



## Application for Works Approval

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

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<b>Works Approval Number</b>	W6389/2020/1
<b>Applicant</b>	Polaris Metals Pty Ltd
<b>ACN</b>	085 223 570
<b>File Number</b>	DER2020/000173
<b>Premises</b>	Parker Range Iron Ore Project Parker Range Road, Marvel Loch M77/741-I, M77/742 and M77/764. Shire of Yilgarn
<b>Date of Report</b>	11 August 2020
<b>Decision</b>	Works approval granted

**A/Manager, Resource Industries  
REGULATORY SERVICES**

*An officer delegated by the CEO under section 20 of the EP Act*

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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 construction and of the Premises. As a result of this assessment, Works Approval W6389/2020/1 has been granted.

## 2. Scope of assessment

### 2.1 Regulatory framework

In completing the assessment documented in this Decision Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://www.der.wa.gov.au>.

### 2.2 Application summary and overview of Premises

On 9 April 2020, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to an evaporation pond, modular crushing and screening plant and landfill at the Premises. The Premises is approximately 52 km south of Southern Cross and 15 km south-east of Marvel Loch.

The Premises relates to the categories and assessed production/design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in Works Approval W6389/2020/1. The infrastructure and equipment relating to the premises categories and any associated activities which the department has considered in line with *Guidance Statement: Risk Assessments* (DER 2017) are outlined in Works Approval W6389/2020/1.

### 2.3 Environmental Protection Biodiversity and Conservation Act 1999 (EPBC) and Part IV of the EP Act

Two Ministerial Statements have been issued in relation to the Premises:

- MS 892 specifies requirements relating to the management of impacts on conservation significant flora, including monitoring health and abundance of declared rare flora *Isopogon robustus* and Priority 1 Flora *Lepidosperma sp. Mt Caudan* and management of conservation significant fauna, including malleefowl, western rosella and white-browed babbler. Monitoring of ambient PM10 concentrations at the sensitive receptor (located at 698176E and 6533022N on Liddell Road) and management of dust complaints is also required under MS 892.

A section 45C amendment to MS 892 was approved on 26 June 2020 and authorised abstraction of up to 1GL/year of groundwater and disposal of excess mine dewater to an evaporation pond over the life of the project.

- MS 1060 approved on 13 July 2017 specified a time limit for proposal implementation requiring the proponent to not commence implementation of the proposal after 12 April 2022.

An approval under the EPBC Act (EPBC 2010/5435) was also issued for the Premises. The EPBC approval contains requirements in relation to undertaking baseline flora surveys to investigate local population(s) of *Isopogon robustus* and submission of a monitoring plan. A Malleefowl Management Plan is also required under the EPBC approval.

This risk assessment has not reassessed matters which have been previously considered under the EP Act Part IV approval process and the EPBC approval process.

### **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 *Guidance Statement: Risk Assessments* (DER 2017).

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 construction and time limited operations which have been considered in this Decision Report are detailed in Table 1 below. Table 1 also details the proposed control measures the applicant has proposed to assist in controlling these emissions, where necessary.

**Table 1: Proposed applicant controls**

<b>Emission</b>	<b>Sources</b>	<b>Potential pathways</b>	<b>Proposed controls</b>
<b>Construction – Evaporation Pond, Modular Crushing and Screening Plant and Landfill</b>			
<i>Dust</i>	<i>Fugitive Dust as a result of clearing and earthworks associated with construction, vehicle movements, lift-off from stockpiles earthworks etc.</i>	<i>Air/windborne pathway</i>	<i>Water trucks will be utilised on roads and during construction activities to control dust as required. Daily visual inspections during construction activities will be undertaken to identify excessive dust generation. Implementation of speed limits to reduce dust generation. Any dust complaints will be recorded, investigated and remedial action undertaken.</i>
<i>Noise</i>	<i>Equipment, machinery and vehicles used during construction works</i>	<i>Air/windborne pathway</i>	<i>No specific controls specified. Applicant has committed that operations will comply with the Environmental Protection (Noise) Regulations 1997.</i>
<i>Light emissions</i>	<i>Equipment, machinery and vehicles used during construction works</i>	<i>Air</i>	<i>Construction activities will be during day-shift only.</i>
<i>Stormwater</i>	<i>Sediment laden stormwater from construction areas</i>	<i>Surface runoff and infiltration</i>	<i>Diversion drain and road constructed immediately to protect evaporation pond, site office and pits.</i>
<i>Spills</i>	<i>Hydrocarbons and chemicals</i>	<i>Surface runoff and infiltration</i>	<i>None specified</i>
<b>Commissioning and Time-limited Operations – Evaporation Pond</b>			
<i>Hypersaline water overtopping from evaporation pond</i>	<i>Hypersaline water within the evaporation pond</i>	<i>Flow over the crest of the pond</i>	<i>Design of Evaporation Pond has taken into account the dewatering requirement and the 1 in 100 year, 72-hour AEP event. Maintenance of a 1m freeboard in the turkey's nest and evaporation pond. The crest at the top surface of the evaporation pond and turkeys nest embankment will be graded inwards to drain water into the evaporation pond. Daily inspections of evaporation pond and turkey's nest to ensure adequate freeboard is maintained. A visual marker on the dam wall will be incorporated into the design. Spills will be controlled at the source, contained and cleaned up as soon as they occur. Contaminated material shall be disposed at a licensed facility or within the WRD. Select personnel shall be trained in spill response procedures. Evaporation pond (and turkey's nest) will be HDPE lined. Establishment of monitoring bores surrounding the evaporation pond and ongoing monitoring from these bores. Minimum of once daily inspection of evaporation pond during operation.</i>
<i>Hypersaline leakage from evaporation pond</i>	<i>Hypersaline water within the evaporation pond</i>	<i>Seepage through the liner system</i>	<i>At least daily inspection whilst operating for visual integrity and leak assessment and a written log maintained with each inspection signed off by the person who conducted the inspection. Groundwater monitoring bores (piezometers) sited in accordance with WQPN #30: Groundwater Monitoring Bores ("Siting of monitoring bores" section). Groundwater monitoring bores surveyed to allow the ground level (to AHD) at each location to be accurately determined. Water levels will be checked in the monitoring bores on a monthly basis during time-limited operations. Quarterly inspection of embankment integrity.</i>

<b>Emission</b>	<b>Sources</b>	<b>Potential pathways</b>	<b>Proposed controls</b>
<i>Hypersaline leakage and/or rupture from pipelines and pumping equipment</i>	<i>Hypersaline water within the pipeline</i>	<i>Water from the pipeline and/or pumps directly to the ground</i>	<p><i>Daily visual inspections of production bores, pumping equipment, and dewatering pipelines will be undertaken.</i></p> <p><i>Pipelines will be inspected at the start of each 12 hour shift.</i></p> <p><i>Pipeline corridors have also been designed to be adjacent to common use roads, haul roads and operational areas where possible, so that potential leaks can be detected opportunistically by operational personnel during the time between inspections.</i></p> <p><i>Flow meters installed to monitor volumes discharged.</i></p> <p><i>All pipes shall incorporate the following design criteria as a minimum:</i></p> <ul style="list-style-type: none"> <li><i>a) Constructed of polyethylene (or alternative corrosive resistant material).</i></li> <li><i>b) Isolation valves installed at regular intervals.</i></li> <li><i>c) Above ground pipelines to run within a suitably designed v-drain or bunded corridor, with appropriately located sumps at low points along the route to contain any accidental discharge (Figure 4).</i></li> </ul> <p><i>Pipelines will be hydrotested prior to commissioning to ensure pipeline integrity.</i></p> <p><i>Pipeline system fitted with pressure indicators where:</i></p> <ul style="list-style-type: none"> <li><i>a) At high pressure the pump will shut down ensuring the pipeline not over pressurised.</i></li> <li><i>b) Where low pressure is observed for a determined period, pump will be programmed to shut down to recognise potential leak and minimise volume of leak.</i></li> </ul> <p><i>Pipelines shall have suitable vehicle access along the entire route to allow for inspection and maintenance.</i></p> <p><i>Pipelines to run above ground where ever possible.</i></p> <p><i>Where practicable existing cleared areas will be utilised to run the pipeline.</i></p> <p><i>Where a pipeline crosses a transport corridor, pipeline is to be run within a culvert suitably designed to withstand all potential traffic using the crossing. Culverts to be designed in a way to channel any potential water leaks to the associated drainage infrastructure so as not to affect the structural integrity of the transport crossing.</i></p> <p><i>Where pipelines are underground, the pipeline shall be clearly signposted indicating nature of pipeline and approximate location underground. Line of site to be maintained between each signpost.</i></p>
<i>Stormwater</i>	<i>Sediment laden stormwater from evaporation pond walls</i>	<i>Surface flow paths</i>	<p><i>A diversion drain and road will be constructed immediately upstream of the evaporation pond to divert surface water runoff away from the structure.</i></p> <p><i>A perimeter drain (2 m wide x 1 m deep) and sump system will be constructed downstream of the embankment to collect rainfall runoff water shedding from the outer surface of the embankments.</i></p>
<b>Commissioning and Time-limited Operations – Modular Crushing and Screening Plant</b>			
<i>Dust</i>	<i>Dust directly emanating from modular crushing and screening plant</i>	<i>Air/windborne pathway</i>	<p><i>Crusher installed with fine mist sprays to reduce dust generation.</i></p> <p><i>Dust suppression sprinklers and sprays will be installed at the ROM feed hopper, transfer points and on the product stockpile to control levels of fugitive dust.</i></p> <p><i>Maximum moisture levels of the final product will be controlled to maintain operational efficiency from road haulage vehicles.</i></p> <p><i>Water trucks will be used around the plant and on the ROM and roads as required.</i></p> <p><i>Daily inspection of plant area will include observation of dust assessment and walking of plant site perimeter.</i></p> <p><i>Water will be added to the process to achieve approximately 8% moisture content to minimise dust generation.</i></p>
<i>Dust</i>	<i>Dust directly emanating from the product stockpile</i>	<i>Air/windborne pathway</i>	<p><i>Dust suppression sprinkler and sprays to control levels of fugitive dust.</i></p> <p><i>Maximum moisture levels of the final product will be controlled to maintain operational efficiency from road haulage vehicles.</i></p>
<i>Noise</i>	<i>Noise directly emanating from modular crushing and screening plant</i>	<i>Air/windborne pathway</i>	<p><i>Operations will comply with the Environmental Protection (Noise) Regulations 1997.</i></p>

Emission	Sources	Potential pathways	Proposed controls
Atmospheric pollutants	Poorly maintained equipment	Air/windborne pathway	Ensuring motorised equipment used on site are regularly serviced and maintained.
Light	Light spill generated during operation of plant	Air	Lighting design in areas that require night lighting will ensure light is directed to work areas and minimal light spill occurs (including use of directional lighting and covered lenses).
Contaminated stormwater	Runoff from hydrocarbon and chemical store areas Spills	Movement of contaminated surface water runoff to land and infiltration to soil	<p>Bund will be constructed around the plant area.</p> <p>All hydrocarbons and dangerous goods on site will be stored and handled according to the applicable sections of the Dangerous Goods Safety Act 2004, Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007 and Dangerous Goods Safety (Explosives) Regulations 2007.</p> <p>Chemical storage areas will be bunded with a containment capacity equivalent to 110% of the capacity of any tank and 25% of the total capacity of an interlinked system.</p> <p>Regular inspection of bunded areas to ensure capacity is maintained.</p> <p>Surface water management infrastructure as required.</p> <p>Washdown effluents will report to oil/water interceptor/separator.</p> <p>Spillages will be cleaned up and disposed of as per appropriate MSDS, relevant environmental and safety guidelines and the site's environmental procedure.</p> <p>Absorbent materials will be used under machinery which is likely to leak oil while under service or repair in the workshop or on standdown.</p> <p>Any release which is likely to cause pollution or environmental harm will be reported to the DWER in accordance with Section 72 of the EP Act</p>
<b>Commissioning and Time-limited Operations –Landfill</b>			
Release of landfill waste outside of the prescribed premise	Waste initially deposited within the landfill	Air/windborne pathway	<p>Fence located around the boundary of the landfill and secured by lockable gate.</p> <p>Feral fauna management controls as required.</p> <p>Disposal of waste in defined trench within an area enclosed by earthen bunds.</p> <p>Disposal of domestic waste at the designated domestic landfill.</p> <p>Domestic waste will be covered with 300 mm of inert and incombustible material a minimum of once per week during operations.</p> <p>Waste with the potential to become windblown will be covered as soon as practicable after disposal.</p> <p>Any windblown waste that escapes from landfill will be collected as and when required and returned to the active tipping area.</p> <p>No burning of putrescible wastes at landfill site. Burning of appropriate material for emergency training to be completed at a dedicated training location.</p>
Leachate from landfill	Movement of contaminated surface water runoff to land and infiltration to soil	Seepage through the walls and/or base of the landfill	<p>Earthen bunding located around the perimeter of the landfill to prevent surface water inflows.</p> <p>Contaminated, hazardous and hydrocarbon wastes shall be collected by a licensed waste contractor for disposal off site.</p> <p>Minor quantities of hydrocarbon contaminated soil may be treated at the on-site bioremediation site which will be established within the indicative landfill location as represented in Schedule 1 Figure 1. Treated contaminated soil meeting waste acceptance criteria specified for Class II landfills will be disposed of in the waste dump/ landfill area.</p> <p>Tipping area is within 35m from the fence surrounding the landfill site and 100m from any surface water body</p> <p>A minimum separation distance between the base of the landfill and the highest groundwater level shall not be less than three metres (local groundwater &gt;60m bgl)</p>
Odour from landfill	Waste within the landfill	Air/windborne pathway	<p>Fence located around the boundary of the landfill and secured by lockable gate.</p> <p>Covering of trenches in domestic landfill undertaken a minimum of once per week.</p> <p>Feral fauna management controls as required.</p> <p>Disposal of waste in defined trench within an area enclosed by earthen bunds.</p> <p>Disposal of domestic waste at the designated domestic landfill.</p> <p>Domestic waste will be covered with 300 mm on inert and incombustible material a minimum of once per week during operations.</p> <p>No burning of putrescible wastes at landfill site. Burning of appropriate material for emergency training to be completed at a dedicated training location.</p>



Emission	Sources	Potential pathways	Proposed controls
<i>Contaminated stormwater</i>	<i>Rainfall generated stormwater within landfill</i>	<i>Surface flow and infiltration</i>	<i>Diversion drain to be constructed on the western side of Parker Range Iron Ore Plant will divert uncontaminated surface water flows around the Parker Range Iron Ore Plant. Earthen bunding located around the perimeter of the landfill to prevent surface water inflows.</i>



### 3.1.2 Receptors

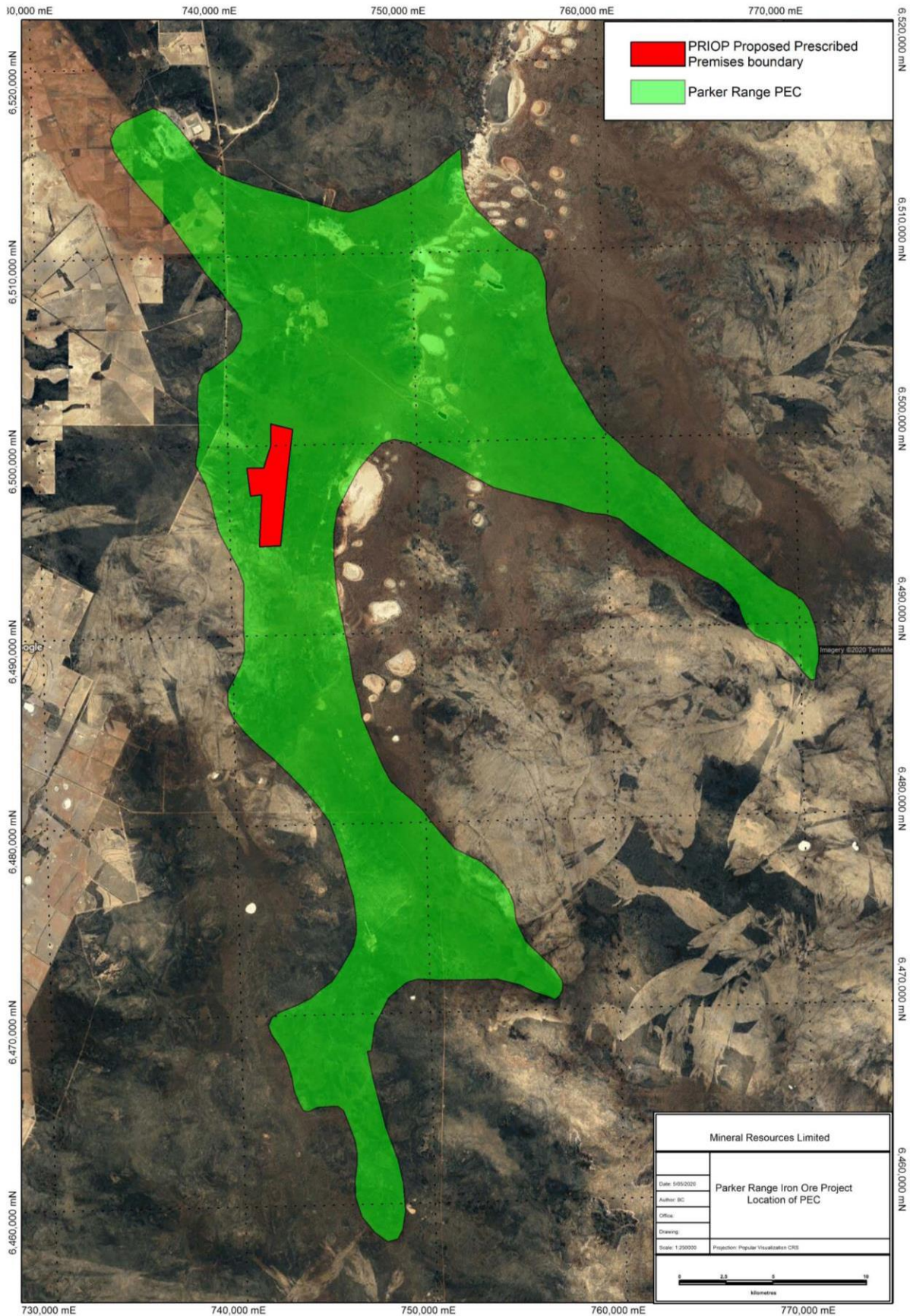
In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors and contractors of the applicant's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Information presented in Table 2 complemented with Figure 2 through to Figure 4 following provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (in accordance with *Guidance Statement: Environmental Siting* (DER 2016)).

**Table 2: Sensitive human and environmental receptors and distance from prescribed activity**

Human receptors	Distance from prescribed activity
<i>Rural Residential premises</i>	<i>Located approximately 14km north of the Parker Range Iron Ore Project (towards Marvel Loch). Approximately 12.7km from premises boundary – see Figures 3 and 4.</i>
Environmental receptors	Distance from prescribed activity
<i>Parker Range Priority Ecological Community (P3)</i>	<i>Located within ecological community (refer to Figure 1)</i>
<p><i>Threatened flora species Isopogon robustus recorded southeast and southwest of the Parker Range Iron Ore Project area.</i></p> <p><i>Priority flora species recorded in the disturbance footprint:</i></p> <p><i>Chamelaucium sp. Parker Range (B.H. Smith 1255) (P1);</i></p> <p><i>Lepidosperma sp. Parker Range (N. Gibson &amp; M. Lyons 2094) (P1);</i></p> <p><i>Lepidosperma sp. Mt Caudan (N. Gibson &amp; M. Lyons 2081) (P1);</i></p> <p><i>Westringia acifolia (P1);</i></p> <p><i>Microrys sp. nov (undescribed)</i></p> <p><i>Acacia concolorans (P2);</i></p> <p><i>Baekkea grandibracteata subsp. Parker Range (P3);</i></p> <p><i>Hakea pendens (P3);</i></p> <p><i>Cryptandra crispula (P3);</i></p> <p><i>Rinzia torquata (Priority 3);</i></p> <p><i>Lepidosperma ferricola (Priority 3);</i></p> <p><i>Verticordia mitoides (Priority 3), and</i></p> <p><i>Banksia shanklandiorum (P4).</i></p>	<p><i>Priority flora species are recorded in the disturbance footprint</i></p> <p><i>Threatened flora species Isopogon robustus is:</i></p> <p><i>&gt; 600m south of evaporation pond</i></p> <p><i>&gt; 1.5 km south of crushing/screening plant</i></p> <p><i>&gt; 600m south of landfill</i></p> <p><i>The minimum distance from the proposed dewatering infrastructure to populations of Isopogon robustus is &gt;900 m.</i></p>

<p><i>Threatened/Priority fauna species:</i></p> <p><i>Malleefowl</i>– covered as part of MS892 and EPBC 2010/5435.</p> <p><i>Western Rosella (Platycercus icterotis xanthogenys)</i> – Priority 4.</p> <p><i>White-browed Babbler (Pomatstomus superciliosus)</i></p>	<p><i>Malleefowl and Western Rosella (Platycercus icterotis xanthogenys)</i> recorded in the Parker Range Iron Ore Project area</p>
<p><i>Department of Biodiversity, Conservation and Attractions managed nature reserves</i></p>	<p><i>Jilbadji Nature Reserve - 20 km east and 20 km south of the Parker Range Iron Ore Project site</i></p> <p><i>Yellowdine Nature Reserve – 29 km north of the Parker Range Iron Ore Project site</i></p> <p><i>Wockalarry Nature Reserve – 30 km north-northwest of the Parker Range Iron Ore Project site</i></p> <p><i>Frog Rock Nature Reserve – 31 km northwest of the Parker Range Iron Ore Project site</i></p>



**Figure 1: Location of Parker Range PEC in relation to the prescribed activities.**



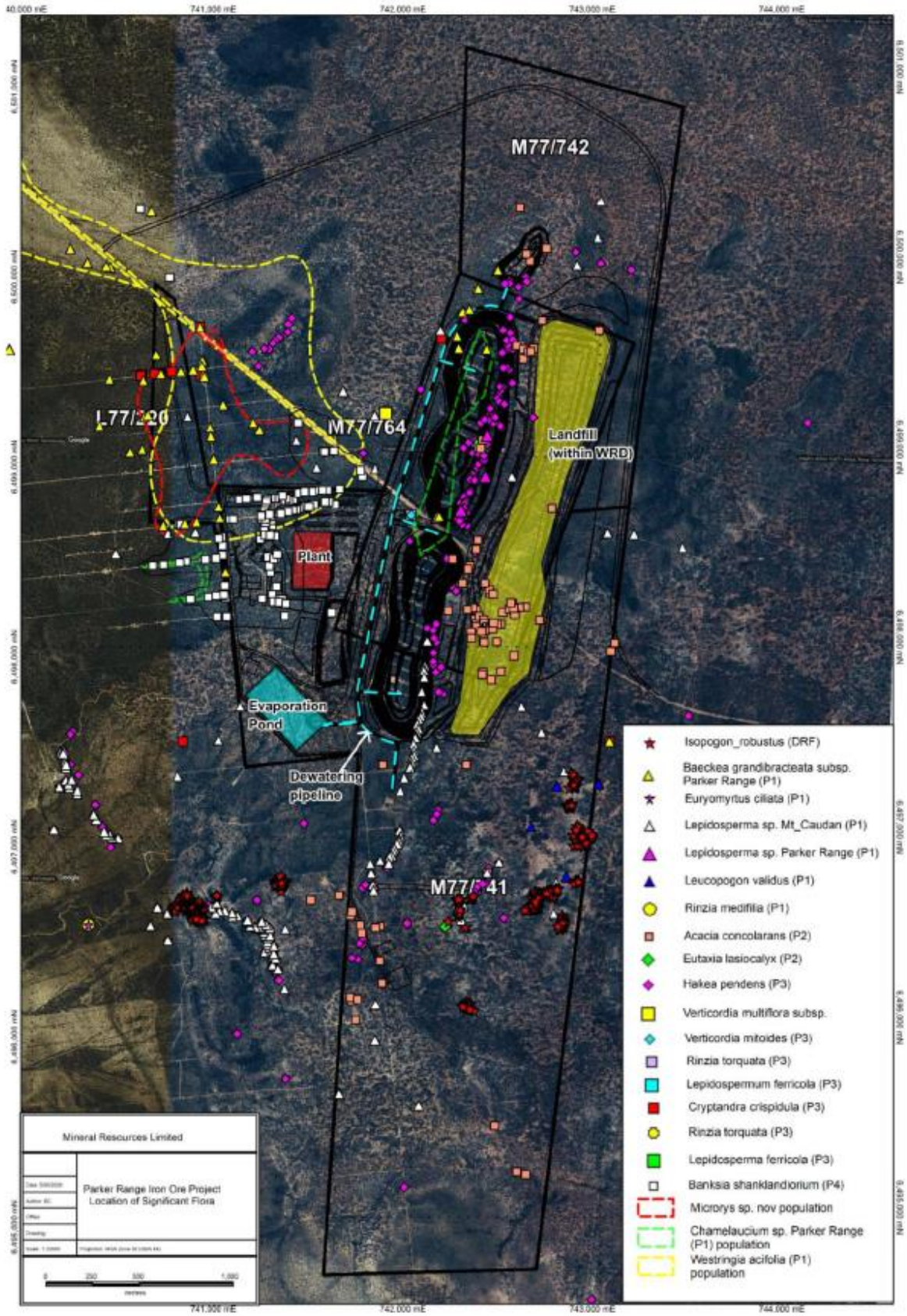
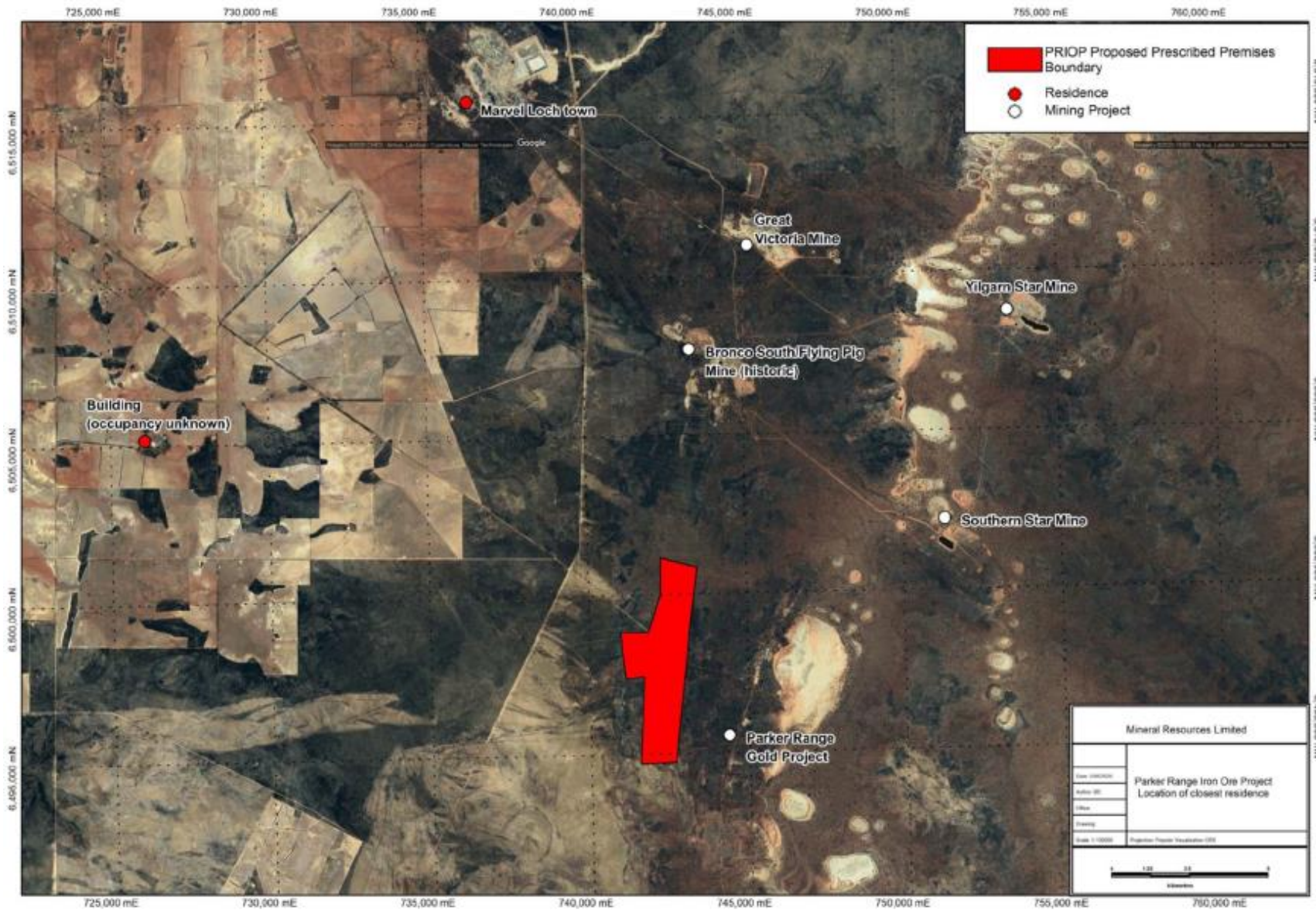


Figure 2: Location of significant flora in relation to the prescribed activities.



**Figure 3: Distance to sensitive receptors including regional centre of Southern Cross**





**Figure 4: Location of adjacent residential receptors**

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IR-T13 Decision Report Template (short) v1.0 (May 2020)

## 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are incomplete 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 works approval 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 3.

Works Approval W6389/2020/1 that accompanies this Decision Report authorises construction and time-limited operations. The conditions in the issued Works Approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the Premises i.e. operation of the evaporation pond, crushing and screening, and landfill activities. A risk assessment for the operational phase has been included in this Decision Report, however licence conditions will not be finalised until the department assesses the licence application.



**Table 3: Risk assessment of potential emissions and discharges from the Premises during construction, commissioning and time limited operation**

Risk Event					Risk rating <sup>1</sup>	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
<b>Construction</b>								
Construction of evaporation pond (including stormwater diversion channel and road), modular screening and crushing plant, and landfill.	Dust /Noise	Air/windborne pathway causing impacts to health and amenity	Residences ~14km north	Refer to Section 3.1	C = Minor L = Unlikely <b>Medium Risk</b>	Y	Condition 1	N/A
	Sediment laden stormwater	Surface flow	Flora	Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	N	Condition 1	Diversion drain and road to be installed prior to large areas of surface disturbance to minimize surface runoff. The diversion drain and road must be sufficiently sized prior to large areas of disturbance to reduce risk of sediment laden water impacting vegetation.
	Light	Air	Residences ~14km north	Refer to Section 3.1	C = Slight L = Unlikely <b>Low Risk</b>	Y	No conditions specified. General provisions of the EP Act apply.	N/A
<b>Commissioning and Time Limited Operations – Evaporation Pond</b>								
Hypersaline water stored within the evaporation pond	Hypersaline water	Overtopping of evaporation pond/ pipeline failure/ burst	Soil Flora	Refer to Section 3.1	C = Moderate L = Possible <b>Medium Risk</b>	Y (added specific requirement)	Condition 6, Conditions 2 and 3, Condition 7, Condition 14	Site water balance is an important component of site water management and needs to be maintained from time limited operations onwards. Water balance is also an important verification for the integrity of the evaporation pond. Soil contaminated by hypersaline water needs to be removed and the area remediated. Ambient groundwater monitoring requirements prescribed to establish baseline groundwater quality before time-limited operations commence. The contaminants suite and frequency of monitoring will be reviewed upon conclusion of time limited operations period. Considering the proximity of conservation significant flora the Delegated Officer considers it appropriate to include whole contaminant suite for analysis to establish any contaminants of significance for ongoing monitoring.
	Hypersaline water	Seepage through the liner system	Soil Flora	Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Condition 6, Conditions 2 and 3, Condition 7, Condition 10-13.	Monitoring of standing water levels in piezometers, monitoring of vegetation health to identify any stress or other impacts due to seepage of hypersaline water are required to manage the potential impacts from seepage of hypersaline water from the pond.
<b>Commissioning and Time Limited Operations – Mobile crushing and screening plant</b>								
Commissioning and Time Limited Operation of the mobile crushing and screening plant	Dust directly emanating from modular crushing and screening plant	Air/windborne pathway causing impacts to health and amenity	Residences ~14km north	Refer to Section 3.1	C = Minor L = Unlikely <b>Medium Risk</b>	Y	Conditions 2 and 3, Condition 6	N/A. Applicant controls conditioned.
	Dust directly emanating from the product stockpile	Air/windborne pathway causing impacts to health and amenity	Residences ~14km north Flora Fauna	Refer to Section 3.1	C = Moderate L = Possible <b>Medium Risk</b>	Y	Conditions 2 and 3, Condition 6	N/A. Applicant controls conditioned.

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
	Noise directly emanating from modular crushing and screening plant	Air/windborne pathway causing impacts to health and amenity	Residences ~14km north	Refer to Section 3.1	C = Slight L = Possible <b>Low Risk</b>	Y	No conditions specified. EP (Noise) Regulations apply.	N/A
	Light spill during plant operation	Air/windborne pathway causing impacts to health and amenity	Residences ~14km north Fauna	Refer to Section 3.1	C = Slight L = Possible <b>Low Risk</b>	Y	No conditions specified. General provisions of the EP Act apply.	N/A.
	Runoff from hydrocarbon and chemical store areas	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Soil Flora	Refer to Section 3.1	C = Moderate L = Possible <b>Medium Risk</b>	Y (added specific requirement)	Condition 1, Conditions 2 and 3	AS1940 is the prescribed standard for containment
	Sediment laden stormwater runoff	Surface flow and infiltration	Flora Fauna Soil	Refer to Section 3.1	C = Moderate L = Possible <b>Medium Risk</b>	Y	Condition 1, Conditions 2 and 3	N/A. Applicant controls conditioned.
<b>Commissioning and Time Limited Operations – Landfill</b>								
Time Limited Operation of the Landfill	Windblown waste	Air/windborne pathway	Flora Fauna Soil	Refer to Section 3.1	C = Minor L = Possible <b>Medium Risk</b>	Y	Condition 6	N/A. Applicant controls conditioned.
	Leachate	Seepage through the walls and/or base of the landfill	Flora Fauna Soil	Refer to Section 3.1	C = Minor L = Possible <b>Medium Risk</b>	Y (added specific requirement)	Condition 1 and Condition 6	Applicant controls conditioned.
	Odour	Air/windborne pathway Amenity impact	Residences ~14km north	Refer to Section 3.1	C = Minor L = Rare <b>Low Risk</b>	Y	No conditions specified. General provisions of the EP Act apply.	N/A
	Sediment laden stormwater runoff	Surface flow and infiltration	Flora Fauna Soil	Refer to Section 3.1	C = Moderate L = Possible <b>Medium Risk</b>	Y (added specific requirement)	Condition 6	Require diversion to be of the same specification as for the crushing and screening plant area. Inflow may also result in transport of waste from landfill to environment.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

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

## 4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

**Table 4: Consultation**

Consultation method	Comments received	Department response
Shire of Yilgarn Chief Executive Officer Mr Peter Clarke (04/05/2020).	None received	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) (04/05/2020)	DMIRS replied on 18 May 2020 advising that a Mining Proposal and Mine Closure Plan had been submitted to DMIRS for assessment and that the Mining Proposal included the infrastructure subject to the Works Approval application (landfill, evaporation pond and crushing and screening plant). DMIRS advised that further information was requested to be provided to assess the mine closure plan.	Noted
Draft sent to Applicant (9/7/20)	Comments received 30 July 2020. See Appendix 1 for details. A revised draft was sent to applicant on 4 August 2020. Applicant responded on 4 August providing clarification on indicative vegetation monitoring locations and requesting updates to Figures 1-3.	See Appendix 1.

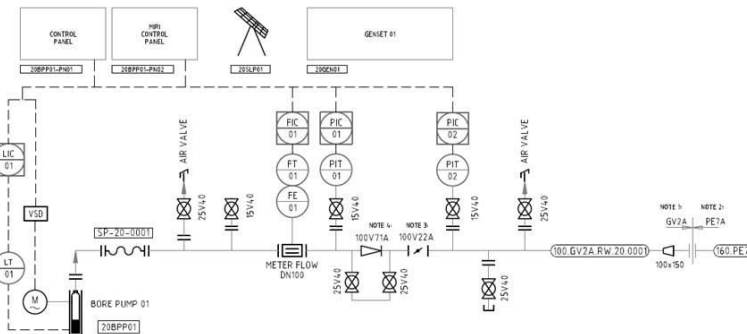
## 5. Conclusion

Based on the assessment in this Decision Report, the Delegated Officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

## References

1. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
2. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
3. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. DMIRS email sent 18/05/20 3:36 PM, *DMIRS Response to DWER (Part V) – Request for Comment – Parker Range Iron Ore Project - Polaris Metals Pty Ltd – J03500* (DWER records A1894659)
5. Parker Range Iron Ore Project, Part V works Approval Supporting Document, Report Reference: ENV-TS-RP-0222, dated 9 April 2020
6. Email correspondence authored by Neil Smith, Senior Environmental Advisor, Mineral resources dated 12 May 2020 providing further information requested in DWER correspondence dated 22 April 2020

## Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
<p>Condition 1, Table 1 (2)</p>	<p>1. A telemetry system is not proposed, however the system will be equipped with pressure indicators to shut down the pump in in the event of high pressure and low pressure (potential leak in system).</p> <p>Each bore head works is equipped with a flow meter and pressure transmitters, as shown in the P&amp;ID excerpt below. For the purposes of leak detection, the control system shall detect and shut down the bore on trends where flow rate and/or pressure deviate by more than <math>\pm 30\%</math> from the previous moving average, within a period of 30 seconds as an initial target. These parameters will be fine tuned during commissioning. An overpressure situation, similarly shuts down the pumps to protect the pipeline. The pump trip will initiate a flashing beacon on the local control panel, to indicate to site personnel an abnormal situation has occurred. A visual inspection of the pipeline for leaks will be required prior to re-start.</p> <p>Alternative wording has been provided in marked up works approval draft.</p>  <p>The diagram is a P&amp;ID excerpt of a bore pump system. It shows a 'BORE PUMP 01' (M) connected to a 'METER FLOW DN100'. The system includes several control panels: 'CONTROL PANEL' (208PP01), 'HPI CONTROL PANEL' (208PP02), and 'GENSET 01' (208G01). Instruments include a level indicator (LIC 01), a pressure indicator (PIC 01), a flow transmitter (FT 01), a pressure transmitter (PIT 01), and a pressure indicator (PII 02). There are also two 'AIR VALVE' symbols. The diagram includes various pipe sizes (e.g., 25V4.0, 15V4.0, 100V71A, 100V22A, 100.GV2A.RW.20.000) and electrical symbols (E 25V4.0). Notes 1, 2, and 3 are present at the bottom right of the diagram.</p> <p>2. Discharge to the evaporation pond will be via a spillway and it will not be possible to measure volume discharged from the turkeys nest to the evaporation pond – alternative wording has been provided in marked up works approval draft.</p>	<p>DWER has considered the applicant's comments and alternative condition text suggested.</p> <p>Design and construction requirements specified in Table 1 of Condition 1 of works approval W6389 have been updated to state: <i>'Installed with an appropriate pressure indicator system capable of providing auto shut-off and detection and control of leaks.'</i></p> <p>Design and construction requirements specified in Table 1 of Condition 1 of works approval W6389 have been updated to state: <i>'Installed with flow meters at discharge points to turkeys nest and outflow points.'</i></p>

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Condition	Summary of applicant's comment	Department's response
Condition 1, Table 1 (3)	While it was identified in the works approval application supporting document risk assessment (Table 12) that fine mist sprays would be used to reduce dust from the crusher, MRL requests that the requirements for the dust suppression system be less prescriptive so that there is flexibility to install an appropriate system to provide an effective form of dust suppression – alternative wording has been provided in marked up works approval draft.	DWER has considered the applicant's comments and alternative condition text suggested. Design and construction requirements specified in Table 1 (3) of Condition 1 of works approval W6389 has been updated to state: 'Crusher must be installed with appropriate water sprays to reduce dust generation.'
Condition 1, Table 1 (5)	<p>Seepage of saline water from the evaporation pond has the potential to lead to soil contamination inhibiting vegetation growth and survival, and health impacts to fauna.</p> <p>The intent was to install a number of monitoring bores (piezo tubes) around the evaporation pond to an approximate depth of 20m, above the standing water level (~60m below surface) and well below the root zone of adjacent vegetation. Under normal conditions water was not expected to be present in the monitoring bores/piezo's. In the event that water was identified in any of the piezos, a sample would be collected to determine if the water was saline – indicating potential seepage of the evaporation pond, or fresh – indicating increased soil moisture attributed to rainfall into the natural soil layers.</p> <p>MRL had committed in the works approval application supporting document to measure standing water level (SWL) in monitoring bores. A SWL limit of 5m below ground surface was proposed to trigger cessation of discharge to the evaporation pond and the implementation of remedial actions, however the presence of any water within the monitoring bores/piezoes would trigger further investigation, e.g. testing of water salinity.</p> <p>As such the requirement for the monitoring bores to be constructed and developed in accordance with ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores is not considered appropriate – proposed changes have been provided in marked up works approval draft.</p>	<p>DWER has considered the applicant's comments and alternative condition text suggested. The Delegated Officer has determined that piezometers proposed are sufficient for the purpose of monitoring the seepage risk from the evaporation pond.</p> <p>Design and construction requirements specified in Table 1 (3) of Condition 1 of works approval W6389 has been updated to clarify that monitoring bores proposed to be constructed are piezometers. Requirement for the applicant to survey and map each monitoring bore (piezometer installed) has been retained. Requirement to locate the piezometers in accordance with Water Quality Protection Note 30 has been added consistent with commitments given by the applicant.</p>
Condition 3 (c)	'Independent third party' changes to 'appropriately certified person'	Condition text has been updated to state that compliance with construction specifications for HDPE liner and dewatering pipeline system requires a QA/QC certificate from a suitably qualified person.
Condition 4 & 5	DWER to confirm the process for submission of Compliance Reports where the construction of infrastructure may be completed at different times. Would MRL submit multiple Compliance Reports or a single Report for all infrastructure? If we have a License application/amendment in the system and we wish to add	Delegated Officer has noted the query. MRL was advised in the meeting on 23 July 2020, that DWER's new position on authorising time limited operations under works approvals, as detailed in the Guide to Licensing, aims to provide operational flexibility to operators to transition from a works approval to a licence.

Condition	Summary of applicant's comment	Department's response
	<p>an item from Condition 1, we can't submit a further LAA for another Condition 1 item until the first LAA is granted.</p> <p>Time limited operation period of 180 days has been requested.</p>	<p>Submission of staged compliance documents is a standard practice. MRL should consider whether any infrastructure, for which compliance documentation is submitted, is likely to become operational over similar timeframes and, if so, include those in the scope of the new licence application.</p> <p>The scope of the new licence application may be amended before DWER advertises the application for public comment as per statutory requirements of the EP Act. MRL will still have the authority to operate other infrastructure, subject to meeting compliance requirements specified in the works approval conditions, for the duration of time limited operations authorised.</p> <p>Once a licence application is determined, MRL can submit an amendment application(s) requesting authorisation for normal operation of any other infrastructure assessed under the works approval. Nothing in the EP Act precludes an applicant from submitting multiple licence amendment applications however, to maintain administrative efficiencies, the Department prefers that applicants scope amendment applications better and consolidate multiple small amendments into a single application where feasible.</p> <p>The Delegated Officer has approved the applicant's request to authorise time limited operations for 180 days. Condition 5(a) has been updated.</p>
Condition 6 Table 2 (2)	<p>Contaminated, hazardous and hydrocarbon waste (e.g. waste oil, hydraulic hoses and rags) will be disposed offsite at an authorised facility, however MRL proposes to treat hydrocarbon contaminated soil via bioremediation and then dispose of the soil in the waste dump/landfill area once it has met the acceptance criteria specified for Class II landfills, as identified in the works approval application supporting document risk assessment (Table 12). 'Contaminated solid waste meeting waste acceptance criteria specified for Class II landfills' to be included as a proposed waste stream to be disposed of in the waste dump or the landfill facility.</p>	<p>Noted. The Delegated Officer has reviewed the risk assessment and determined that proposed infrastructure/ operational controls are adequate to manage the potential risk of groundwater contamination.</p> <p>Operational requirements for Landfill specified in Condition 6 Table 2 have been amended to include treated hydrocarbon contaminated soil meeting waste acceptance criteria for contaminated solid waste in Class II landfills as specified in the DWER Landfill waste classification and waste definitions (December 2019) as an authorised waste type.</p>
Condition 7 Table 3	<p>Flowmeter will be installed on dewatering discharge pipeline. Not possible to install flowmeter on spillway between turkeys nest and evaporation pond. Freeboard marker to be installed on evaporation pond.</p>	<p>Noted. Condition text has been updated.</p>
Condition 10-13	<p>Delete 10-13. MRL does not propose to install monitoring bores for the monitoring of groundwater quality from the groundwater aquifer (~60m below surface) below/adjacent to the evaporation pond. Monitoring bores to a maximum depth of 20m are to be installed to detect any</p>	<p>DWER has considered the applicant's comments and alternative condition text suggested. The Delegated Officer has reviewed the risk assessment noting the presence of hypersaline groundwater at depths of approximately 60mBGL and has determined that piezometers proposed are sufficient for the purpose of monitoring</p>



Condition	Summary of applicant's comment	Department's response
	<p>seepage from the evaporation pond that has the potential to impact flora/fauna via soil contamination (soil depth to 5m below surface is expected to be the zone where potential impacts would be restricted). Any seepage from the evaporation pond that did migrate to groundwater (~60m below surface) would be undetectable as the quality of the water in the evaporation pond is the same as the quality of the natural groundwater.</p> <p>On 3 August 2020, MRL provided further comments noting that there is one existing monitoring plot within close proximity to the evaporation pond for purpose of vegetation monitoring in accordance with existing the Vegetation Health and Weed Monitoring and Management Plan developed for EP Act Part IV approval process. To provide further assessment of any potential seepage from the evaporation pond and impacts to vegetation, MRL committed to complete visual inspection of vegetation health/stress around each of the piezos at the same time as the piezos are inspected for any evidence of seepage. The results of the piezo and vegetation monitoring will be recorded on a log sheet.</p>	<p>the seepage risk from the evaporation pond.</p> <p>Conditions pertaining to sampling and analysis of groundwater have been removed. Conditions requiring monitoring of standing water levels in the piezometer and for undertaking vegetation health visual monitoring during time limited operations have been specified.</p>
Condition 14	<p>MRL proposes to measure the following information:</p> <ul style="list-style-type: none"> <li>• rainfall from nearest BOM weather station</li> <li>• estimate of evaporation – BOM regional evaporation rate</li> <li>• water abstraction from the turkeys nest and evaporation pond</li> <li>• volume of mine dewater abstraction</li> </ul> <p>The works approval application supporting document identifies that a spillway from the turkey's nest to the evaporation pond will be incorporated into the design so it will not be possible to measure (by flowmeter or the like) the volume discharged into the evaporation pond, however an estimate (inputs minus outputs and estimated evaporation losses) could be determined. Seepage losses are not proposed to be measured. Any evidence of seepage will be identified from the monitoring bores/piezo's to be installed around the evaporation pond.</p>	<p>Delegated Officer notes MRL's comments regarding uncertainties associated with estimating seepage losses. The current condition text does not require measurement of seepage rather an estimation based on inputs and outputs. As seepage is considered a key output which should be accounted for to monitor operational performance of the evaporation pond/ lining system no further changes have been made to the condition text.</p> <p>MRL is advised to report an estimate of seepage loss based on water balance calculations and comment on any margin of error/ uncertainty which is of significance in interpretation of these results.</p>
Schedule 2	Deletion of Schedule 2 – no groundwater quality monitoring proposed from shallow piezo's around the evaporation pond.	<p>Accepted. The Delegated Officer notes that the evaporation pond will store dewatered water and potential seepage is not likely to alter the quality of groundwater. Piezometers are considered adequate for the purpose of monitoring standing water levels and any risk to surrounding vegetation. Requirements pertaining to visual monitoring of vegetation health and recording a log during time limited operations have been specified.</p>
Schedule 2	Update Figures 1,2 and 3 with revised figures provided.	Figure 1-3 updated.



<b>Condition</b>	<b>Summary of applicant's comment</b>	<b>Department's response</b>
Figure 2, Condition 11	Indicative vegetation monitoring locations will be near piezometers. Vegetation health will be monitored at the same time as monitoring standing water levels in piezos.	Figure 2 updated and reference to indicative vegetation monitoring locations added. Condition 11 updated to rectify the reference.