Aboriginal community is the township of Borroloola and the associated outstations at Campbell Springs, Devil Springs and Cow Lagoon. Each of these residential locations lies approximately 100km to the north east of the tenement.

The Proponent has undertaken stakeholder engagement with the NT Government, the Northern Land Council, Aboriginal Areas Protection Authority (AAPA), Traditional Owners, relevant land holders and land managers in the area including potentially affected pastoralists, and the McArthur River Mine gas pipeline manager. The EMP cites several agreements and operating consents associated with the Proposal, including written landowner approval from the Mambaliya Rumburriya Wuyaliya Aboriginal Land Trust for submission of the land clearing permit required under the Planning Act 1999.

Potential amenity impacts such as noise and dust from the Proposal are not considered significant due to distance to sensitive receptors and implementation of control measures. The nearest community is Borroloola which is approximately 140km from the site of operation. All contractors will stay at Heartbreak Hotel, approximately 50km east of the proposed worksite. One permanent dwelling exists 1km from the nearest proposed site of activity, but it is currently unoccupied. Three temporary pastoralist camps also exist throughout the broader region, but none of these are within close proximity of the planned exploration activity and the nearest permanent settlement is approximately 50km from the proposed activity site. Given the very low population density and relatively isolated site of the activity noise is not considered to be a significant issue. Due to the short term nature of the work program, coupled with the time of year (just before the onset of the Wet season) and the low speed that seismic vehicles are required

to operate (less than 10km/h) the potential impact of dust on sensitive receptors is considered to have been mitigated to an acceptable level.

### Cultural heritage

An Aboriginal and Historic Cultural Heritage Assessment has been completed, which identified four low-density background scatters and one significant archaeological site. The Proponent has included appropriate no-work buffers around the identified archaeological sites. The proposed study site does not interact with any known Aboriginal cultural or heritage site and the AAPA has confirmed the activity is covered by AAPA Certificate C2019/016.

The EMP commits to several mitigation and management strategies for the protection of Aboriginal and cultural heritage including cultural heritage site inductions and an 'unexpected heritage (artefact) finds' stop work procedure.

The NT EPA considers that the potential impacts and risks on social, economic and cultural surroundings can be mitigated through implementation of the management measures presented in the EMP and that its objective for Social, Economic and Cultural surroundings is likely to be met.

## **CONCLUSION**

The NT EPA considers that the potential environmental impacts and risks associated with the proposal are not significant and that the proposal does not require assessment under the EA Act. The Proponent has prepared the EMP in accordance with the Petroleum (Environment) Regulations 2016 and to demonstrate how it will also meet compliance with the Code.

The Minister for Environment has asked the NT EPA to provide advice under the Petroleum (Environment) Regulations 2016 as to whether the EMP meets the requirements of the Regulations (specifically regulations 9(1)(b), 9(1)(c) and 9(2)(a)). As part of the assessment to provide that advice, the NT EPA may make recommendations to the Minister for Environment on conditions to improve environmental outcomes. The NT EPA's decision not to assess the EMP under the EA Act is not reliant on the Minister accepting the NT EPA advice.

## **DECISION**

The proposed action by Imperial Oil & Gas Pty Ltd has been examined by the NT EPA and investigations and inquiries conducted. The NT EPA has decided that the potential impacts and risks of the proposed action are not so significant to warrant environmental impact assessment by the NT EPA under the EA Act. However, as the Proposal is on Aboriginal Freehold land it will require assessment and approval under the Planning Act 1999 to ensure the environmental impacts of the proposed land clearing are effectively managed. The Proposal will require assessment and approvals under the Petroleum (Environment) Regulations 2016. Environmental management of the potential environmental impacts is the responsibility of the Proponent through implementation of procedures and management plans specified in the EMP and any conditions imposed by the Minister for Environment under the Petroleum (Environment) Regulations 2016.

This decision is made in accordance with clause 8(2) of Environmental Assessment Administrative Procedures 1984, and subject to clause 14A the administrative procedures are at an end with respect to the proposed action.

A handwritten signature in blue ink, appearing to read 'P. Vogel', is written over a horizontal line.

DR PAUL VOGEL AM MAICD

CHAIRMAN

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

11 SEPTEMBER 2019

## Attachment A: Northern Territory Government Advisory bodies consulted on the Notice of Intent

| Department  | Division   |
|---|--|
| Department of Environment and Natural Resources                   | Flora and Fauna<br>Water Resources<br>Weeds<br>Environment<br>Bushfires NT<br>Rangelands |
| Department of Infrastructure, Planning and Logistics              | Planning<br>Transport and Civil Services<br>Infrastructure                               |
| Department of Primary Industry and Resources                      | Mining Compliance<br>Petroleum<br>Primary Industry<br>Fisheries                          |
| Department of Tourism, Sport and Culture                          | Parks and Wildlife<br>Heritage<br>Tourism NT<br>Arts and Museums                         |
| NT Police, Fire and Emergency Services                            | Business Improvement and Planning  |
| Department of Health  | Environmental Health<br>Medical Entomology   |
| Department of Trade, Business and Innovation                      | Economics and Policy<br>Strategic Policy and Research                                    |
| Department of Local Government, Housing and Community Development | Maintenance Planning<br>Housing supply   |
| Power and Water Corporation                                       |  |
| Aboriginal Areas Protection Authority                             | Technical  |
| Department of the Attorney-General and Justice                    | Commercial Division<br>NT Worksafe   |
| Land Development Corporation                                      |  |
| Department of the Chief Minister                                  | Economic and Environmental Policy<br>Social Policy                                       |