

# Onshore Petroleum Activity – NT EPA Advice

## PEAK HELIUM PTY LTD (PKH2-3) – ENVIRONMENT MANAGEMENT PLAN (EMP) EP134 WORK PROGRAM

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### 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 justification that considers:

- whether the EMP is appropriate for the nature and scale of the regulated activity to which the EMP relates (regulation 9(1)(b))
- the principles of ecologically sustainable development (regulation 2(a)), as set out in sections 18 to 24 of the *Environment Protection Act 2019* (NT)
- whether the EMP demonstrates that the activity will be carried out in a manner by which the environmental impacts and environmental risks of the activity will be reduced to a level that is as low as reasonably practicable and acceptable (regulation 9(1)(c))
- any relevant matters raised through the public submission process

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

### ACTIVITY

Subject	Description
Interest holder	Peak Helium Pty Ltd (Peak Helium)
Petroleum interest(s)	Exploration Permit 134 (EP134)
Environment Management Plan (EMP) title	EP134 Work Program (PKH2-3)
EMP document reference	PKH2-3
Regulated activity	<p>The EMP covers the program of work for the civil works, drilling and appraisal testing of up to four wells within EP134, located approximately 170 km south of Alice Springs in the Amadeus Basin. The regulated activity includes:</p> <ul style="list-style-type: none"> <li>• land clearing of up to 38 hectares for three well pads, widening of existing tracks and repurposing seismic lines as access tracks, and establishing new access tracks and gravel pits</li> <li>• civil works, including the establishment of up to three well pads, four gravel pits and three groundwater bores</li> <li>• construction of a bunded tank pad and tanks fitted with leak detection on each well pad and a campsite at each well pad</li> </ul>

	<ul style="list-style-type: none"> <li>• drilling of four petroleum wells</li> <li>• evaluation, logging, testing, coring, completion, workover, and maintenance of four petroleum wells</li> <li>• extended production testing (EPT) of each of the four wells, for 365 days for each well</li> <li>• site demobilisation</li> <li>• site rehabilitation.</li> </ul> <p>No drilling activity will be conducted within sites of conservation significance (SOCS). No hydraulic fracturing is proposed in the EMP.</p>
Public consultation	Public consultation on the EMP was required under regulation 8A(1)(b) was undertaken from 7 September 2022 to 5 October 2022.

## NT EPA ADVICE

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

Information relating to the nature and scale of the regulated activity is provided in the EMP in a clear format. The technical works program includes civil works; drilling of up to four wells at three locations within EP134; evaluation, workover and extended production testing; and suspension and/or decommissioning of any of the new wells. These activities will be undertaken in accordance with the requirements outlined in the Code of Practice: Onshore Petroleum Activities in the Northern Territory (the Code). Table 1 provides an overview of the key components of the regulated activity and worst-case scenario values. The proposed work program is schedule to take place from 2023 – 2027.

Table 1: Key components of the proposed EP134 Work Program

Component/aspect	Proposed
AAPA certificate	C2021/080
Total area of EP134	1,532,000 ha
Total area of surface disturbance	38.24 ha
Number of well pads	3
Number of exploration wells	4
Groundwater extraction licence	Not yet applied for
Groundwater extraction bores	3
Groundwater use	13.4 ML
Gravel pits	4 (15,000 m <sup>3</sup> each)
Extended production test	365 days per well
Workforce	Peak workforce: 10 during civil construction, 40 during drilling, 4 during well testing
Camp	Three camps, with a capacity of 40 persons per camp
Peak traffic movements	25 trucks and 45 light vehicles per week
Average traffic movements	8 trucks and 13 light vehicles per week
Drilling cutting sumps	Up to 6 (to 4500 m <sup>3</sup> each)
Volume of drilling muds/cuttings generated	~800 m <sup>3</sup> per well pad (3200 m <sup>3</sup> total)
Wastewater volume (final predicted for offsite disposal)	0.266 ML

<b>Component/aspect</b>	<b>Proposed</b>
Enclosed wastewater tank capacity	1 ML (per well pad)
Open tank treatment capacity	1 ML (per well pad)
Greenhouse gas emissions	221,089 tCO <sub>2</sub> -e (total) (365 day testing per well)

## **1.1 Activity scope and duration**

Previous exploration activities were undertaken in EP134 by Peak Helium in February 2021, which included acquisition of 120 km of 2D seismic data. The proposed drilling, evaluation and production testing in the current EMP is intended to build on the previous exploration program to demonstrate potential development of the resource into the future.

The EMP clearly describes the scope of the activity and its duration. The regulated activity is expected to commence in 2023 and continue until 2026. Under regulation 18 of the Petroleum (Environment) Regulations 2016, the interest holder will be required to submit a revised EMP if the activities continue past the 5-year timeframe of an approved EMP. Drilling will be conducted for up to four wells at three well pads (Ramsey AA, AB & AC). Completion and well testing will be conducted on the wells, followed by extended production testing. Upon completion of the testing, the wells will be suspended for build-up testing and/or plugged and abandoned and rehabilitation completed.

The EMP estimates that a total of 38.24 ha of vegetation may be cleared, all of which is required to be rehabilitated. Land clearing comprises of three well pads (21 ha); three camp sites (3 ha); widening of existing pastoral tracks and repurposed seismic tracks (5 ha); construction of new access tracks (1.24ha); contingency access tracks (2 ha); four gravel pits (5 ha); and three water bores (1 ha).

Drill cuttings produced for each well will be contained and managed in sumps in accordance with the Code. Sumps will be designed to accommodate the expected ~800m<sup>3</sup> of waste drilling solids (cuttings, muds and cement returns) per well. Drilling waste material will either be evaporated in the drill cuttings sump and buried on-site in accordance with clause C4.1.2 of the Code or will be transported off-site. Off-site disposal will be undertaken in accordance with the NT *Waste Management and Pollution Control Act 1998* (WMPC Act).

The EMP describes the precautionary measures that will be in place for multi-well pads including using Global Positioning System (GPS) for collision avoidance of wellbores and separation envelopes around existing wells. Standard directional drilling techniques and equipment will be employed during directionally drilling to enable accurate wellbore direction to be recorded and maintained. The separation envelope for each well will be continually calculated and monitored.

A number of well evaluation techniques will be conducted during and/or on completion of drilling at the well sites, including evaluation, logging, and coring. All four proposed wells will be horizontal wells.

Extended production testing will be conducted to validate the well production rates for up to 365 days per well. Wastewater will be directed to storage tanks and condensate to storage tanks or flared, depending on the composition. All gas, water and condensate flow volumes will be measured and recorded.

Wastewater is proposed to be stored in enclosed tanks, and evaporated in open treatment tanks, for ultimate disposal off-site at a licensed waste management facility. Open treatment tanks are also designed to accommodate the expected ~1 ML of produced water per well, and management to maintain a minimum freeboard of 500 mm in both the wet and dry seasons, to accommodate a 1 in 1000 average recurrence interval (ARI) rainfall rate. Enclosed tanks will be constructed on-site with

enough capacity to store all wastewater on-site. Produced water will be evaporated on-site with approximately 0.2 ML to be disposed of off-site.

The three well pads will each have a camp located on the lease pad. The camps will have their own sewage treatment and wastewater treatment plants. The camps will be managed in compliance with the relevant health requirements of mining and construction camps.

It is estimated that up to 13.4 ML of groundwater will be extracted over the life of the EMP from the Hermannsburg sandstone aquifer using existing and proposed groundwater bores. Approximately 10 ML will be used for drilling (approximately 2.5 ML per well).

The potential impacts and risks of the regulated activity have been identified and controls are reflected in the relevant environmental outcomes, performance standards and measurement criteria that have been provided in the EMP. Mitigations outlined in the risk register are classified based on the hierarchy of controls and the level of certainty is indicated for each risk. Where appropriate, the NT EPA has also provided advice relating to Ministerial conditions at the end of this advice.

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).

## **1.2 General compliance with the Code**

The EMP demonstrates how the interest holder will comply with the relevant requirements of the Code in undertaking the regulated activity. This includes selection of materials for well construction and related engineering controls contained in the Well Operations Management Plan (WOMP). The risk assessment provided in Appendix 4 of the EMP cross-references relevant sections of the Code that apply to the mitigation and management measures to enable the reviewer to identify and confirm that the proposed regulated activity complies with the Code. The EMP also provides the following plans, which are compliant with the Code:

- Erosion and Sediment Control Plan
- Waste and Wastewater Management Plan
- Spill Management Plan
- Emergency Response Plan
- Weed Management Plan
- Fire Management Plan
- Methane Emissions Management Plan
- Rehabilitation Management 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).

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

### **2.1 Decision-making principle**

The EMP adequately assesses the environmental impacts and risks associated with the regulated activity and outlines appropriate avoidance and mitigation measures. Of the 31 risks identified, four have a residual risk score of 3 and are considered ALARP and acceptable if carried out in accordance with the mitigations and controls proposed in the EMP. Wet season contingencies and controls are proposed to mitigate potential erosion and sediment impacts associated with wet season transport and traffic impacts on major arterial roads. These controls have been assessed by NT Government agencies and deemed adequate.

Open working evaporation tanks and drill cutting sumps are designed to comply with the Code to have enough freeboard to manage an entire 1:1000 ARI wet season event. A minimum of 500 mm freeboard will be maintained in all open treatment tank and sumps throughout the year.

The interest holder has demonstrated ongoing stakeholder engagement in the EMP as required by the Regulations with identified, directly affected stakeholders. The EMP was also made available for public comments from 7 September to 5 October 2022.

## **2.2 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, and to identify measures to avoid or minimise those impacts and risks and address scientific uncertainty.

The EMP outlines the interest holder's investigations into the physical, biological and cultural environment and demonstrates a sound understanding of the environment at the location, 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. Uncertainty in relation to the environmental features was assessed, with no areas of environmental uncertainty identified.

The risks of drilling over the wet season are well understood. The EMP demonstrates adherence to the Code that establishes best practice management measures for operations, as set out in the risk assessment and Waste and Wastewater Management and Spill Management Plans. The EMP includes the assessment of impacts and risks for wet season operations and management strategies, including measures such as halting activities if there is significant rainfall; ongoing inspection of erosion and sediment control measures and access roads; and transportation of wastewater or chemicals on unsealed roads without a prior risk assessment will be avoided.

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 existing environmental monitoring commitments contained in the EMP are compliant with the Code and should provide measureable performance measures to ensure that the environmental outcomes are met.

## **2.3 Principle of evidence-based decision-making**

The environmental considerations of the project footprint were informed by a baseline assessment with desktop and field-based information for those areas where the regulated activities were proposed.

The EMP includes a detailed risk assessment related to the transport, storage and use of chemicals. It includes an assessment of potential impacts to human receptors and wildlife interacting with open treatment tanks. The assessment concludes that there is a low risk of environmental harm with implementation of the proposed management measures.

The EMP aligns with the requirements of the Code, including tracking of water use and wastewater generation and movement. The NT EPA has assessed the potential for spills from chemicals and hydrocarbons (e.g. diesel) stored in designated bunded areas at each location and concluded that the proposed management measures are satisfactory. The mitigations described in the EMP include bunds around chemical storage areas, containment of hydrocarbons in double-lined diesel storage tanks, and spill prevention and response procedures. As a precautionary step the NT EPA has recommended a Ministerial condition for this activity relating to the recording of spills.

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 regulated activity will be conducted. The studies previously undertaken by the interest holder to inform the EMP 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 intergenerational and intra-generational equity

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

Protection of cultural interests is achieved through compliance with the requirements of Authority Certificates issued by the Aboriginal Areas Protection Authority under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT) and the previously completed archaeological assessment at the site to avoid archaeological heritage impacts. The regulated activity is subject to requirements of the AAPA Certificate C2021/080.

Total predicted worst-case greenhouse gas (GHG) emissions generated by the regulated activity is 221,089 tCO<sub>2</sub>-e. These emissions will result in an overall increase in NT GHG emissions (based on 17.32 million tCO<sub>2</sub>-e in 2020) of 1.28%, based on conservative estimates of emissions from fuel consumption, land clearing, flaring and fugitive emissions.

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, noting a condition has been recommended requiring a Greenhouse Gas Abatement Plan be prepared, submitted and complied with in the event actual emissions exceed the threshold in the NTG Greenhouse Gas Emissions Management for New and Expanding Large Emitters Policy.

## 2.5 Principle of sustainable use

Exploration activities are necessary to enable commercial appraisal of resources. In the absence of reliable data regarding the shale resource, exploration will take a number of years to complete, in order to assess the viability of the resource prior to production.

The anticipated water demand for this regulated activity is up to 4.9 ML per annum for a total of 13.4 ML over the life of the EMP. The allocation of water for different uses is 1 ML for civil construction (~ 0.33 ML per well pad), 10 ML for drilling (2.5 ML per well) and 2.4 ML for well completion (0.6 ML per well).

The cumulative impact associated with current and future groundwater takes were assessed in accordance with the NT Water Allocation Planning Framework, for the Arid Zone of the Northern Territory.<sup>1</sup> The percentage reduction in volume of aquifer storage from all current production bores within the boundary of the project area over 100 years was estimated at 0.6%, which is well below the 80% extraction limit of the total aquifer storage at the start of extraction. Impacts to surface groundwater dependent ecosystems in the project area was considered unlikely due to the depth (~ 100 m) of the target aquifer.

Greenhouse gas emissions were estimated using tools developed for the National Greenhouse and Energy Reporting Scheme. The total predicted emissions from the activities described above are estimated to total 221,089 tCO<sub>2</sub>-e over four years (2023 - 2026) and based on a 365-day testing period for each well. The bulk of the predicted emissions are generated during flaring (216,737 tCO<sub>2</sub>-e). Diesel combustion will contribute 3,458 tCO<sub>2</sub>-e during drilling and completion activities and land clearing will contribute 374 tCO<sub>2</sub>-e. Fugitive emissions from drill cuttings, completion and wastewater storage will produce 520 tCO<sub>2</sub>-e.

The NT EPA notes the requirement to assess all impacts and risks under the Regulations, which are to be managed to levels that are ALARP and acceptable. The NT EPA notes the NT capacity to regulate greenhouse gas emissions is established in the Regulations and the *Environment*

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<sup>1</sup> [https://depws.nt.gov.au/\\_data/assets/pdf\\_file/0011/476669/nt-water-allocation-planning-framework.pdf](https://depws.nt.gov.au/_data/assets/pdf_file/0011/476669/nt-water-allocation-planning-framework.pdf)

*Protection Act 2019*. The NT Government is working towards responding to the impacts of climate change through a suite of initiatives that are being implemented to achieve net zero greenhouse gas emissions by 2050.

To support the NT Government's commitment, the NT EPA has provided advice that the interest holder provide to DEPWS an annual report on the actual annual scope 1 and scope 2 greenhouse gas emissions, verified by a registered auditor and calculated in accordance with the National Greenhouse Energy Reporting Scheme (NGERS), versus predicted emissions in the EMP.

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

## **2.6 Principle of conservation of biological diversity and ecological integrity**

Site selection for conduct of the regulated activity was informed by a previous detailed ecological assessment, which covered a much larger area than that required to be cleared of vegetation.

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

The project footprint is located in the Finke bioregion, which has an arid to semi-arid climate. The landforms in this bioregion are comprised of a complex mix of low sandstone ranges, weathered tablelands and rounded metamorphic hills. The vegetation is dominated by hummock grasslands, acacia shrublands and saltbush/bluebush open shrublands. These vegetation communities are regionally extensive across the southern region of the Northern Territory.

The project footprint adjoins the Karinga Creek paleo-drainage system Site of Conservation Significance. This system provides vital migratory stop-over grounds for migratory shorebirds, including internationally significant records of Banded Stilt, Red-capped Plover, and Sharp-tailed Sandpiper. The Karinga Creek paleo-drainage system provides important temporary salt pans and lakes, which support a diverse assemblage of flora and fauna species in an otherwise arid landscape. No habitats of importance (salt lakes and clay pans) in the SOCS will be impacted by the activities in the EMP. There will be no well pads, gravel/borrow pits, campsites, or new access track construction within the SOCS.

The EMP identified 43 flora and fauna species listed as threatened under the Australian Government Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and/or the NT Territory Parks and Wildlife Conservation Act 1976 (TPWC Act). An assessment of the likelihood of occurrence within the project footprint indicated 12 listed threatened species that have a medium to high likelihood based on habitat suitability and previous records:

1. Grey Falcon (*Falco hypoleucos*)
2. Curlew Sandpiper (*Calidris ferruginea*)
3. Thick-billed Grasswren (*Amytornis Modestus indulkana*)
4. Plains Mouse (*Pseudomys australis*)
5. Plains-wanderer (*Pedionomus torquatus*)
6. Princess Parrot (*Polytelis alexandrae*)
7. Night Parrot (*Pezoporus occidentalis*)
8. Australian Painted Snipe (*Rostratula australis*)
9. Sandhill Dunnart (*Sminthopsis psammophila*)

10. Great Desert Skink/Mulyamiji (*Liopholis kintorei*)

11. Slater's Skink (*Liopholis slateri*)

12. Latz's Wattle/Tjilpi Wattle (*Acacia latzii*)

The remaining species (including all migratory species except for the Curlew Sandpiper) were assessed as having a low or no likelihood of occurring within the project footprint.

Due to the management strategies outlined in the EMP, the relatively small area of impact (approximately 38 ha), and the very large area of similar habitat within the region, it is unlikely that the regulated activity will pose a risk to the regional populations of identified threatened species. Impacts and risks to flora, fauna, and ecosystems have been mitigated in the EMP to an acceptable level.

The EMP outlines measures to minimise impacts on affected environmental values, including the management of threatening processes such as erosion, weeds and fire through implementation of existing management plans, monitoring and corrective actions. Where relevant, management measures for the aforementioned threatening process are consistent with the requirements of the Code, the *NT Land Clearing Guidelines*, the *Weed Management Planning Guideline: Onshore Petroleum Projects* and Commonwealth threat abatement plans and advice. Specific precautions to ensure interaction with wildlife is avoided are included in the EMP, including fencing treated effluent irrigation areas at the accommodation camp, installation of fauna ladders in pits and open-topped treatment tanks, and fencing and signposting of tank pads.

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

## **2.7 Principle of improved valuation, pricing and incentive mechanisms**

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

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

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

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

The interest holder has committed to identified measures to avoid or minimise impacts on environmental values, informed by a baseline studies, surveys and data from seismic acquisition in the area. 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:

- Movement of heavy and light vehicles, and machinery on public and private roads to and from the Project Area impacting public or private roads/infrastructure/landowners and community (e.g. degraded roads, dust),
- Impacts on land use practices (e.g. degraded land productivity) resulting from the spread of biosecurity risk material (e.g. weeds and seeds),



- Impacts to soil or surface water resulting from spills of fluid additives, chemicals, produced water or fuel, and
- Impacts to native vegetation from the spread of biosecurity material.

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 31 environmental risks identified by the interest holder, four have a residual risk rating of 3 after controls are applied, and these are considered ALARP and acceptable. The remaining 27 risks have a residual risk rating of 2 and the interest holder has included mitigations that can/will be implemented such that the risks will be managed at levels that are ALARP and acceptable.

Key risk mitigations include:

1. Movement of heavy and light vehicles, and machinery on public and private roads to and from the Project Area impacting public or private roads/infrastructure/landowners and community (e.g. degraded roads, dust). The risk ranking of '3' is based on the likelihood being considered 'likely', but the consequence of the event occurring being considered 'minor' and localised.
2. Impacts on land use practices (e.g. degraded land productivity) resulting from the spread of biosecurity risk material (e.g. weeds and seeds). The risk rating of '3' is based on the likelihood being considered 'possible', but the consequence of the event occurring being considered 'major'.
3. Impacts to soil or surface water resulting from spills of fluid additives, chemicals, produced water or fuel. The risk rating of '3' is based on the likelihood being considered 'possible', but the consequence of the event occurring being considered 'moderate'.
4. Impacts to native vegetation from the spread of biosecurity material. The risk rating of '3' is based on the likelihood being considered 'possible', but the consequence of the event occurring being considered 'major'.

The EMP also considers cumulative impacts to groundwater, flora and fauna, and greenhouse gases and concludes that these have been managed to ALARP and acceptable levels.

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

#### 4. Summary of monitoring and inspections

Table 2 provides a summary of the monitoring and inspections committed to in the EMP. These programs are used by the interest holder to meet prescribed requirements and to confirm the effectiveness of the mitigations committed to.

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

Aspect	Monitoring and inspections
Bushfire	<ul style="list-style-type: none"> <li>• Annual fire mapping</li> <li>• Weekly checks of NAFI for hotspots during operations as well as scanning the surrounds for smoke</li> </ul>
Chemicals	<ul style="list-style-type: none"> <li>• Monthly inspections of chemical, fluid, fuel, and additive storage areas</li> <li>• Weekly inspections of secondary containment during the dry season, daily inspections during the wet season</li> </ul>
Erosion and sediment control	<ul style="list-style-type: none"> <li>• Inspection pre and post significant rainfall events (if site access available) during operations by on-site personnel</li> <li>• Monthly monitoring of ESC measures during the wet season until commencement of site rehabilitation</li> </ul>

Aspect	Monitoring and inspections
	<ul style="list-style-type: none"> <li>Annually, at the end of the wet season</li> </ul>
Flora and fauna	<ul style="list-style-type: none"> <li>Ongoing bird or fauna mortality monitored daily during operations and weekly post operations</li> </ul>
Greenhouse gas emissions and fugitive emissions	<ul style="list-style-type: none"> <li>Leak detection tests - from seven days of commissioning a well and then six monthly until well decommissioning</li> <li>Emissions measured in accordance with Section 10.9.2 of Appendix 10 to the EMP</li> </ul>
Groundwater	<ul style="list-style-type: none"> <li>Monthly flow meter readings from each extraction bore during operations.</li> </ul>
Rainfall	<ul style="list-style-type: none"> <li>Weather forecast monitored weekly during the wet season while wastewater present in open-topped treatment tanks, drilling cutting sumps, or chemicals/wastewater is planned to be transported</li> </ul>
Stormwater	<ul style="list-style-type: none"> <li>Measured stormwater at pH 6.5-8.5 and EC &lt;2000 us/cm prior to release from site.</li> </ul>
Rehabilitation	<ul style="list-style-type: none"> <li>Annually, starting 12 months post cessation of activities, at the end of the local wet season until rehabilitation outcomes achieved</li> </ul>
Waste and wastewater	<ul style="list-style-type: none"> <li>Waste and wastewater recorded at the time of transport by on-site personnel</li> <li>Wastewater tracking reported to the Minister annually</li> </ul>
Drill cuttings, fluids and mud	<ul style="list-style-type: none"> <li>Drilling by-product pit and open topped treatment tank levels monitored daily, by on-site personnel or by on-line telemetry, during operations</li> <li>Post operations monitoring to be completed pre and post significant rainfall events by on-line telemetry</li> </ul>
Weeds	<ul style="list-style-type: none"> <li>Inspect all vehicles and machinery entering site and ensure they have a valid weed hygiene declaration</li> <li>Annual weed surveys conducted within four weeks of a significant rainfall event and at the completion of the project</li> <li>All new weed incursions reported to the NT Weed Management Branch</li> </ul>

## 5. Relevant matters raised through public submissions

Public consultation on the EMP was required under regulation 8A. The EMP was made available for public comment for 28 days from the 7 September to 5 October 2022, on the DEPWS and NT Government 'Have Your Say' websites. No public submissions were received.

## 6. 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 duration of the regulated activity, 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 Peak Helium Pty Ltd be approved, the Minister considers approval conditions to achieve the following outcomes:

1. Provision of quarterly timetable updates and weekly activity reports;
2. Submission of an annual performance report to DEPWS to demonstrate the interest holder has met environmental outcomes and complied with the requirements set out in the Regulations, the Code, the Ministerial conditions and the EMP;
3. Provision of an annual emissions report to DEPWS that summarises greenhouse gas emissions reported under the Australian Government's *National Greenhouse and Energy Reporting Act 2007* (verified by a registered auditor) versus the predicted emissions in the EMP, inclusive of any venting undertaken during conduct of the regulated activity;
4. Requiring a Greenhouse Gas Abatement Plan to be prepared, submitted and complied with if actual greenhouse gas emissions in any financial year exceed the threshold within the NTG Greenhouse Gas Emissions Management for New and Expanding Large Emitters Policy, such that residual greenhouse gas emissions unable to be avoided or mitigated, are offset in accordance with NT Government's commitment to net zero by 2050 and the draft NT EPA policy; and
5. Recording of all spills in an internal register that includes location, source and volume of the spill and corrective actions to ensure subject land is free from contamination to meet rehabilitation requirements.
6. Requiring incident reporting in alignment with the Regulations.



PAUL VOGEL AM  
CHAIRMAN

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

28 FEBRUARY 2023