



Application for Licence

Part V Division 3 of the *Environmental Protection Act 1986*

| | |
|-----------------------|---|
| Licence Number | L9430/2024/1 |
| Applicant | Onslow Iron Pty Ltd |
| ACN | 649 012 395 |
| File number | DER2024/000061 |
| Premises | West Pilbara Iron Ore Project M08/480, M08/484, G08/88, L08/67, L08/68, L08/69 and L08/181 CANE WA 6710 As defined by the premises maps attached to the issued licence |
| Date of report | 22 May 2024 |
| Decision | Licence granted |

MANAGER, RESOURCE INDUSTRIES
an officer delegated under section 20 of
the *Environmental Protection Act 1986* (WA)

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the operation of the premises. As a result of this assessment, licence L9430/2024/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary and overview of premises

Onslow Iron Pty Ltd (the applicant), as a wholly owned subsidiary of Mineral Resources Limited (MRL), has replaced API Management Pty Ltd (APIM) as the manager and agent on behalf to the Red Hill Iron Ore Joint Venture (RHIOJV).

The RHIOJV includes Australian Premium Iron Joint Venture (APIJV) participants (which are currently Aquila Steel Pty Ltd and AMCI (IO) Pty Ltd) for which APIM acts for and on behalf of; and MRL. Tenure M08/480, G08/88, L08/67, L08/68, L08/69 and L08/181 is held by Aquila Steel Pty Ltd and AMCI (IO) Pty Ltd. M08/484 is held by APIM and Red Hill Iron Limited.

APIM has given authority in relation to matters concerning the mining tenements which are the subject of the RHIOJV to MRL.

On 14 February 2024, the applicant submitted an application (MRL 2024) for a licence to the department under section 57 of the *Environmental Protection Act 1986* (EP Act). The application relates to the operation of the Accommodation Resort wastewater treatment plant (WWTP); an existing Construction Camp WWTP; and the discharge of blended effluent (treated effluent plus reverse osmosis (RO) brine) to the irrigation spray field at the premises. The premises is approximately 45 km south-west of Pannawonica.

The premises relates to Category 54 and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in licence L9430/2024/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in licence L9430/2024/1.

2.2.1 WWTPs

A 200 m³/day Membrane Bioreactor (MBR) WWTP has been constructed at the Accommodation Resort under works approval W6769/2023/1.

The department received the following documentation for the Accommodation Resort WWTP as per conditions under W6769/2023/1:

- Environmental Compliance Report received 15 June 2023 (MRL 2023a);
- Commissioning Report received 30 October 2023 (MRL 2023b); and
- Spray field expansion notice received 30 October 2023 (MRL 2023c).

The layout of the Accommodation Resort WWTP is shown in Figure 1.



Figure 1: Layout of Accommodation Resort WWTTP

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The applicant currently operates a 50 m³/day Sequence Batch Reactor (SBR) (Construction Camp WWTP) under Registration R2547/2023/1 which is to be transferred to this licence. The layout of this WWTP is shown in Figure 2.



Figure 2: Layout of the 50 m³/day Construction Camp WWTP

The expected treated effluent target concentrations for both WWTPs are shown in Table 1.

Table 1: Treated effluent target concentrations

| Parameter | Unit | Construction Camp WWTP - 50 m ³ /day Target Concentration | Accommodation Resort WWTP - 200 m ³ /day Target Concentration |
|--------------------------|------------|---|---|
| Biological Oxygen Demand | mg/L | <20 | <20 |
| Total Suspended Solids | mg/L | <30 | <30 |
| Total Nitrogen | mg/L | <30 | <20 |
| Total Phosphorus | mg/L | <8 | <3 |
| <i>E.coli</i> | cfu/100 mL | <1,000 | <1,000 |
| Residual free chlorine | mg/L | 0.2 – 2.0 | 0.2 – 2.0 |
| pH | pH units | 6.5 – 8.5 | 6.5 – 8.5 |

2.2.2 RO plants

A RO plant has been constructed at the Accommodation Resort and has capacity to produce up to 130 m³/day of RO brine. The RO permeate water is stored in the Treated Water/Permeate Tank for disinfection prior to being transferred to the treated effluent tank at the Accommodation Resort WWTP.

There is also a RO plant at the Construction Camp WWTP with the capacity to produce up to 34 m³/day of RO brine. RO brine water is transferred to the RO reject storage tank then flows via gravity into the SBR irrigation tank.

Water quality parameters expected from the RO brine as determined during RO simulations of the RO Plant at the Accommodation Resort are provided in Table 2.

Table 2: RO simulation data

| Analyte | Lower range | Upper range |
|--------------------------------------|-------------|-------------|
| Hardness as CaCO ₃ (mg/L) | 986.6 | 1,474.3 |
| Ca (mg/L) | 149.5 | 223.4 |
| Mg (mg/L) | 149.5 | 223.4 |
| Na (mg/L) | 276.6 | 375.4 |
| K (mg/L) | 7.2 | 9.2 |
| Sr (mg/L) | 0.1 | 0.1 |
| CO ₃ (mg/L) | 9.6 | 22.2 |
| HCO ₃ (mg/L) | 1,020.2 | 1,489.3 |
| SO ₄ (mg/L) | 152.5 | 229.2 |

| Analyte | Lower range | Upper range |
|-------------------------|-------------|-------------|
| Cl (mg/L) | 541.3 | 767.3 |
| F (mg/L) | 1.0 | 1.3 |
| OH (mg/L) | 0.0 | 0.0 |
| SiO ₂ (mg/L) | 49.8 | 70.0 |
| B (mg/L) | 0.6 | 0.6 |
| NH ₃ (mg/L) | 0.0 | 0.0 |
| TDS (mg/L) | 2,358.09 | 3,411.66 |
| pH (pH units) | 7.89 | 8.13 |

To allow for fluctuations in the raw water Total Dissolved Solids (TDS) levels, the applicant seeks approval for a maximum TDS concentration of up to 3,500 mg/L. *MRL 2024* states the proposed TDS value is below the ANZECC & ARMCANZ 2000 guidelines for tolerant crops (3,015 to 5,159 mg/L) and is therefore not expected to have a detrimental impact on vegetation health.

2.2.3 Blended effluent quality and soil sodicity risks

The blended effluent consists of a maximum 250 m³/day of treated effluent (200 m³/day from the Accommodation Resort WWTP; and 50 m³/day from the Construction Camp WWTP); and 164 m³ of RO brine (130 m³/day from the Accommodation Resort RO plant; and 34 m³/day from the RO plant at the Construction Camp WWTP), for a maximum combined irrigation discharge total of up to 414 m³/day. Table 3 shows the blended effluent results from the WWTPs from September 2023 to December 2023.

Irrigation using blended effluent has the potential to modify major cation ratios in the receiving soil, causing loss of soil structure and dispersion. This can occur where the irrigation water being discharged has a high proportion of sodium ions in relation to calcium and magnesium ions (commonly referred to as the Sodium Adsorption Ratio (SAR)), as well as a low electrical conductivity (EC).

SAR is an indicator of the suitability of water for use in irrigation. Generally, the higher the SAR the less suitable the water is for irrigation, depending on the water's electrical conductivity. The *Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3, Primary Industries* (ANZECC 2000) describes a relationship between SAR and EC that can be used to determine the suitability of an effluent for irrigation, whereby a high SAR may be tolerable if effluent also has a high EC. The relationship between SAR, EC and soil structural impacts is shown in Figure 3 below.

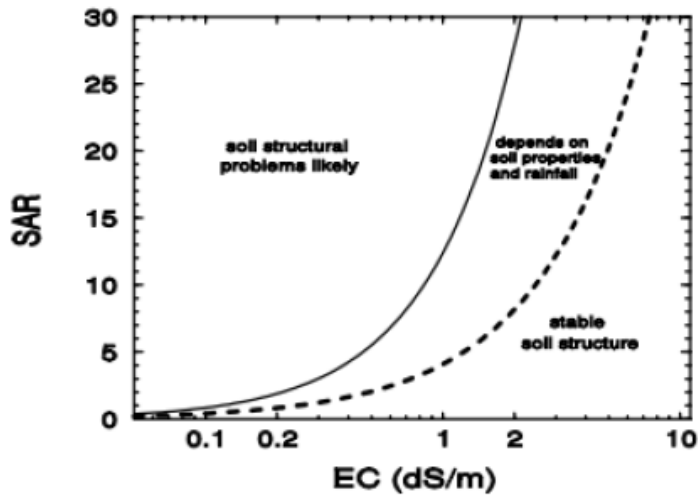


Figure 3: Relationship between SAR and EC of irrigation water for prediction of soil structural stability

A calculation for determining the SAR of an effluent is provided in the guideline document *Use of Effluent by Irrigation* (DEC NSW 2004), as depicted below:

$$\text{SAR} = \frac{\text{Na}^+}{\left[\frac{(\text{Ca}^{2+} + \text{Mg}^{2+})}{2} \right]^{0.5}}$$

Where:

Na = sodium ion concentration (conc.) (meq/L) = (mg/L in effluent) / 22.99

Ca = calcium ion conc. (meq/L) = (mg/L in effluent) / (40.08 x 0.5)

Mg = magnesium ion conc. (meq/L) = (mg/L in effluent) / (24.32 x 0.5)

Limited data has been provided on blended effluent quality (Table 3), therefore SAR has been calculated using the upper range of RO simulation data as outlined in Table 2 (for Na, Ca and Mg). This results in a calculated SAR value of 4.28. When compared with the EC of the discharge (lower and upper ranges from Table 2 and 3) and plotted on the graph shown in Figure 3, the blended effluent is not considered likely to cause soil structural problems overtime.

Table 3: Combined discharge laboratory results (treated effluent and RO brine)

| Date sampled | Total Phosphorus (mg/L) | Total Nitrogen (mg/L) | Biochemical Oxygen Demand (mg/L) | pH (pH units) | Total Suspended Solids (mg/L) | Residual Free Chlorine (mg/L) | <i>E.coli</i> (cfu/100 mL) | TDS (mg/L) |
|----------------------------------|-------------------------|-----------------------|----------------------------------|------------------|-------------------------------|-------------------------------|----------------------------|--------------|
| Construction Camp WWTP | | | | | | | | |
| Target | <8 | <30 | <20 | 6.5 – 8.5 | <30 | 0.2 – 2.0 | <1,000 | 3,500 |
| 16 Oct 2023 | 7.4 | 14 | 6.7 | 8.4 | - | >5 | <10 | - |
| 29 Oct 2023 | 7.6 | 1911 | <5.0 | 8.4 | <5.0 | - | <10 | 1,500 |
| 06 Nov 2023 | 12 | 26 | <5.0 | 8.4 | 7.0 | 0.45 | 20 | 990 |
| 11 Dec 2023 | 6.7 | 9.4 | 11 | 8.3 | 46 | - | <20 | 1,600 |
| Accommodation Resort WWTP | | | | | | | | |
| Target | <3 | <20 | <20 | 6.5 – 8.5 | <30 | 0.2 – 2.0 | <1,000 | 3,500 |
| 11 Sep 2023 | 2.7 | 11 | <5.0 | 8.6 | <5.0 | <0.10 | <10 | 1,400 |
| 16 Oct 2023 | 6.6 | 19 | <5.0 | 8.2 | - | 0.18 | <10 | - |
| 29 Oct 2023 | 6.7 | 21 | 21 | 8.0 | <5.0 | - | <10 | 1,300 |
| 06 Nov 2023 | 5.8 | 26 | - | 7.9 | <5.0 | 0.16 | <10 | 1,300 |
| 11 Dec 2023 | 4.6 | 14 | <5.0 | 8.6 | <5.0 | - | <10 | 1,500 |

Red text indicates exceedances of the targets

2.2.4 Sizing of irrigation spray field

Blended effluent from each WWTP is to be disposed of by spray irrigation to the 13.23 hectare (ha) irrigation spray field as shown in Figure 4.

A soil assessment was undertaken to investigate the irrigation spray field for potential future expansions of the WWTP and associate discharges. Findings indicated the irrigation spray field has gravelly silty sands, the soil is characterised by a moderate infiltration capacity and should be able to accommodate the infiltration of treated wastewater and rainfall (MRL 2024).

Given the soil investigation, Risk Category B soil type (WQPN 22) was considered appropriate. Expected nutrient loading rates are shown in Table 4.

Table 4: Nutrient application criteria

| Maximum Treated Effluent Throughput | Expected performance | Application rate for Category B soil ¹ | Expected annual nutrient loading rate | Recommended Minimum Spray field sizing |
|-------------------------------------|-------------------------|---|---------------------------------------|--|
| Construction Camp WWTP | | | | |
| 50 m ³ /day | 30 mg/L Total Nitrogen | 180 kg/ha/year | 182.5 kg/ha/year | 3.04 ha |
| | 8 mg/L Total Phosphorus | 20 kg/ha/year | 48.7 kg/ha/year | 7.30 ha |
| Accommodation Resort WWTP | | | | |
| 200 m ³ /day | 20 mg/L Total Nitrogen | 180 kg/ha/year | 486.7 kg/ha/year | 8.11 ha |
| | 3 mg/L Total Phosphorus | 20 kg/ha/year | 73.0 kg/ha/year | 10.95 ha |

Note 1: WQPN 22 – Table 2: Nutrient application criteria to control eutrophication risk.

The applicant has stated (MRL 2024) that it is noted that the spray field area is less than the recommended area (of 18.25 ha) required for the maximum phosphorus loading rate. But considers the total spray field size (of 13.23 ha) sufficient based on the following:

- that the soil has moderate infiltration capacity and the region has high evaporation rates;
- the area is sized adequately for water balance for net zero storage (considers the likely precipitation, evapotranspiration, percolation and retained rainfall in the area to ensure no additional storage would be needed during wet weather when effluent has the potential to run off instead of infiltrate);
- the risk of phosphorus leaching in the spray field area is considered very low due to the available retention in the underlying geology;
- the spray field sizing meets the minimum requirements for nitrogen loading;
- the depth to groundwater (> 15 m below ground level (mbgl)) therefore there is adequate vertical separation distance as required by *Australian Standard AS/NZS: 1547-2012 On-site domestic wastewater management*, to protect groundwater quality;
- the lack of any environmentally sensitive receptors nearby; and
- the nutrient loading results include both bioavailable and non-bioavailable species of nitrogen and phosphorus.

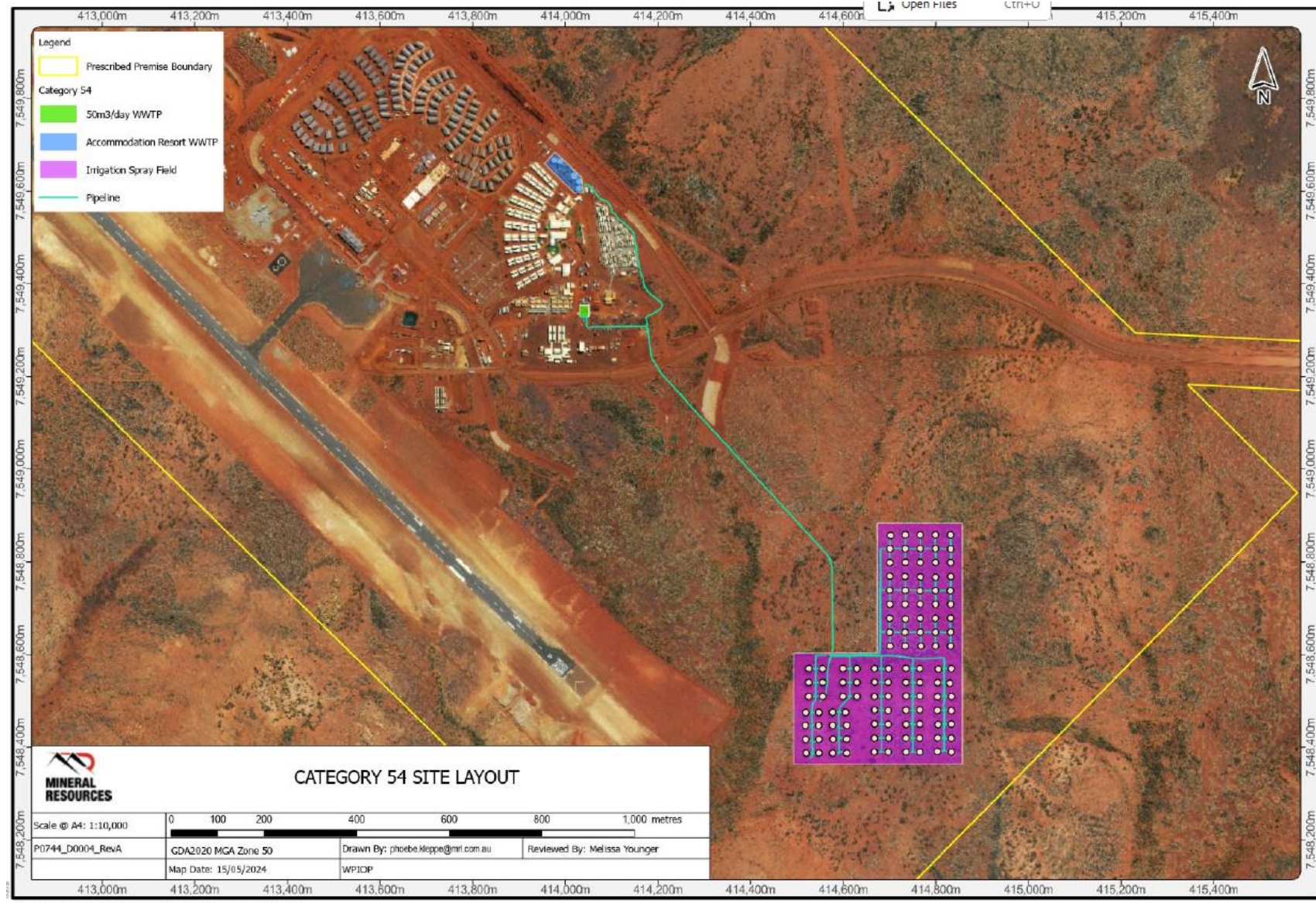


Figure 4: Location of WWTPs and Irrigation Spray Field

2.3 Other approvals

The West Pilbara Iron Ore Project (the Project) was originally proposed for development by APIM who procured environmental approval including those obtained under Part IV of the EP Act Ministerial Statement (MS) 1027, the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) EPBC 2009/4706 and the *Mining Act 1978* (Mining Act).

MRL have been “*authorised by the APIJV participants to act on their behalf in respect of statutory approvals and licences pertaining to the APIJV tenements*”, “*including corresponding and lodging documents with all Government departments in respect of those statutory approvals and licences.*” (MRL 2024).

2.3.1 EPBC Act (Cth)

The Project was deemed a Controlled Action (Referral No. 2009/4706) for potential impacts on listed threatened species and communities (Matters of National Environmental Significance (MNES)). As approved by this approval, three Management Plans for MNES species (Pilbara Olive Python, Northern Quoll and Pilbara Leaf-nosed Bat) and an offset strategy have been developed.

2.3.2 Aboriginal Heritage Act 1972 (AH Act) and Aboriginal Heritage Legislation Amendment and Repeal Act 2023

MRL 2024 states that ethnographic and archaeological surveys have been completed. As a result of ongoing consultation, several section 18 applications received Ministerial Consent with the endorsement of the Native Title Groups (NTG) and to disturb previously identified sites and places within and adjacent to the Project. Several areas within L08/68 have been salvaged with section 18 endorsement. Consultation with Traditional Owner Groups is ongoing to identify any future requirements.

MRL 2024 states that the NTG with interests over the Premises area is the Robe River Kuruma (RRK) [WCD2016/006].

2.3.3 Mining Act

Mining Proposal and Mine Closure Plan (REG ID 113633) has been approved by the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS), which authorises mining and associated activities within the approved disturbance envelope.

2.3.4 Part IV of the EP Act

The Project – Stage 1 Mine Area was assessed by the Environmental Protection Authority (EPA) and approved under MS 1027.

Conditions under MS 1027 relevant to this assessment include:

- Condition 6 Troglifauna – relating to defining the extent of the troglifauna habitat.
- Condition 8 Groundwater Drawdown – ensuring that the dewatering of groundwater for the implementation of the proposal does not cause the loss or decline in condition and health of the groundwater dependent vegetation.
- Condition 9 Surface Water and Significant Vegetation – ensuring that changes to surface water flows related to the proposal do not adversely affect any significant vegetation community, including Mulga vegetation.
- Condition 11 Trench Management relating to open trenches associated with construction and the burial of pipelines and/or cables.

In November 2020 an amendment via a section 46 application under the EP Act was sought.

As a result, MS 1203 was granted.

Conditions under MS 1203 relevant to this assessment include:

- Condition 7 Vegetation and Flora – relating to:
 - Surveys, restricting access and minimising disturbance of the *Triodia pisolitica* Priority Ecological Community (PEC).
 - Monitoring impacts due to dust deposition, saline water application for dust control, changed surface hydrology, weeds, fire, and feral species on the *Triodia pisolitica* PEC.
- Condition 12 Terrestrial Fauna ensuring there is no adverse impact to the structural integrity, microclimate or capacity to support ghost bats (*Macroderma gigas*) of the seven bat caves; and to avoid, where possible, and otherwise minimise direct and indirect impacts to the ghost bat within the development envelope.
- Condition 14 Aboriginal Cultural Heritage to avoid, where practicable / possible, and otherwise minimise direct and indirect disturbance to Aboriginal cultural heritage sites within and surrounding the development envelope; and ongoing consultation and engagement with Traditional Owners.
- Condition 15 Greenhouse Gas Emissions.

The applicant has stated (MRL 2024) that “Activities detailed within this licence application are consistent with the Proposal Elements detailed in MS1027 for the WPIOP-Stage 1 Mine Area.”

Requirements of MS 1027 and MS 1203 are not re-assessed in this decision report and will not be duplicated as conditions on the licence.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this decision report are detailed in Table 5 below. Table 5 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 5: Proposed applicant controls

| Emission | Sources | Potential pathways | Proposed controls |
|---|------------------------------|--------------------|---|
| Operation | | | |
| Sewage, partially treated sewage, RO brine, and/or nutrient rich treated effluent | Overtopping of holding tanks | Discharges to land | <ul style="list-style-type: none"> • WWTPs have systems to monitor tank volume levels, and an alarm system to notify the operator of high-risk volumes. • WWTPs regularly inspected and discharge suspended if it is discovered operating below the established standard. • WWTPs balance tank has contingency storage capacity for up to 1 day of normal flow if discharge is suspended. <p><u>Accommodation Resort WWTP</u></p> <ul style="list-style-type: none"> • Components of the WWTP fitted with alarms to warn of high-water levels in the tank or if a pump failure occurs. • Aerobic / MBR tank fitted with an emergency overflow which discharges to the screened influent lift station. • Sludge produced by the Accommodation Resort WWTP is collected in a sludge storage tank and then conveyed to the sludge dewatering system. The sludge cakes are to be stored (for less than 30 days) in a skip bin for disposal offsite by licensed contractors until the onsite Class II landfill facility is operational. <p><u>Construction Camp WWTP</u></p> <ul style="list-style-type: none"> • SBR system is fitted with an emergency overflow which discharges to the screened influent lift station. • Sludge produced by Construction Camp WWTP is stored in a sludge tank and collected for disposal offsite by licensed contractors. |
| | Pipeline leaks/spills | Discharges to land | <ul style="list-style-type: none"> • Pipelines visually monitored for leaks. • Treatment chemicals stored in impermeable bunds or stored in self-bunded tanks / containers. • Spill kits made available at the fuel / chemical storage locations and employees trained in their use. |
| Blended wastewater (treated effluent and RO brine), nutrient rich | Irrigation to spray fields | Discharges to land | <ul style="list-style-type: none"> • WWTPs operated in accordance with manufacturers specifications. • Flow meters on WWTPs. • Suitable storage maintained in the irrigation |

| Emission | Sources | Potential pathways | Proposed controls |
|-------------------------|---|--------------------|--|
| treated effluent | | | tank in case irrigation cannot occur for several days. <ul style="list-style-type: none"> • Irrigation spray field operated in accordance with manufacturers specifications. • Irrigation spray field fence, sign posted and includes a 5 m spray drift buffer. • Wastewater is evenly distributed over the irrigation spray field. • Wastewater applied to the irrigation spray field at a rate which avoids soil erosion and surface ponding. • RO plants fitted with flow meters. • WWTPs irrigation tank capacity allows ample time for blending of RO brine. • TDS is recorded at the RO reject tank to allow early indication of the reject water quality that is combining with treated effluent for irrigation. |
| Contaminated stormwater | Rainfall ingress to WWTP and spray fields | Overland runoff | Operational bunds, drains and road alignments leveraged to divert surface water flows within the Accommodation Resort area. |

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant’s employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

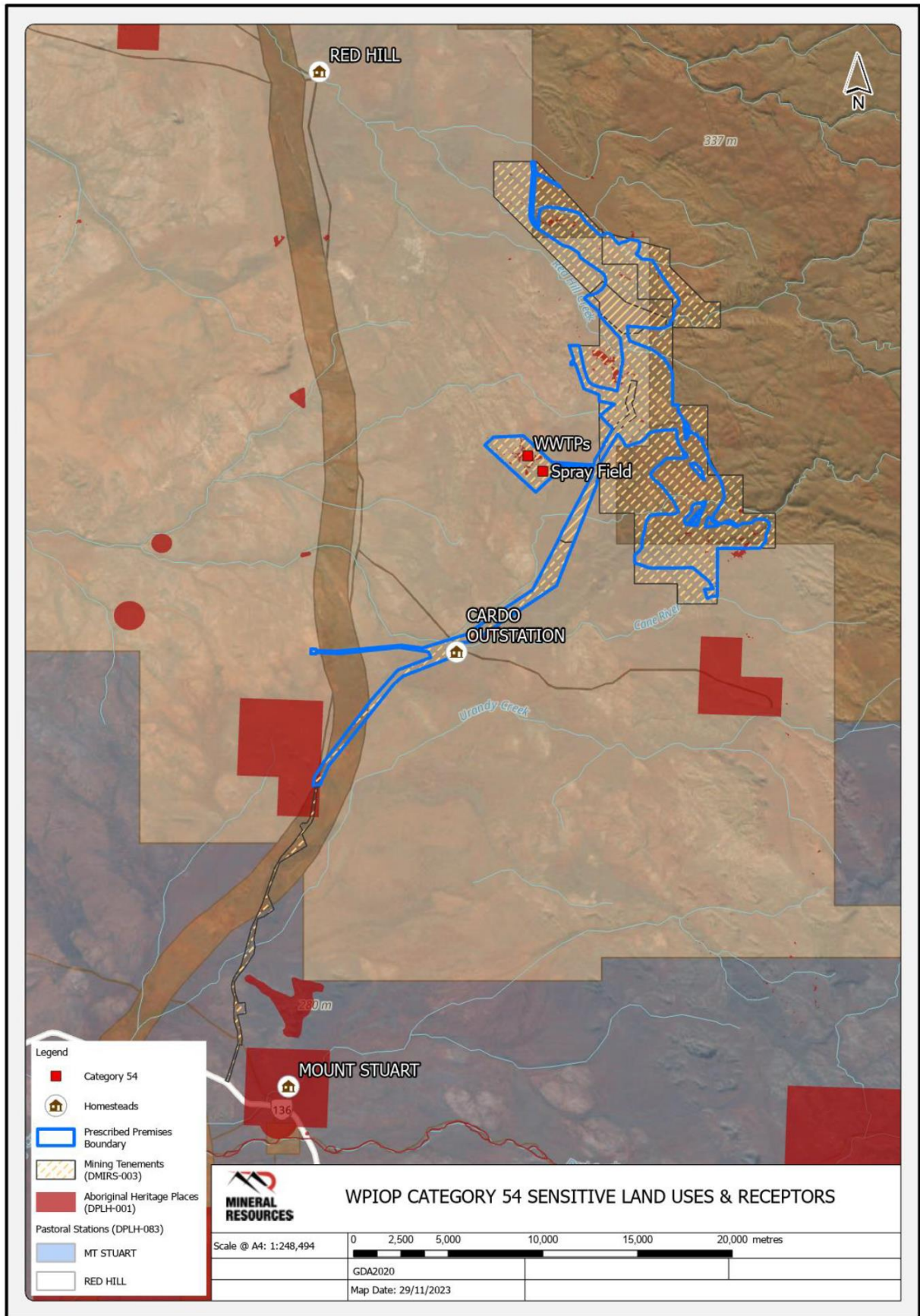
Table 6 and Figures 5 and 6 below provides a summary of potential environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

To note: Cardo Outstation is not a residential premises, the homestead is abandoned.

Table 6: Environmental receptors and distance from prescribed activity

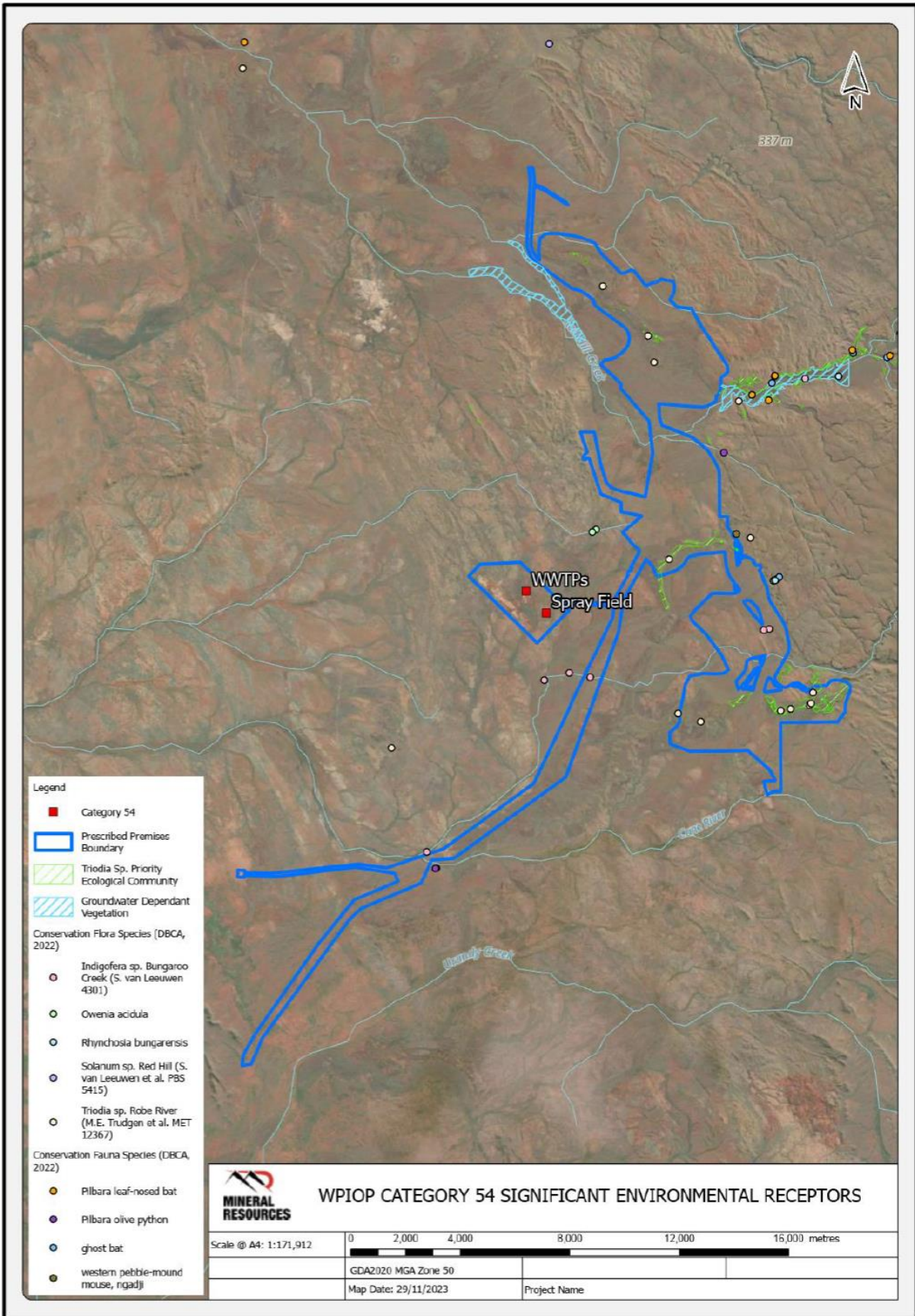
| Environmental receptors | Distance from prescribed activity |
|--|--|
| <i>Rights in Water and Irrigation Act 1914</i> | The premises is located within the Proclaimed Pilbara Groundwater Area and Surface Water Area. |
| Groundwater | <p>Across the Kens Bore Deposit water supply area, groundwater quality within the fractured Channel Iron Deposit and alluvial aquifers is fresh with pH ranging from neutral to slightly alkaline.</p> <p>Groundwater levels within the irrigation spray field are between 17 - 25 mbgl.</p> |
| Groundwater Dependent Ecosystems (GDEs) | Identified in two area proximal to the Kens Bore Deposit. Studies conducted by Astron Environmental (2010b; 2011 and 2012) determined that vegetation in these areas have a moderate to high dependence on groundwater, comprising of mainly <i>Melaleuca</i> and <i>Eucalyptus</i> species. |
| Surface water bodies | <p>The supporting document states the following:</p> <ul style="list-style-type: none"> • The project area is intersected by the ephemeral Red Hill Creek and Cane River, tributaries to the Red Hill Sub-Catchment (of the larger Robe River Catchment) and Cane River Catchments respectively that flow from the Hamersley Ranges. • The nearest portion of the Accommodation Resort spray field is 1.9 km from the Cane River. • Within the project area there are no known beneficial users of surface water. |
| Priority Ecological Communities | <p><i>Triodia pisolitica</i> (previously <i>Triodia</i> sp. Robe River) assemblages of mesa of the West Pilbara located within premises boundary.</p> <p>WWTPs approximately 4.5 km from nearest PEC.</p> |
| Priority Flora | Priority 3 - <i>Triodia pisolitica</i> found within the premises boundary. |
| Threatened / Priority Fauna | <p>The following have been found within the premises boundary:</p> <ul style="list-style-type: none"> • Northern Quoll (<i>Dasyurus hallucatus</i>) – Endangered; • Pilbara Olive Python (<i>Liasis olivaceus barroni</i>) – Vulnerable; • Pilbara Leaf-nosed Bat (<i>Rhinoicteris aurantia</i>) – Vulnerable; • Ghost Bat (<i>Macroderma gigas</i>) – Vulnerable; and • Western Pebble-mound Mouse (<i>Pseudomys</i> |

| Environmental receptors | Distance from prescribed activity |
|--------------------------------------|--|
| | <i>chapman</i>) – Priority 4. |
| Aboriginal Sites and Heritage Places | Located within the premises boundary. |
| Red Hill Pastoral Lease | The project occurs on the Red Hill Pastoral Lease. Land in this area is used for cattle grazing. |



Path: C:\Users\Deinnon.Horn\Documents\Kens Bore WWTP\KB WWTP Sensitive Land Uses and receptors.aprx

Figure 5: Distance to sensitive receptors



Path: C:\Users\Daimeon.Horn\Documents\Kens Bore WWTP\WB WWTP Significant Environmental Receptors.aprx

Figure 6: Distance to environmental receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 7.

Licence L9430/2024/1 that accompanies this decision report authorises emissions associated with the operation of the premises.

The conditions in the issued licence, as outlined in Table 7 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 7: Risk assessment of potential emissions and discharges from the premises during operation

| Risk events | | | | | Risk rating ¹ | Applicant controls sufficient? | Conditions ² of licence | Justification for additional regulatory controls |
|----------------------|--|--|---|----------------------|---|--------------------------------|---|--|
| Sources / activities | Potential emission | Potential pathways and impact | Receptors | Applicant controls | C = consequence L = likelihood | | | |
| Operation | | | | | | | | |
| WWTPs | Sewage partially treated sewage, RO brine, and/or nutrient rich treated effluent | Overtopping of sewage holding tanks resulting in sewage discharge Soil contamination, inhibiting vegetation growth and survival | Soil and vegetation adjacent to area of spill | Refer to Section 3.1 | C = Minor L = Unlikely Medium Risk | Y | Condition 3 – Infrastructure and equipment requirements | N/A |
| | | Pipeline leaks and spills resulting in sewage discharge Soil contamination, inhibiting vegetation growth and survival | Soil and vegetation at area of rupture | Refer to Section 3.1 | C = Slight L = Unlikely Low Risk | N | Condition 3 – Infrastructure and equipment requirements for the irrigation pipeline and RO brine pipeline <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> also apply | Inclusion of infrastructure and equipment requirements for the irrigation pipeline and RO brine pipeline to ensure they are impermeable and free of leaks and defects |
| | Blended wastewater (treated effluent and RO brine), nutrient rich treated effluent | Direct planned discharges to irrigation spray field Soil contamination and impacts to groundwater quality Seepage to soil potentially causing loss of soil structure and dispersion. | Soil and native vegetation Groundwater quality | Refer to Section 3.1 | C = Minor L = Possible Medium Risk | N | Condition 1 – Waste acceptance Condition 2 – Waste processing Condition 3 – Infrastructure and equipment requirements Condition 4 – Authorised discharge points Condition 5 – Irrigation emission limits Condition 7 – Emissions and discharge monitoring | Inclusion of irrigation emission limits for: <ul style="list-style-type: none"> TDS (3,500 mg/L) Annual loading rates for total nitrogen (180 kg/ha/year) and total phosphorus (20 kg/ha/year) in line with WQPN 22 for Category B soils |
| | | Contaminated stormwater | Overland runoff | Soils | Refer to Section 3.1 | C = Slight | Y | No conditions imposed <i>Environmental Protection</i> |

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| Risk events | | | | | Risk rating ¹ | Applicant controls sufficient? | Conditions ² of licence | Justification for additional regulatory controls |
|----------------------|--------------------|-------------------------------|------------------------------------|--------------------|-----------------------------------|--------------------------------|---|--|
| Sources / activities | Potential emission | Potential pathways and impact | Receptors | Applicant controls | C = consequence L = likelihood | | | |
| | | Rainfall ingress | Vegetation Surface water bodies | | L = Possible Low Risk | | <i>(Unauthorised Discharges) Regulations 2004</i> apply | |

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 8 provides a summary of the consultation undertaken by the department.

Table 8: Consultation

| Consultation method | Comments received | Department response |
|--|---|--|
| Application advertised on the department's website on 08 April 2024 | None received | N/A |
| Local Government Authority (Shire of Ashburton) advised of proposal on 03 April 2024 | None received | N/A |
| Department of Health (DoH) advised of proposal 03 April 2024 | None received | N/A |
| Robe River Kuruma Aboriginal Corporation advised of proposal on 03 April 2024 | None received | N/A |
| Applicant was provided with draft documents on 08 May 2024 | <p>On 16 May 2024 the applicant provided responses to the department's request for further information within the draft package</p> <p>The applicant waived the remaining comment period and did not provide comments on the draft Licence or Decision Report</p> | Documents updated accordingly to incorporate the applicant's responses |

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) (ANZECC & ARMCANZ 2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality Guidelines.
2. Australian and New Zealand Environment and Conservation Council (ANZECC) 2000. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3, Primary Industries*. Canberra, Australia.
3. Department of Environment and Conservation New South Wales (DECNSW) 2004. *Environmental Guidelines: Use of effluent by irrigation*. Sydney, New South Wales
4. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
5. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
6. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
7. Mineral Resources Limited (MRL) 2023a *RE: Works Approval (W6769/2023/1) – Compliance Report, West Pilbara Iron Ore Project, Accommodation Resort Sewage Facility (Category 54)*, dated 15 June 2023 (DWER reference DWERDT793059).
8. MRL 2023b *RE: Works Approval (W6769/2023/1) – Environmental Audit of Commissioning Report, Accommodation Resort Sewage Facility (Category 54)*, dated 19 October 2023 (DWER reference A2212423).
9. MRL 2023c *RE: Works Approval (W6769/2023/1) – Compliance Report, West Pilbara Iron Ore Project, Accommodation Resort Sewage Facility (Category 54)*, dated 30 October 2023 (DWER reference DWERDT858650).
10. MRL 2024, *Licence application supporting document Part V Licence Application – WPIOP Category 54 West Pilbara Iron Ore Project (Version 0)*, dated 14 February 2024 (DWER reference DWERDT905316).
11. Water Quality Protection Note (WQPN) 22, *Irrigation with nutrient-rich wastewater*, Department of Water, July 2008.