

Onshore Petroleum Activity – NT EPA Advice

CENTRAL PETROLEUM LTD CTP4-3 - ENVIRONMENT MANAGEMENT PLAN (EMP) MEREENIE FIELD WORKOVER AND WELLHEAD EQUIPMENT, SAFETY SYSTEMS AND GATHERING LINE ACTIVITIES (OL4 AND OL5)

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)), and
- any relevant matters raised through a 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)	Operating License 4 (OL4) Operating License 5 (OL5) collectively called the 'Mereenie Field'.
Environment Management Plan (EMP) title	Mereenie Field Workover and Wellhead Equipment, Safety Systems and Gathering Line Activities EMP
EMP document reference	CTP4-3
Regulated activity	<p>The wider Mereenie Field is subject to a Field EMP focussing on day-to-day production activities approved March 2018. The current EMP focusses on upgrades and enhancements, and includes the following regulated and ancillary activities:</p> <ul style="list-style-type: none">• workover activities, to be conducted over 10 to 20 days per well, on up to five existing wells per year (up to 25 wells over the 5-year life of the EMP)

	<ul style="list-style-type: none"> • replacement of wellhead equipment, safety systems and gathering lines over an estimated 3 days per well, at selected existing oil and gas production wells within the Mereenie Field, with wells determined through an analysis of operational needs • civil works to support workover activities, to be conducted over 1 to 2 days per well • management of hazardous waste • emergency decommissioning of wells, should this be required • use of existing accommodation facilities within the Mereenie Field • rehabilitation of works under this EMP, noting the wells remain in an operational field, so rehabilitation works under this EMP are limited and are estimated to consist of 1 to 2 days per well, plus any ongoing monitoring required.
Public consultation	Public consultation on the EMP was not required under regulation 8A(1)(b) as the regulated activity does not include 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))

All regulated activities under this EMP occur on existing well sites within the Mereenie Field, are low impact and small scale, and are standard practices for maintenance of well life in producing fields. Mereenie Field commenced production in 1984, and is located approximately 280 km west of Alice Springs in the Northern Territory. The Mereenie Field is approximately 35 km long and up to 4 km wide, with 71 existing wells, of which 43 wells are currently active, and has approximately 178 km of pipelines and flowlines connecting the field and processing facilities.

Workover activities are intended to be conducted on up to five existing wells per year in the Mereenie Field. Although the first five wells have been nominated, the interest holder is seeking approval to undertake workovers on up to 25 of any of the 71 wells currently in the field, to be determined through ongoing corrosion testing as part of the interest holder's asset integrity management system.

Wells targeted for replacement of wellhead equipment, safety systems and gathering lines will also be determined through ongoing integrity testing and maintenance requirements, and the interest holder is seeking approval to conduct these activities at any of the 70 wells currently in the field. Hydrostatic testing during commissioning of replacement wellheads, safety systems and gathering lines can only use high quality freshwater which will be commercially acquired.

Should it be required, the EMP allows for emergency decommissioning of wells, in accordance with the Code of Practice: Onshore Petroleum Activities in the Northern Territory (the Code). Decommissioning of wells in general is addressed in the approved Mereenie Field EMP.

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

- additional clearance of vegetation (all activities are undertaken within existing disturbance footprints at existing wells)
- drilling of new wells
- establishment of onsite camps
- onsite management of produced water
- routine venting or flaring outside of the nominated 3 days per well during workovers.

1.1 Activity duration

The proposed activities are of a short duration, as follows:

- workover activities are estimated to be undertaken during a 3 month block per year, based on:
 - 2 days per well for site set up and demobilisation
 - 1 to 2 days per well for civil works
 - 10 to 20 days per well for workover activities (average of 10 days, but can take up to 20 days)
 - 1 to 2 days per well for rehabilitation
- wellhead equipment, safety systems and gathering line activities are estimated to require approximately 2 months per year, based on 3 days per well.

1.2 Workover activities

The specific workover activities required at nominated wells will be determined through prior integrity verification testing and could include:

- site set-up and demobilisation
- use of air/mist wherever possible, and if not possible, use of a water-based workover fluid, free from benzene, toluene, ethylbenzene and xylene (BTEX), with water sourced from existing groundwater bores in the Mereenie Field
- shutting in the well with the existing Christmas tree valves
- installation of blow-out preventors, which are then pressure tested
- removal of existing completions and retrieval of down-hole equipment, noting these will be tested for naturally occurring radioactive materials (NORM)
- perforation of the well into the target formation
- installation of new down-hole equipment
- remedial cementing to maintain existing well barrier integrity at the location of the aquifer and throughout the well
- flaring at a maximum rate of approximately 5 terrajoules (~300 tonnes CO₂eq) per well per day over a period of three days
- use of 0.32 ML per year of groundwater to make up workover fluids, if needed.

1.3 Wellhead equipment, safety systems and gathering line activities

The specific wellhead equipment, safety systems and gathering line activities required at nominated wells will be determined through an ongoing analysis of operational needs and could include:

- installation of new equipment, such as meters and control valves
- installation of new pipelines within the well lease to connect the wellhead to existing pipelines
- hydrostatic testing of wellhead equipment, safety systems and gathering lines to ensure integrity, using commercially acquired freshwater
- loading and unloading equipment from heavy transport vehicles.

1.4 Civil works and other ancillary activities

Civil works and other ancillary activities are required for workover activities and include:

- re-grading of existing well lease pads and surrounding operational areas, as required
- waste storage, disposal and transport using licensed waste disposal contractors for all wastes, including listed waste
- appropriate (segregated) storage and disposal of downhole equipment that may be contaminated by NORM in accordance with the (Radiation) Management Plan and current radiation licence under the *Radiation Protection Act 2004* (NT).
- chemicals and hazardous materials management including transport, storage and use of chemicals consistent with legislative requirements to prevent loss of containment, and to respond and remediate should such an event occur

1.5 Well integrity management

This EMP does not include the establishment of new wells; it focuses on workover activities and replacement of wellhead equipment, safety systems and gathering lines to ensure well longevity and integrity.

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) and Well Integrity Management Plans (WIMPs), consistent with the Code, for approval by the Department of Industry, Tourism and Trade (DITT) prior to the commencement of workover activities. The elements relevant to the scope of this EMP are limited to managing well integrity during workovers (minimum requirements for assessing well barriers prior to and after any well intervention that involves breaking the established containment system).

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.

1.6 Environmental surveys and monitoring

As the regulated activity does not involve drilling, hydraulic fracturing or clearing of vegetation, environmental monitoring is limited to:

- ongoing monitoring of groundwater level and quality from three existing groundwater bores
- weed surveys
- volume of groundwater used and its quality
- volume of wastewater generated and disposed of.

The monitoring activities are non-invasive and will not result in any increase in ground disturbance.

In addition, visual inspections will be undertaken and records kept in relation to waste storage, erosion and sediment control measures and any erosion found to have occurred, waste types and quantities (including disposal of NORM contaminated materials), interaction with fauna (e.g. vehicle strikes), fencing for prevention of fauna access, interference with Sacred Sites and integrity of tanks used for workovers. Rehabilitation is limited to backfill of the trench around the flare pits and the flare pits (when not in use), and remediation of contaminated soils.

1.7 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
- Bushfire Management Plan
- Wastewater Management Plan
- Spill Management Plan
- Methane Emissions Management Plan
- Erosion and Sediment Control Plan
- Rehabilitation Management Plan
- Emergency Response Plan.

In addition, in recognition of the regulated activity being conducted over the wet season, the EMP includes a Wet Season Management Plan, which is a proactive measure the interest holder has introduced to ensure wet season works are appropriately managed.

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 advice.

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

2.1 Decision making principle (s 18 Environment Protection Act 2019 (NT))

The EMP adequately assesses the environmental impacts and risks associated with the regulated activity and outlines appropriate avoidance and mitigation measures, to ensure no long-term adverse impacts to the environment in which the activity is conducted. The regulated activities are considered low impact and small scale and are to be undertaken in a planned and measured way, for a total of five months per year. The EMP focus is on maintaining well integrity through maintenance activities and undertaking routine activities to allow ongoing use of existing wells into the future. In this way, the interest holder is demonstrating its consideration of maximising use of existing resources in the Mereenie Field, rather than establishing new wells, and developing petroleum production so that the optimum value of the resource is returned to the Territory as required under the *Petroleum Act 1984* (NT).

The Mereenie Field was developed in 1984 and the interest holder has been operating in the Alice Springs region for many years. The interest holder conducts regular and effective engagement with the Aboriginal communities whose land the regulated activities is conducted on, and the Central Land Council, in accordance with the Regulations. Stakeholder communication logs demonstrate ongoing community satisfaction with no concerns raised.

2.2 Precautionary principle (s 19 Environment Protection Act 2019 (NT))

The NT EPA considers there is a low threat of serious or irreversible damage from the regulated activity. The proposed regulated activity will be conducted on existing wells, within an operational field and is considered a routine activity in producing fields. In addition, the regulated activity will be conducted in compliance with the Code, and the EMP provides measurable performance standards to ensure that the environmental outcomes are met.

The risks associated with the activity are well understood and uncertainty in relation to the environmental features was assessed, with no areas of environmental uncertainty identified. The EMP outlines the interest holder's investigations into the physical, biological and cultural environment and demonstrates a sound understanding of the environment of the Mereenie Field, providing 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.

The NT EPA is of the view 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.

2.2 Principle of evidence-based decision making (s 20 Environment Protection Act 2019 (NT))

The EMP demonstrates an adequate understanding of the environment in which the regulated activity will be undertaken, and considers all relevant aspects of the environment that have potential to be affected. As the activity is focussed on existing wells and no land clearing is proposed, a focus is on wastewater and waste management and chemical transport, storage and use.

The EMP aligns with the requirements of the Code, including tracking of wastewater use and transfer on site. The key source of wastewater is workover fluid, which will be characterised to ensure appropriate disposal. As the regulated activity may result in a need to dispose of material contaminated with NORM, consideration has also been given to requirements under the *Radiation Protection Act 2004* (NT), and the interest holder has an approved Radiation Management Plan. The management of NORM is underpinned by a comprehensive

assessment in September 2019 of NORM across the Mereenie Field as well as at the central processing plant, which confirmed the site has radiation hazard levels 1000x lower than the recommended public exposure limit.

The EMP commits to balancing stored volumes of chemicals on site, against the need for frequent transport of chemicals to the site, which is a non-mandatory preferred approach outlined in the Code. Mereenie Field has well-established infrastructure for storage and on-site transport of chemicals, which meets the requirements of the Code. In addition, a portable chemical transport trailer is used to move chemicals around site, which is also fully enclosed and built to Australian Standards for specific chemicals. The EMP includes a risk assessment related to transport of chemicals to site during the wet season, which concludes there is a low risk of environmental harm. In addition, the interest holder has proactively included a Wet Season Management Plan, which provides specific additional controls for conduct of activities during the wet season.

The regulated activities proposed have been informed by careful consideration of production requirements and the longevity of the Mereenie Field. The proposed environmental outcomes are likely to be achieved based on the best available information on the nature and scale of the activity, and the environment in which the activities will be conducted. The long history of petroleum activities in the Mereenie Field affords the interest holder with a detailed and reliable knowledge of the potential environmental impacts and risks and the most appropriate measures for mitigation of those impacts and risks.

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, decisions can be based on best available evidence that is relevant and reliable.

2.4 Principle of inter-generational and intra-generational equity (*s 21 Environment Protection Act 2019 (NT)*)

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.

Protection of cultural interests is achieved through compliance with the requirements of Authority Certificates issued by the Aboriginal Areas Protection Authority and there is limited potential for disturbance to archaeological heritage as no new land clearing is to occur.

The proactive measures included in the EMP regarding bushfire and weed management (such as fuel monitoring and weed surveys and control) will have an overall positive impact on the condition of the environment for future generations.

The regulated activity will improve production and safety in the field and ensure long term well integrity, thereby potentially preventing future environmental harm or long term adverse impacts to the environment, while also continuing to provide social and economic benefits to current and future generations of the Aboriginal landholders.

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 (*s 22 Environment Protection Act 2019 (NT)*)

The interest holder proposes to undertake well workover activities without fluids (using an air/mist system in accordance with the Code) and will only use fluids where required for specific circumstances as outlined in the EMP. If fluids are required, it is proposed to use groundwater. An extraction licence for 52.8 ML per annum from the Mereenie Sandstone aquifer has been applied for, which includes the 0.32 ML per annum that may be required for this activity, which represents 0.6% per annum of the total groundwater use applied for by the interest holder in the Mereenie Field.

Cumulative use of groundwater resources was also considered in the EMP. It is noted that total water extraction licences for the Mereenie aquifer granted by the NT Government is approximately 11,400 ML/yr and the additional 0.32 ML of proposed groundwater extraction for this activity represents a 0.0028% increase on the total existing allowable extraction across all users. In terms of the interest holder's total proposed use of 52.8 ML of groundwater from the Mereenie aquifer, this equates to approximately 0.46% of the total use.

Limited flaring is proposed during workovers, estimated at no more than 3 days of flaring per well (15 days per year), and no planned venting is proposed. The resultant greenhouse gas emissions from the activity are negligible, and will result in an overall increase in NT GHG emissions of approximately 0.028% per year, based on an estimated flaring of 300 tCO₂eq/well/day. The NT EPA notes that the Government has committed to implementing all recommendations of the Hydraulic Fracturing Inquiry, including that the NT Government seeks to ensure there is no net increase in the lifecycle GHG emissions emitted in Australia from any onshore petroleum produced in the NT.

It is also noted that an estimated 14 tonnes of steel per well (if not contaminated with NORM) will be available for recycling, as a result of the workover activities and replacement of infrastructure.

The interest holder has demonstrated a commitment to recycling and minimising use of natural resources wherever possible, without introducing environmental or safety risks.

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 (s 23 *Environment Protection Act 2019 (NT)*)

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.

The regulated activity does not include land clearing, as the activities are to be conducted on existing cleared areas and well pads. The potential impacts and risks of the activity identified in the EMP relate primarily to animal welfare and do not pose a significant risk to threatened species at a population level. The EMP includes environmental sensitivity maps for each well site in the Mereenie Field, using recent aerial photography, which demonstrate the location of conservation significant flora and fauna and weeds are known. In addition the maps display the topography, erosion risk and drainage lines downslope of the wells. These maps can also be used to determine the location for the activities within the existing disturbance footprint, and the specific environmental sensitivities requiring protection in the event of a spill to the environment.

Specific precautions to ensure interaction with wildlife is avoided are included in the EMP, including installation of fencing around the flare pits, appropriate storage of waste, use of enclosed tanks for mixing workover fluids, should workover fluids be needed, and use of speed limits and avoidance of driving at dusk and dawn or after significant rainfall.

Two springs are recorded on the Department of Environment, Parks and Water Security (DEPWS) Springs database, in OL5 on the south-eastern and north-eastern margin of the Mereenie Field, on drainage lines that feed Parke Creek. If groundwater extraction is required for workovers, the nearest bore is approximately 2 km from Parke Creek, and so it is not expected that groundwater extraction (up to 52.8 ML per year for all of the interest holder's activities) will impact on the springs. Further, an assessment of the whole of the site was undertaken to assess potential for other springs and groundwater dependent ecosystems to be present, using the National Atlas of Groundwater Dependent Ecosystems and Geoscience Australia Water Observations from Space. It was concluded that Parke Creek has a low potential to support groundwater dependent ecosystems and there is no naturally occurring permanent surface water in the Mereenie Field.

Cumulative impacts to flora and fauna and their habitat 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.

2.7 Principle of improved valuation, pricing and incentive mechanisms (s 24 *Environment Protection Act 2019* (NT))

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 freshwater for commissioning, and progressive rehabilitation of all disturbed areas to an acceptable standard, are at the cost of the interest holder. The adequacy of Central Petroleum's existing environmental rehabilitation security bonds is currently under assessment by both DEPWS and the Department of Industry, Tourism and Trade (ITT).

The NT EPA is of the view 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 has undertaken identified measures to avoid impacts on environmental values, informed by a detailed understanding of site conditions and studies and surveys conducted under other approved EMPs applicable to the Mereenie Field.

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 considered in the EMP are:

- impacts to fauna and flora, resulting from civil works, vehicle movements, fire, weeds, erosion and localised flooding and waste production
- impacts to soil and topography, resulting from movement and use of heavy vehicles, earthworms to establish flare pits, spills and leaks and loss of containment of chemicals during transport, storage and use, and incorrect storage and segregation of waste
- impacts to cultural heritage, resulting from fire and movement of heavy machinery
- impacts to surface and groundwater quality, resulting from earthworks, use of groundwater resources, spills of chemicals or hazardous materials, loss of subsurface containment during workovers, flooding, incorrect segregation or disposal of hazardous waste
- impacts to sensitive receptors, resulting from fire, inadequate or lack of stakeholder engagement, increase in traffic and noise
- impacts to air quality from flaring, use of heavy machinery, fire, loss of containment of gas or oil, and gas leaks from infrastructure
- contribution to greenhouse gas emissions from combustion of fuel, unplanned venting of gas, flaring and gas leaks from well infrastructure.

Cumulative impacts to greenhouse gas emissions, groundwater, surface water, conservation significant flora and fauna, visual amenity and generation of waste were also considered.

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 38 environmental risks identified by the interest holder, 34 are considered 'low' risk, and therefore are ALARP. The remaining four risks are considered 'medium' and the interest holder has included justifications as to why no further controls can be implemented and the risks will therefore be managed at levels that are ALARP. Specifically:

1. Injury or death of conservation significant fauna – 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, such as limiting driving at dusk and dawn and after significant rainfall, inductions to raise awareness around vehicle strike on fauna, and setting reasonable speed limits on access roads. It is noted that the interest holder estimates that the wellhead equipment, safety systems and gathering line activities will not result in additional vehicles movements as it is proposed to use existing personnel and equipment based at the Mereenie Field. For the workover activities, there will likely be 2 vehicle movements per day for several days during mobilisation and demobilisation plus 5 to 8 vehicle movements in the first week, reducing to 2 to 5 movements for the remainder of the workover period. Of these, less than 20% of movements involve heavy vehicles, and the risk from additional vehicle movements is considered to be negligible when comparing the average annual daily traffic volume at a key intersection of 447 vehicles with less than 10 additional vehicles per day, for three months of the year. It is also noted that the ‘medium’ risk ranking is based on the consequence of the event occurring being considered ‘moderate’, and the likelihood being considered ‘unlikely’.
2. Spread of weeds from movement of vehicles and earthworks – the interest holder requires all vehicles and equipment to be cleaned and inspected prior to mobilisation to the Mereenie Field, all bulk materials delivered to site to be declared weed seed free, and conducts ongoing weed surveys and control programs. It is also noted that ‘medium’ risk ranking is based on the consequence of the event occurring being considered ‘serious’, not the likelihood, which is considered ‘unlikely’.
3. Fire as a result of conduct of the regulated activity (e.g. flaring during workovers) adversely affecting cultural heritage, should fire leave the work site and spread to culturally significant areas – the interest holder has committed to undertaking a job hazard assessment for all new tasks or when using new equipment, and taking into account daily fire danger ratings and fire ban days. It is also noted that ‘medium’ risk ranking is based on the consequence of the event occurring being considered ‘serious’, not the likelihood, which is considered ‘remote’.
4. Contamination of watercourses and groundwater and reduction in groundwater pressure from subsurface loss of contaminants during workovers – the interest holder considered that the impermeable layer sitting between groundwater aquifer and target formations offers some protection from migration of contaminants, but notes also that the activity is to be conducted on existing wells, which are already cased and have no open zones, which also protects against migration. In addition, well integrity measures in accordance with the Code must be implemented as per the WIMP and WOMP accepted by DITT. Such measures include monitoring pressure for identification of a leak or rupture, installation, maintenance and routine testing of blow-out-preventers and well control equipment, and retaining kill fluid on site to kill the well in the event of an emergency. The Emergency Response Plan also considers steps to take in the event of subsurface loss of containment. A well barrier integrity verification report will be submitted to DITT at the end of the workover activity in compliance with the WOMP and the Code. In addition, the interest holder has included a Wet Season Management Plan in the EMP, which includes additional controls to be applied before and after significant rainfall events, which collectively will further reduce the risk to ALARP. It is also noted that ‘medium’ risk ranking is based on the consequence of the event occurring being considered ‘serious’, not the likelihood, which is considered ‘remote’.

More generally, the field 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 across the field is similarly an ongoing practice, which has been effective in preventing lasting erosion occurring at the interest holder’s facilities. There is an existing Erosion and Sediment Control Plan implemented under the approved Mereenie Field EMP which will continue to be implemented. The NT EPA considers that implementing of the existing erosion and sedimentation control plan measures for the Mereenie Field will continue

to provide adequate mitigation for potential sedimentation into ephemeral drainage liens during periods of rainfall.

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. The Wastewater Management Plan includes the requirements from the Code and additional measures, such as inclusion of trenches to avoid spread of hazardous material if a workover tank overtops. An Emergency Response Plan will be implemented, which includes event response measures for loss of containment or other major spills, flooding and fire. 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 storage of chemicals or hazardous materials is in fit-for purpose storage facilities. Flaring is limited and no planned venting is to occur. 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 activities. 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. 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. The EMP includes an estimate of durations of the activities, but at the time of preparation the exact timing of each activity is not known. To meet this requirement, the NT EPA has provided advice that the interest holder be required to submit an updated timetable for the regulated activity prior to commencement. The timetable should address all aspects of the activity and include, but not be limited to, dates for the implementation of commitments and should be updated quarterly or as other constraints, such as seasonal weather forecasts or travel restrictions 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 Department of Environment, Parks and Water Security (DEPWS) an updated timetable for the regulated activity prior to the commencement of the activity and provide an updated timetable to DEPWS each quarter. The timetable must include dates for the conduct of the activity and implementation of time-bound commitments.

Condition 2: The interest holder must provide an annual report to DEPWS 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 DEPWS for this purpose and must include a signed declaration by the interest holder or operator.

Condition 3: The interest holder must submit to DEPWS within one month approval of the EMP a groundwater monitoring plan that includes all five groundwater wells currently being monitored in the Mereenie Field, to demonstrate there is no change in groundwater quality as a result of activities in the Mereenie Field. The groundwater monitoring plan should be consistent with the sampling method and data management sections of the *Preliminary Guideline: Groundwater Monitoring Bores for Exploration Petroleum Wells in the Beetaloo Sub-basin* and is to include:

- i. monitoring of all five groundwater bores currently being monitored under the approved Mereenie Field EMP
- ii. monitoring twice per year, within one month of the end of each of the dry season and the wet season, with the wet season period defined in the Code of Practice
- iii. a location map (and associated spatial files) showing each of the five monitoring bores relative to the Mereenie Field
- iv. continuation of the monitoring program while the EMP remains in force
- v. use of data collected in the first 3 years to develop site-specific performance standards for groundwater quality and interquartile ranges for analytes at each of the monitoring bores
- vi. use of ANZECC livestock guideline trigger values in the interim and notification of any exceedance of these trigger values to DEPWS within five days of receipt of laboratory report analyses
- vii. review of the monitoring program and the site-specific performance standards with DEPWS after 3 years
- viii. a commitment to provide groundwater monitoring reports and data to DEPWS annually.



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21 SEPTEMBER 2020