

Onshore Petroleum Activity – NT EPA Advice

CENTRAL PETROLEUM LTD CTP002-02 – ENVIRONMENT MANAGEMENT PLAN (EMP) FOR THE DINGO GAS FIELD AND SURPRISE OIL FIELD FOR OPERATIONS AND MAINTENANCE ACTIVITIES PL7 AND PL6

BACKGROUND

The Minister for Environment and Natural Resources 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))
- 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))
- the principles of ecologically sustainable development (regulation 9(2)(a)), and
- any relevant matters raised through the public submission process.

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

Interest holder	Central Petroleum Ltd
Petroleum interest(s)	Production Licence PL6 – Surprise Oil Field Production Licence PL7 – Dingo Gas Field
Environment Management Plan (EMP) title	Environment Management Plan Dingo Gas Field and Surprise Oil Field for Operations and Maintenance Activities
EMP document reference	CTP002-02
Regulated activity	This EMP covers the activities required to enable the interest holder to continue to operate and maintain its established facilities in the Dingo Gas Field (DGF; PL7) and undertake maintenance activities in the wholly suspended Surprise Oil Field (SOF; PL6), within the Amadeus Basin. The EMP includes multiple regulated activities at two locations, as allowed for under regulations 8(2) and 8(5) of the Petroleum (Environment) Regulations 2016. This includes all ancillary activities required to undertake the regulated

	<p>activities proposed under this plan at both DGF and SOF, as follows:</p> <ul style="list-style-type: none"> • civil maintenance • decommissioning • well head maintenance and function testing (not to include the removal of any permanent barriers) • storage, handling and transportation of chemicals, dangerous goods, hazardous materials and substances • environmental monitoring • waste management • weed management and control • rehabilitation activities. <p>Regulated activities specific to DGF only are:</p> <ul style="list-style-type: none"> • repairs of gas flowlines connecting existing wells (including associated surface facilities) • well shutdown maintenance activities including cold venting • well workover • well suspension. <p>The regulated activities do not include:</p> <ul style="list-style-type: none"> • additional clearance of vegetation (all maintenance and operational activities are undertaken within existing disturbance footprints) • drilling of new wells • extraction of groundwater • establishment of onsite camps • onsite management of produced water • routine venting or flaring.
Public consultation	Public consultation on the EMP was not required under regulation 8A(1)(b).

NT EPA ADVICE

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

This EMP is a five year revision of an existing approval for the Dingo Gas Field (DGF; PL7) and the Surprise Oil Field (SOF; PL6) within the Amadeus Basin. The regulated activity is low impact and small scale and comprises care and maintenance of both DGF and SOF and a continuation of current operations at DGF.

DGF is an operating gas field, located approximately 60 km south of Alice Springs in the Northern Territory. The gas field comprises Dingo #1 well (suspended), Dingo #4 well (plugged and abandoned), Dingo #2 and Dingo #3 (in production). SOF is a suspended, inactive oilfield in care and maintenance, situated approximately 500 km west of Alice Springs and 200 km west of DGF. The oilfield comprises Surprise and Johnstone west 1 wells (both suspended).

The regulated activities described have not changed since the previous approval.

Information relating to the nature and scale of the regulated activity is provided in the EMP in a clear format. The technical works program is focussed on continued maintenance of both the Dingo (PL7) and Surprise (PL6) facilities, and operation of Dingo (PL7).

The activities do not result in any new ground disturbance and the work scope does **not** include:

- additional clearance of vegetation (all maintenance and operational activities are undertaken within existing disturbance footprints)
- drilling of new wells
- extraction of groundwater
- establishment of onsite camps
- onsite management of produced water
- routine venting or flaring.

1.1 Activity duration

DGF is currently operational producing gas for the Alice Springs power station and is likely to remain operational during the five year life of this EMP. SOF is currently non-operational, with the two existing wells both suspended. The interest holder has indicated it intends to maintain these wells while in suspension and will subsequently determine whether the wells are to be decommissioned. The EMP allows for decommissioning of wells at both DGF and SOF, should this decision be made by interest holder. The EMP allows flexibility in the timing for the interest holder to undertake suspension and decommissioning activities during the five year period of the EMP, based on ongoing monitoring of wells and production rates.

1.2 Civil maintenance

Civil maintenance activities will occur at both DGF and SOF. The existing well pads, hardstand areas, roads and access tracks that are owned and operated by the interest holder are maintained to ensure safe access to the facilities in all weather. The maintenance activities include:

- grading the access tracks to fix potholes and rough areas
- repairing erosion, where required
- repairing fences
- cutting back vegetation that encroaches on the access track
- maintaining well pads, lease pads and hardstands.

1.3 Waste storage, disposal and transport

At both the DGF and SOF waste is initially separated into listed (as set out in the Waste Management and Pollution Control Regulations) and non-listed wastes. Listed waste is then stored onsite at either the DGF or SOF (i.e. the tenure where it was generated) until it is collected and transported offsite by a licensed contractor and disposed of at an appropriately licensed facility.

Non-listed waste from the SOF is transported to the DGF or the Brewer Estate City Gate Station (BECGS) facility for storage/recycling or disposal as appropriate.

Waste is managed according to the waste management hierarchy of re-use, recycle, treat or dispose. Avoidance and reduction of waste generation are considered prior to the waste being generated.

1.4 Chemicals and hazardous materials management

All chemicals and hazardous materials are permanently stored at the Brewer Estate City Gate Station (BECGS), which is outside of the scope of this EMP, as it is situated in an industrial zoned area not subject to a petroleum title and is regulated under the *Planning Act 1999* and the *Energy Pipelines Act 1981*. Where chemicals and hazardous materials are required for maintenance activities, these are transported to DGF and SOF, where they are stored in designated areas with bunding appropriate to the volume stored (not less than 120% of the largest volume) and in compliance with Safety Data Sheets for each product. A register is kept at the DGF and SOF detailing all permanently stored chemicals, dangerous goods, hazardous materials or substances stored.

Minor quantities may be transported from permanent storage areas for maintenance activities, with spill kits appropriate to the type of material.

1.5 Environmental surveys and monitoring

Planned surveys and monitoring activities to track compliance with the EMP are non-invasive and will not result in any ground disturbance.

1.6 Well integrity management

The interest holder has established a well integrity management system, compliant with ISO 16530-1:2017, the foundation well integrity standard in the Code, covering well life cycle governance stages. The interest holder is currently preparing Well Operations Management Plans (WOMPs) consistent with the Code, noting the elements relevant to the scope of this EMP are limited to managing well integrity during operation, work-overs (minimum requirements for assessing well barriers prior to and after any well intervention that involves breaking the established containment system) and abandonment (decommissioning).

To ensure consistency in all activities, the interest holder has developed a range of procedures and work instructions to reduce the potential for environmental impact to occur as a result of equipment failure. The interest holder requires use of these where any test or inspection is performed on an asset.

All assets are programmed within the interest holder's maintenance management system to ensure planned maintenance occurs when scheduled.

1.7 Well suspension

Both wells at SOF are currently suspended, whereas the interest holder may wish to suspend a well at DGF under this EMP. The decision to suspend a DGF well and the timing for this occurring will be dependent on ongoing evaluation of the resource.

1.8 Well abandonment (decommissioning)

The interest holder has included as an option in the EMP decommissioning of wells, which could apply to the suspended wells at SOF or DGF. There is no specific timetable for this to occur. The EMP describes the two stage process for well abandonment that accords with the requirements of the Code of Practice: Onshore Petroleum Activities in the Northern Territory (the Code), including oversight from the Department of Primary Industry and Resources (DPIR), as required. The interest holder considers a well to be fully decommissioned, only once the second stage is completed. Decommissioning procedures are specified in the respective WOMPs. DENR will consult with DPIR on the WOMPs currently being developed by the interest holder for all its field operations, including DGF and SOF. The WOMPs address the entire life cycle of well operations (including suspension and decommissioning).

1.9 Wellsite operations at DGF (only)

As an existing operating gas field, the interest holder's operations personnel visit producing wells frequently to monitor gas field integrity. Producing wells are also visited to record pressures and inspect all casing annuli. Flaring and venting of the wells at the DGF are not expected under normal operating circumstances. Any controlled venting or flaring of gas produced from the DGF occurs at the BECGS facility, which is outside of the scope of this EMP. Where venting or flaring is required at DGF in an emergency, or as part of an operation, DPIR will be notified as soon as possible. Any emergency venting or flaring will be conducted and reported in accordance with the requirements of the Code.

1.10 Workover operations at DGF (only)

Workover is a maintenance activity used to restore well bore integrity and/or increase production rates which includes re-completion activities when an existing production well is being completed in a new zone. Workovers can include cleaning sand out of the well, fishing to recover original production equipment, installing equipment to prevent sand from entering the well, replacing liners, plugging the well, repairing casing, drilling deeper, drilling around any obstructions in the well, and re-perforating existing zones in production.

For some workovers, limited equipment is required (for example, wireline equipment to lower tools into the hole to conduct operations), whilst others require rotation of the tubing or drill pipe, requiring a full workover rig. Pumps and storage tanks may be required for associated activities that involve circulation of workover fluids.

1.11 Environmental surveys and monitoring

During the period of this EMP, the interest holder will be required to perform a number of surveys and conduct monitoring within the DGF and SOF to monitor compliance with the requirements of the EMP. These surveys and monitoring will be non-invasive and will not result in any increase in ground disturbance.

1.12 General compliance with Code requirements

The EMP demonstrates how the interest holder will comply with relevant requirements of the Code in undertaking these regulated activities. The EMP also provides the following plans which are compliant with the Code:

- Weed Management Plan
- Fire Management Plan
- Rehabilitation Management Plan
- Emergency Response Plan
- Spill Management Plan (both within the EMP sections and the Emergency Response Plan)
- Water Management Plan
- Methane Emissions Management Plan
- Erosion and Sediment Control Plan.

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). As a further precautionary step, the NT EPA has provided advice relating to Ministerial Conditions for this EMP contained at the end of this document.

2. Principles of ecologically sustainable development (regulation 9(2)(a))

2.1 Conservation of biological diversity and ecological integrity

The potential impacts and risks to threatened flora and fauna species from the regulated activity have been adequately assessed in the EMP, with measurable environmental outcomes and environmental performance standards included.

Neither DGF nor SOF are located within an identified Site of Conservation Significance.

The DGF is located within the Finke Bioregion and activities at DGF occur within a single vegetation community type, consisting of *Triodia basedowii* hummock grassland with *Acacia* tall sparse shrubland overstorey between dunes and *Zygochloa paradoxa* open-hummock grassland on dune crests. Based on field surveys and desktop literature searches, six flora species of conservation significance were identified as possibly occurring within the DGF, but all were considered to be unlikely to occur there. Based on field surveys and desktop literature searches, 24 bird, five mammal and one reptile species of conservation significance have been identified as possibly occurring within the DGF. None were recorded during field surveys conducted in 2013. Seven of these are considered as potentially occurring within the DGF based on habitat availability within the DGF, being the princess parrot, the rainbow bee-eater, the painted snipe, the grey falcon, the greater bilby, the southern marsupial mole and the Slater's skink.

The SOF is located within the Great Sandy Desert Bioregion and activities within SOF occur within a single vegetation community type, consisting of *Triodia basedowii* hummock grassland with *Allocasuarina decaisneana* (Desert Oak) open woodland over storey between dunes. No flora species of conservation significance were identified as potentially occurring in the SOF.

Based on field surveys and desktop literature searches, 13 bird, three mammal and one reptile species of conservation significance have been identified as possibly occurring within the SOF. None were recorded during field surveys conducted in 2013. Five of these are considered as potentially occurring within the SOF, based on habitat availability, being the princess parrot, the rainbow bee-eater, the greater bilby, the southern marsupial mole and the great desert skink.

The regulated activities within this EMP only occur within already established locations and the EMP includes mitigation measures for preventing additional ground disturbance to minimise impacts on threatened species and on affected environmental values. This includes the management of threatening processes such as weeds and fire. The NT EPA considers that the conservation of biological diversity and integrity of threatened species would be maintained in the area if the EMP is complied with.

The potential impacts and risks of the activity identified in the current EMP relate primarily to animal welfare and do not pose a significant risk to threatened species at a population level due to the low likelihood of threatened species inhabiting the area and implementation of control measures to avoid impacts to fauna.

The EMP identifies other potential impacts and risks to biodiversity arising from vehicle strike, increased weeds and fire. The measures proposed adequately protect biodiversity and are compliant with the Code and include:

- annual weed surveys conducted since 2014, enabling identification of priority weeds for control and subsequent control activities
- driving during daylight hours (unless an emergency situation) and limiting speed to 60 km/h
- fauna spotters to be present during maintenance activities requiring cut back of overgrown vegetation
- use of a permit to work system to ensure no additional vegetation clearing during civil maintenance activities
- cleaning and inspecting vehicles and machinery from known weed infested areas prior to mobilisation to SOF or DGF
- 4 m firebreaks around assets and controls related to naked flames
- minimising storage of hazardous materials on site, to reduce risk of impact from leaks and spills

No new ground disturbance is proposed, and ongoing site inspections for erosion and maintenance activities have been effective in ensuring that any signs of erosion are rectified before control devices have been required. Neither facility is located within the path of ephemeral streams or drainage lines.

No storage of wastewater occurs or is proposed at either location; produced water from DGF is piped to the BECGS facility and SOF is non-operational; existing turkey nests at SOF only receive rainwater and groundwater (when testing the pump as part of routine maintenance), and controls are in place for the removal of water from the evaporation pond at SOF (if freeboard reduces below 500 mm).

Cumulative impacts to flora and fauna from the regulated activity are not considered to be significant. 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.

2.2 Integration of long-term and short-term economic, environmental, social and equitable considerations

Previously approved EMPs for the development of wells at SOF and DGF have considered environmental controls in well design that ensure well integrity and long-term protection of aquifers. These controls and a range of other routine procedures have been identified in the EMP, are compliant with the Code and will be checked and audited against the Well Operations Management Plan (WOMP) that will be provided for approval to the Department of Primary Industry and Resources (DPIR).

The regulated activity is low impact, small scale and is a continuation of current operations at DGF. The DGF was developed to supply the Owen Springs Power Station and may also feed into the 145 km Alice Springs to Palm Valley gas pipeline. The DGF was developed and designed to produce and treat up to 2.0 petajoules (PJ) per annum of gas which is equivalent to 36,082 tonnes per year. This is expected to supply over half of Alice Springs's current energy demand of 3.3 PJ per annum for the next 20 years, depending on sales demand.

The regulated activity has low risk of impact on groundwater drawdown associated with groundwater extraction. Water supply for DGF is supplied on a commercial basis from Alice Springs, and no groundwater is used at SOF. An extraction license is required for any proposed future use of RN018851 at SOF.

No gas is routinely vented or flared within DGF. Any controlled venting or flaring of gas from the DGF occurs at the BECGS facility, approved under the *Planning Act 1999* (as a facility within the Municipality of Alice Springs). The EMP does not include estimates of GHG, with the focus on monitoring, managing and reducing fugitive emissions, consistent with the scope of the regulated activity in this EMP. Where venting or flaring is required at DGF in an emergency, or as part of an operation, it will be conducted and reported in accordance with the requirements of the Code, including notifications to DPIR and annual reports under NGERs

The EMP adequately assesses the environmental impacts and risks associated with the regulated activity and outlines appropriate avoidance and mitigation measures. This includes the assessment and management of social impacts and risks, including the appropriate management of cultural heritage. The interest holder has demonstrated ongoing stakeholder engagement in the EMP as required by the Regulations with landholders and land managers, traditional owners, the Central Land Council (CLC) and NT Government Agencies.

The regulated activity will be subject to the requirements of an Aboriginal Areas Protection Authority Certificate. There are no significant adverse economic, environmental, equitable effects from the regulated activity.

2.3 Precautionary principle

The NT EPA considers there is a low threat of serious or irreversible damage from the regulated activity.

The interest holder's investigations into the physical, biological and cultural environment provide a satisfactory scientific basis to assess potential environmental impacts and risks for the activity, and to identify measures to avoid or minimise those impacts and risks and address scientific uncertainty. The risks associated with the activity are generally well understood and uncertainty in relation to the environmental features, such as groundwater flow at SOF, has been identified.

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. In addition, the environmental and engineering monitoring commitments contained in the EMP are compliant with the Code and should provide measurable performance measures to ensure that the environmental objectives are met. As a further precautionary step, the NT EPA has provided advice relating to Ministerial Conditions for this EMP contained at the end of this advice.

2.4 Principle of inter-generational equity

The potential environmental impacts and risks associated with the regulated activity can be adequately avoided or managed through the management measures and monitoring programs proposed in the EMP. The NT EPA considers that environmental values will be protected in the short and long term and that the health, diversity and productivity of the environment will be maintained for the benefit of future generations.

The regulated activity will be subject to requirements of an AAPA Authority Certificate at SOF, and transfer of the existing Authority Certificate for DGF (currently in the previous interest holder's name). Appropriate measures are proposed for the management of items of heritage value should they be discovered.

The NT EPA considers that environmental values will be protected in the short and long term from 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 Promotion of improved valuation, pricing and incentive mechanisms

The interest holder would be 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 progressive rehabilitation of all disturbed areas to an acceptable standard, would be at the cost of the interest holder. The adequacy of Central Petroleum's existing environmental rehabilitation security bonds is currently under assessment by both DENR and DIPR.

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 has undertaken identified measures to avoid impacts on environmental values, informed by appropriate baseline studies and surveys.

The EMP demonstrates a systematic identification and assessment of environmental impacts and risks associated with the regulated activity. The key potential environmental impacts and risks are:

- fauna and flora, resulting from conduct of maintenance activities, fire, weeds, erosion and localised flooding
- surface and groundwater quality, a reduction in water quality resulting from spills of chemicals or hazardous materials
- cultural heritage, resulting from civils maintenance activities and fire
- terrestrial environmental quality, resulting from localised contamination of soil due to spills of chemicals or hazardous materials, inappropriate waste management and erosion and localised flooding
- people and community, resulting from fire, traffic and lack of stakeholder engagement
- air quality, resulting from operation of vehicles and heavy machinery, emissions from leaks, explosions and loss of containment during workovers at DGF.

The EMP has considered the hierarchy of controls (elimination, substitution, engineering, administration) and provided demonstration of why the controls to be implemented are considered ALARP and acceptable. Of the 32 environmental risks identified by the interest holder, 23 are considered 'low' risk, and therefore are ALARP. The remaining nine risks are considered 'moderate' and the interest holder has included justifications as why no further controls can be implemented and therefore are ALARP. Specifically:

1. injury or death of fauna from vehicles – use of vehicles are a necessary part of the regulated activities and the interest holder has included controls to minimise the likelihood of this impact from occurring
2. loss of vegetation and fauna habitat from ground disturbance – the interest holder has committed to no new disturbance and no new vegetation clearing; as there is some ambiguity in the EMP on no new clearing, an approval condition has been recommended to ensure clarity
3. increase in weed occurrence – noting vehicles are the main source of spread of weeds, the interest holder has a comprehensive weed management plan confirmed by DENR Weed Management Branch that it meets the requirements of the Code

4. entrapment and/or death of fauna in evaporation ponds – the interest holder considered replacing the single evaporation pond at SOF, which is no longer used and is fenced to prevent fauna access, with closed tanks; however, as rainwater falling into the evaporation pond is monitored and removed to maintain a sufficient freeboard, the cost of replacement would far outweigh the environmental benefit to be achieved, and so this is correctly considered ALARP
5. scavenging of wastes by native species and/or pest species – the interest holder has committed to no storage of wastes on either of DGF or SOF, noting the production of waste cannot be prevented on operational sites
6. changes to soil profile and structure from maintenance activities – the maintenance activities are essential to prevent erosion from occurring and to maintain access tracks and the controls considered are aimed at minimising further disturbance; the Code of Practice can require secondary ESCPs, and in this case, DENR Petroleum Operations thought this was essential for the two locations, as they are different, and so recommended a condition requiring this; with the approval condition included, this is considered ALARP
7. disturbance to cultural heritage from maintenance activities – the interest holder has a chance finds procedure in place and is minimising the hours of maintenance activities to ensure clear visibility during maintenance activities. The activities are restricted to already disturbed areas and site clearances have previously been conducted by the Central Land Council and Traditional Owners
8. disturbance to cultural heritage from fire – the controls include undertaking risk assessments prior to commencing an activity to assess fire risk, and the EMP includes a comprehensive fire management plan in accordance with Code
9. contamination of surface water and/or groundwater from loss of containment – the control methods for containment, including well integrity, are included in the EMP and form part of the Well Operations Management Plans and the Well Integrity Management Plans currently in preparation for approval by DPIR; groundwater monitoring has been committed to for the already established wells and a recommended approval condition will provide oversight of the monitoring program.

More generally, the weed management program is a continuation of previous monitoring and control practices, which has proven to be adequate to manage impacts from weeds. Management of erosion is similarly an ongoing practice, which has been effective in preventing lasting erosion occurring at the interest holder's facilities. The fire management plan included in the EMP provides adequate mitigation and management measures to reduce the risk of bushfires occurring as a result of the activity. An Emergency Response Plan will be implemented, which includes event response and mitigation measures for significant rainfall events and loss of containment or other major spills. Evacuation and site readiness protocols are incorporated into standard operating procedures, including the evacuation of non-essential personnel. The spill management plan considers immediate corrective actions for onsite spills, and the EMP specifically commits to no permanent storage of chemicals or hazardous materials at either of DGF or SOF. The methane emissions management plan is commensurate to the nature and scale of the regulated activity, noting no routine flaring or venting occurs at DGF.

The EMP demonstrates compliance with the Code and the potential impacts and risks have been reduced to a level that is ALARP and acceptable.

3.1 Well integrity

This EMP does not include the establishment of new wells; it focuses on ongoing operation of two wells at DGF only. The risks of well integrity failure during operations are well understood and the interest holder has extensive experience operating at DGF. The EMP describes the measures to be implemented to ensure ongoing well integrity.

3.2 Hydrological processes

The DGF and SOF are located in the Amadeus Basin, which includes two main hydrogeological domains. The DGF is located in the north-central area of the Amadeus Basin and overlies a series of regional scale productive aquifers and is also located within the Alice Springs Water Control District. The SOF is located in the far-west of the Amadeus Basin, nominally within the regional fractured rock aquifer and is not located within a Northern Territory Government groundwater management area.

The DGF is situated within both the Finke River and Todd River Basins, both of which are within the Lake Eyre catchment. The only major watercourse in the DGF is an unnamed ephemeral tributary of the Hugh River. The Hugh River merges with the Finke River further downstream. Smaller drainage lines are also present within the DGF area. There are 10 identified groundwater bores within L7, with depth ranging from 24 – 640 m with a median depth of 79 m, but only a single bore located on the western boundary of L7 intersected sufficient groundwater to warrant construction.

There are limited mapped streams either within or adjacent to the SOF. None of the SOF infrastructure is located within 5 km of a mapped stream. There are four groundwater investigation bores drilled by CP within the SOF, with depths ranging from 60 – 116.5 m. There are a further eight bores located within a 25 km radius of the SOF, of which five are current and four of these are CP investigation bores, and the remaining bore supplies water to an Aboriginal outstation at Nguman. None are used for CP activities currently.

The EMP does not include groundwater extraction, as there is no current requirement for groundwater use. The interest holder has made a commitment in the EMP to obtain a groundwater extraction licence prior to commencing use of groundwater (specific to RN018851 located at SOF). In addition, the interest holder has committed to commencing groundwater monitoring using existing bores. DENR will receive groundwater monitoring reports.

3.3 Terrestrial environmental quality

The potential impacts and risks of contamination of soil, through inappropriate storage and handling of chemicals or wastes has been identified by the interest holder. The EMP includes commitments that include bunding and spill containment of chemicals and the implementation of the Wastewater Management Plan and Spill Management Plan, in accordance with the Code. The interest holder has not deviated from known industry codes and standards. The EMP documents how the interest holder will comply with the relevant mandatory requirements of the Code as a minimum best practice standard.

Soil types at both locations have a moderate risk of erosion, mitigated through a primary erosion and sediment control plan and ongoing inspections of facilities. Inspections at both facilities to date has indicated only very minor erosion.

3.4 Terrestrial flora and fauna

The NT EPA considers that all reasonably practicable measures will be used to control the environmental impacts and risks to terrestrial flora and fauna, considering the level of consequence and the resources needed to mitigate them. The NT EPA considers that the environmental impacts and risks will be reduced to an acceptable level, considering the principles of ecologically sustainable development as discussed above, the sensitivity of the local environment, relevant standards and compliance with the Code.

4. Other relevant matters

Regulation 9 requires that an EMP provides a comprehensive description of the regulated activity, including provision of a detailed timetable for the activity. To meet this requirement, the NT EPA has provided advice that the interest holder be required to submit a detailed timetable for the regulated activity to DENR prior to approval of the EMP. The timetable should address all aspects of the activity and include, but not be limited to dates for the implementation of

commitments and associated hold points, progressive rehabilitation. The timetable should be updated quarterly or as seasonal weather forecasts emerge.

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.

RECOMMENDATION

The NT EPA recommends that should the EMP for Central Petroleum Ltd be approved, the following conditions be considered:

Condition 1: The interest holder must submit to the DENR, an updated timetable for the regulated activities prior to the commencement of the activity and provide an updated timetable to the DENR each quarter. The timetable must include dates for the implementation of commitments and associated hold points, and progressive rehabilitation activities, including proposed dates for commencement of rehabilitation at each of the Dingo Gas Field and the Surprise Oil Field.

Condition 2: In addition to the overarching Erosion and Sediment Control Plan (ESCP) provided in the EMP, the interest holder must submit to DENR within three calendar months of the date of this approval, a pre-emptive site-specific ESCP for each of Dingo Gas Field and Surprise Oil Field, to guide civil maintenance activities and detail corrective actions.

Condition 3: The interest holder must submit to DENR a groundwater monitoring plan within one month of approval of the EMP, in line with the commitment to develop such in the EMP, to demonstrate there is no change in groundwater quality as a result of activities at Dingo Gas Field and Surprise Oil Field. The groundwater monitoring plan is to include:

- i. a location map (and associated spatial files) for proposed monitoring bores relative to the respective field
- ii. a commitment to commence groundwater monitoring within six months of the date of EMP approval
- iii. a commitment to monitor for the range of analytes specified in clause B.4.17.1 Table 6 of the Code
- iv. development of site-specific performance standards for groundwater quality
- v. a commitment to provide groundwater monitoring reports and data to DENR annually.

Condition 4: The interest holder must provide an annual report to DENR on its environmental performance, in accordance with item 11(1)(b) in schedule 1 of the Petroleum (Environment) Regulations 2016 (NT). The first report must cover the 12 month period from the date of the approval, and be provided within three calendar months of the end of the reporting period. The annual environmental performance report must align with the template prepared by DENR for this purpose and must include a signed declaration by the operator.

Condition 5: The interest holder must not undertake vegetation clearing outside of the current disturbed footprint and any proposed clearing activities outside of the current disturbance

footprint must be presented with geospatial data, at least one month prior to proposed commencement, to DENR Petroleum Operations for consideration under the Petroleum (Environment) Regulations 2016.

A handwritten signature in blue ink, appearing to read 'P. Vogel', with a horizontal line underneath.

PAUL VOGEL AM MAICD
CHAIRMAN
NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

6 MAY 2020