



# Licence

## *Environmental Protection Act 1986, Part V*

**Proponent:** Polaris Metals Pty Ltd

**Licence:** L8945/2016/1

**Registered office:** 1 Sleaf Road  
APPLECROSS WA 6153

**ACN:** 085 223 570

**Premises address:** J4 Iron Ore Project  
MOUNT JACKSON WA 6426  
Mining tenements M77/1270-I, L77/250, L77/252, L77/254, Part of  
L15/305 as depicted in Schedule 1

**Issue date:** Thursday, 3 March 2016

**Commencement date:** Monday, 7 March 2016

**Expiry date:** Saturday, 6 March 2021

**Prescribed premisescategory**

Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
06	Mine dewatering	50,000 tonnes ore more per year	450,000 tonnes per annual period
12	Screening etc. of material	50,000 tonnes ore more per year	100,000 tonnes per annual period
57	Used tyre storage (general)	100 tyres or more	1,000 tyres
64	Class II putrescible landfill	20 tonnes or more per year	780 tonnes per annual period

**Conditions**

This Licence is subject to the conditions set out in the attached pages.

Date signed: 3 March 2016

.....  
Danielle Eyre  
Senior Manager – Industry Regulation (Resource Industries)  
Officer delegated under section 20  
of the *Environmental Protection Act 1986*



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## Introduction

This Introduction is not part of the Licence conditions.

### DER's industry licensing role

The Department of Environment Regulation (DER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DER regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

### Licence requirements

This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link:

<http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html>

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.
- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.
- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.



Licence holders are also reminded of the requirements of section 53 of the Act which places restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice.

#### **Licence fees**

If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

#### **Ministerial conditions**

If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

#### **Premises description and Licence summary**

Polaris Metals Pty Ltd (Polaris), previously an ASX listed iron ore explorer, was acquired by Mineral Resources Limited (MRL) in January 2010. It is now a wholly owned subsidiary of MRL.

The J4 Iron Ore Project (J4 Project) is located in the Goldfields Region approximately 50 km north of Koolyanobbing within the Mining Lease M77/1270-I. The objective of the J4 Project is to mine goethite-hematite ore from the J4 deposit, which will require an open cut operation below the water table. Ore will be transported to the Run-of-Mine before being hauled approximately 75 km for processing at the existing Carina Iron Ore Project – Northern Operations (Carina Project), currently licenced by DER under L8837/2014/1. For the purposes of this Licence, the dewatering pipeline end point will be at the boundary of Licence L8837/2014/1 although discharge at this location is not authorised under this Licence (L8945/2016/1). The physical point of discharge for the J4 Pit dewater will be to the Carina Pit within Licence L8837/2014/1. Dewatering infrastructure has been constructed without a works approval as it was originally only intended for abstracted water to be used for operational requirements such as dust suppression and to supply potable water to the mine.

The annual average operational demand will be approximately 1,525kL/day. Dewatering of the J4 Pit to the Carina Pit (L8837/2014) may occur in exceptional circumstances where surplus water can't be used for operational purposes such as during the wetter winter months. The J4 Project is subject to conditions under Ministerial Statement 988 (MS988) requiring Polaris to ensure that the surrounding environment is not impacted by dust or the use of saline water for dust suppression on the haul road.

A landfill and tyre storage area will be located within the waste rock landform. The landfill is authorised to accept up to 780 tonnes of waste per annual period including:

- general domestic and putrescible waste;
- inert wastes; and
- up to 1,100 used tyres.

No more than used 1,000 tyres will be stored at the tyre storage area at any given time. All hydrocarbon contaminated soils will be either removed by a licenced contractor or treated at the onsite bioremediation facility prior to disposal at the landfill. The bioremediation pad has been constructed and managed in accordance with DER's Contaminated Sites Guidelines, in particular Assessment and Management of Contaminated Sites as well as WQPN 27 'Liners for containing pollutants, using engineered soils' with regard to permeability.

Screening equipment from the Carina Project (M77/1244) will be transferred to the J4 Project where it will be used to screen stemming material. The jaw crushers of the mobile plant will be left at the Carina Project as unoperational unless Polaris find a need for the equipment at another site. Screening of stemming material is not expected to exceed 100,000 tonnes per annual period to yield approximately 40,000 tonnes of stemming material.

This Licence is for the operation of a new facility established under works approvals W5816/2015/1 and W5798/2015/1.



The licences and works approvals issued for the Premises are:

Instrument log		
Instrument	Issued	Description
W5798/2015/1	26/02/2015	Works Approval to construct and commission a camp wastewater treatment plant
W5816/2015/1	07/05/2015	Works Approval to construct and commission a camp landfill
L8945/2016/1	03/03/2016	New Licence

### Severance

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

## END OF INTRODUCTION

## Licence conditions

### 1 General

#### 1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

‘**Act**’ means the *Environmental Protection Act 1986*;

‘**annual period**’ means the inclusive period from 1 April until 31 March in the following year;

‘**bioremediation**’ means the above-ground remediation of soils to reduce the concentrations of hydrocarbons through biodegradation;

‘**CEO**’ means Chief Executive Officer of the Department of Environment Regulation;

‘**CEO**’ for the purpose of correspondence means;

Chief Executive Officer  
Department Administering the Environmental Protection Act 1986  
Locked Bag 33  
CLOISTERS SQUARE WA 6850  
Telephone: (08) 9333 7510  
Facsimile: (08) 9333 7550  
Email: [info@der.wa.gov.au](mailto:info@der.wa.gov.au)

‘**controlled waste**’ has the definition in *Environmental Protection (Controlled Waste) Regulations 2004*;

‘**Licence**’ means this Licence numbered and L8945/2016/1 issued under the Act;

‘**Licensee**’ means the person or organisation named as Licensee on page 1 of the Licence;



‘Premises’ means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

‘Schedule 1’ means Schedule 1 of this Licence unless otherwise stated;

‘Schedule 2’ means Schedule 2 of this Licence unless otherwise stated; and

‘usual working day’ means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

## 1.2 Premises operation

1.2.1 The Licensee shall ensure that all pipelines containing saline water are either:

- (a) equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures;
- (b) equipped with automatic cut-outs in the event of a pipe failure; or
- (c) provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.

1.2.2 The Licensee shall ensure that dewatering effluent is only discharged into the Carina Pit within the premises boundary of Licence L8837/2014/1.

1.2.3 The Licensee shall:

- (a) undertake inspections as detailed in Table 1.2.1;
- (b) where any inspection identifies that an appropriate level of environmental protection is not being maintained, take corrective action to mitigate adverse environmental consequences as soon as practicable; and
- (c) maintain a record of all inspections undertaken.

**Table 1.2.1: Inspection of infrastructure**

Scope of inspection	Type of inspection	Frequency of inspection
Dewatering effluent pipelines	Visual integrity	Daily

1.2.4 The Licensee shall only accept waste on to the landfill if:

- (a) it is of a type listed in Table 1.2.2;
- (b) the quantity accepted is below any quantity limit listed in Table 1.2.2; and
- (c) it meets any specification listed in Table 1.2.2.

**Table 1.2.2: Waste acceptance**

Waste	Quantity Limit	Specification <sup>1</sup>
Inert Waste Type 1	780 tpa	None specified
Putrescible waste		
Inert Waste Type 2		Tyres and plastic only
Clean fill	None specified	None specified

Note 1: Additional requirements for the acceptance of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

1.2.5 The Licensee shall ensure that where waste does not meet the waste acceptance criteria set out in condition 1.2.6 it is stored in a quarantined storage area or container and removed from the Premises to an appropriately authorised facility as soon as practicable.



1.2.6 The Licensee shall ensure that wastes accepted onto the landfill are only subjected to the process(es) set out in Table 1.2.3 and in accordance with any process limits described in that table.

Table 1.2.3: Waste processing		
Waste type(s)	Process	Process limits <sup>1,2</sup>
All	Disposal of waste by landfilling	Shall only take place within the landfill area shown on the Map in Schedule 1. No waste shall be temporarily stored or landfilled within 35 metres from the boundary of the Premises. The separation distance between the base of the landfill and the highest groundwater level shall not be less than 2m.
Hydrocarbon contaminated waste <sup>3</sup>	Bioremediation	All bioremediation areas are located: (a) at least 50 m from surface water bodies; (b) at least 50 m from any odour sensitive receptors; and (c) in an area where groundwater is at a depth of greater than 3 m below ground surface. Ensure waste is bioremediated by aerating soil at least monthly when the facility is in use.
Inert Waste Type 2 - Tyres	Receipt, handling, storage prior to re-use or disposal by landfilling	No more than 1,000 tyres are to be stored at the Premises at any one time. Individual tyre stacks shall; (a) be separated at least 6 metres from each other; (b) not exceed 100 square metres in area; and (c) not exceed 3 metres in height.
Putrescible Waste	Receipt, handling and disposal by landfilling	None specified
Clean Fill		
Inert Waste Type 1		

Note 1: Requirements for landfilling tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.

Note 2: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

Note 3: Bioremediated soil will be required to meet specifications for Class II landfills as outlined in the *Landfill Waste Classification and Waste Definitions 1996* (as amended December 2009) before being landfilled.

1.2.7 The Licensee shall ensure that all leachate runoff at the bioremediation pad is directed to, and contained within, an impermeable leachate collection sump with capacity to contain an 1 in 100 year, 72 hour duration rainfall event.

1.2.8 The Licensee shall manage the landfilling activities to ensure:

- the size of the tipping face is kept to a minimum and not larger than 30 m in length and 2 m above ground level in height;
- waste is placed and compacted to ensure all faces are stable and capable of retaining cover material.

1.2.9 The Licensee shall ensure that cover is applied to waste in accordance with Table 1.2.4 and that sufficient stockpiles of cover are maintained on site at all times.

Table 1.2.4: Cover requirements			
Waste Type	Material	Depth	Timescales
Putrescible Wastes	Inert and incombustible material	Sufficient to ensure the waste is completely covered and that no waste is exposed	Fortnightly or as soon as practicable after deposit and prior to compaction
Inert Waste Type 1			
Inert Waste Type 2	Inert waste type 1 or soil	500 mm	As soon as practicable after deposit

Note 1: Additional requirements for the covering of tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.





- 1.2.10 The Licensee shall ensure that no waste is burnt on the premises.
- 1.2.11 The Licensee shall implement the following measures for managing the risk of fires:
  - (a) ensure that fire fighting equipment, stored onsite, is capable of controlling and extinguishing a tyre fire; and
  - (b) ensure that tyre stacks do not obscure fire protection equipment (including fire hydrants and fire hoses) or any related signage.
- 1.2.12 The Licensee shall ensure that wind-blown waste is contained within the boundary of the landfill and that wind-blown waste is returned to the tipping area on at least a monthly basis.

## 2 Monitoring

### 2.1 Monitoring of inputs and outputs

- 2.1.1 The Licensee shall undertake the monitoring in Table 2.1.1 according to the specifications in that table.

<b>Table 2.1.1: Monitoring of inputs and outputs</b>				
<b>Input/Output</b>	<b>Parameter</b>	<b>Units</b>	<b>Averaging period</b>	<b>Frequency</b>
Dewatering effluent	Cumulative volume of water dewatered from pit	kL	Month	Monthly
	Cumulative volume of water discharged to Carina Pit	kL	Month	Monthly
Waste Inputs	Inert Waste Type 1	Tonnes or (where no weighbridge is present) m <sup>3</sup>	N/A	Each load arriving at the landfill
	Inert Waste Type 2			
	Putrescible Waste			

## 3 Information

### 3.1 Records

- 3.1.1 All information and records required by the Licence shall:
  - (a) be legible;
  - (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
  - (c) except for records listed in 3.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
  - (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
    - (i) off-site environmental effects; or
    - (ii) matters which affect the condition of the land or waters.
- 3.1.2 The Licensee shall ensure that:
  - (a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and
  - (b) any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing.
- 3.1.3 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.



3.1.4 The Licensee shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

### 3.2 Reporting

3.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 28 calendar days after the end of the annual period. The report shall contain the information listed in Table 3.2.1 in the format or form specified in that table.

<b>Table 3.2.1: Annual Environmental Report</b>		
<b>Condition or table (if relevant)</b>	<b>Parameter</b>	<b>Format or form<sup>1</sup></b>
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Table 2.1.1	Monitoring of inputs and outputs	
3.1.3	Compliance	Annual Audit Compliance Report (AACR)
3.1.4	Complaints summary	None specified

Note 1: Forms are in Schedule 2

### 3.3 Notification

3.3.1 The Licensee shall ensure that the parameters listed in Table 3.3.1 are notified to the CEO in accordance with the notification requirements of the table.

<b>Table 3.3.1: Notification requirements</b>			
<b>Condition or table (if relevant)</b>	<b>Parameter</b>	<b>Notification requirement<sup>1</sup></b>	<b>Format or form<sup>2</sup></b>
-	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day.  Part B: As soon as practicable	N1

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act

Note 2: Forms are in Schedule 2

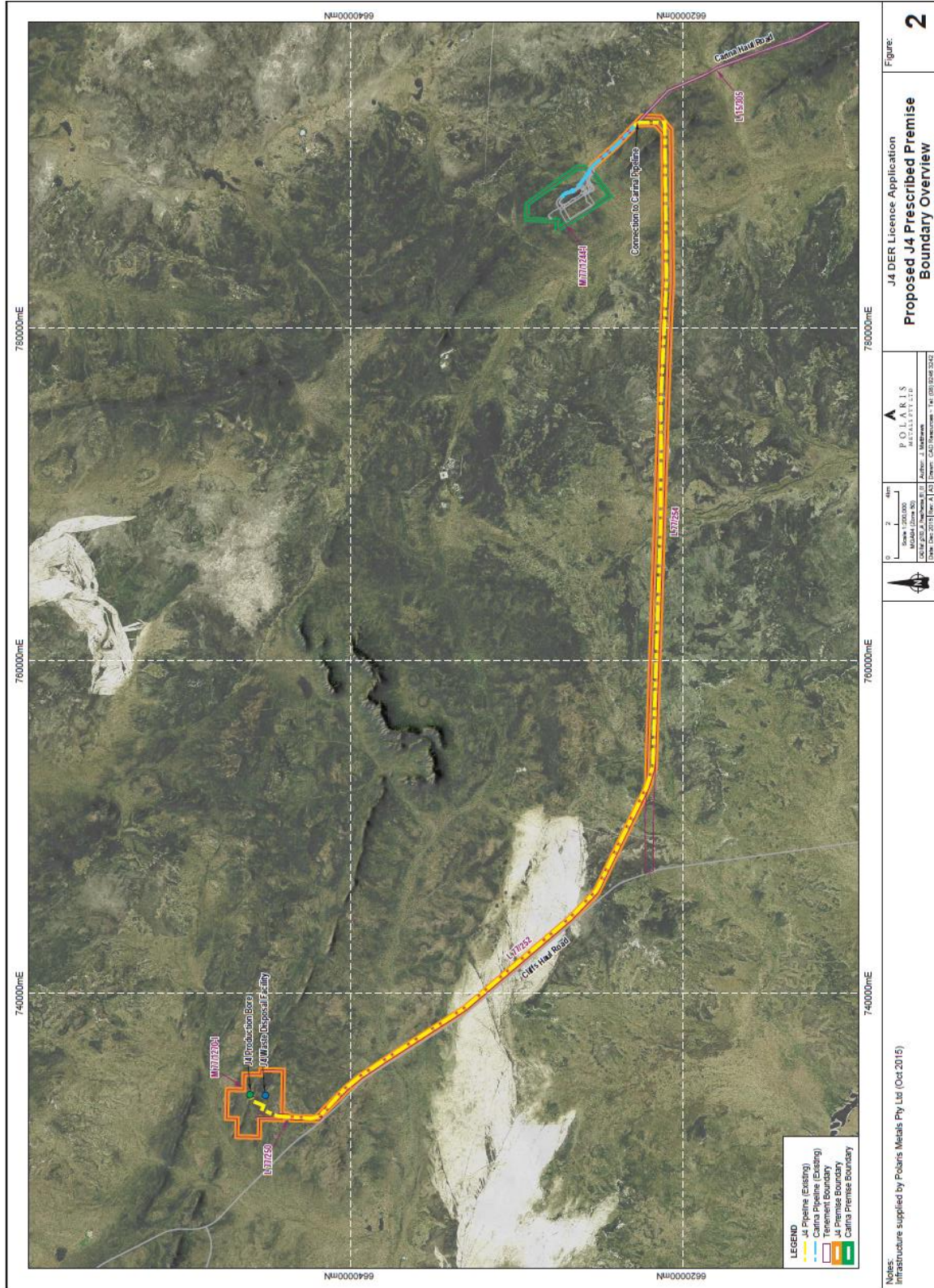




# Schedule 1: Maps

## Premises map

The Premises is shown in the maps below. The orange line depicts the Premises boundary.

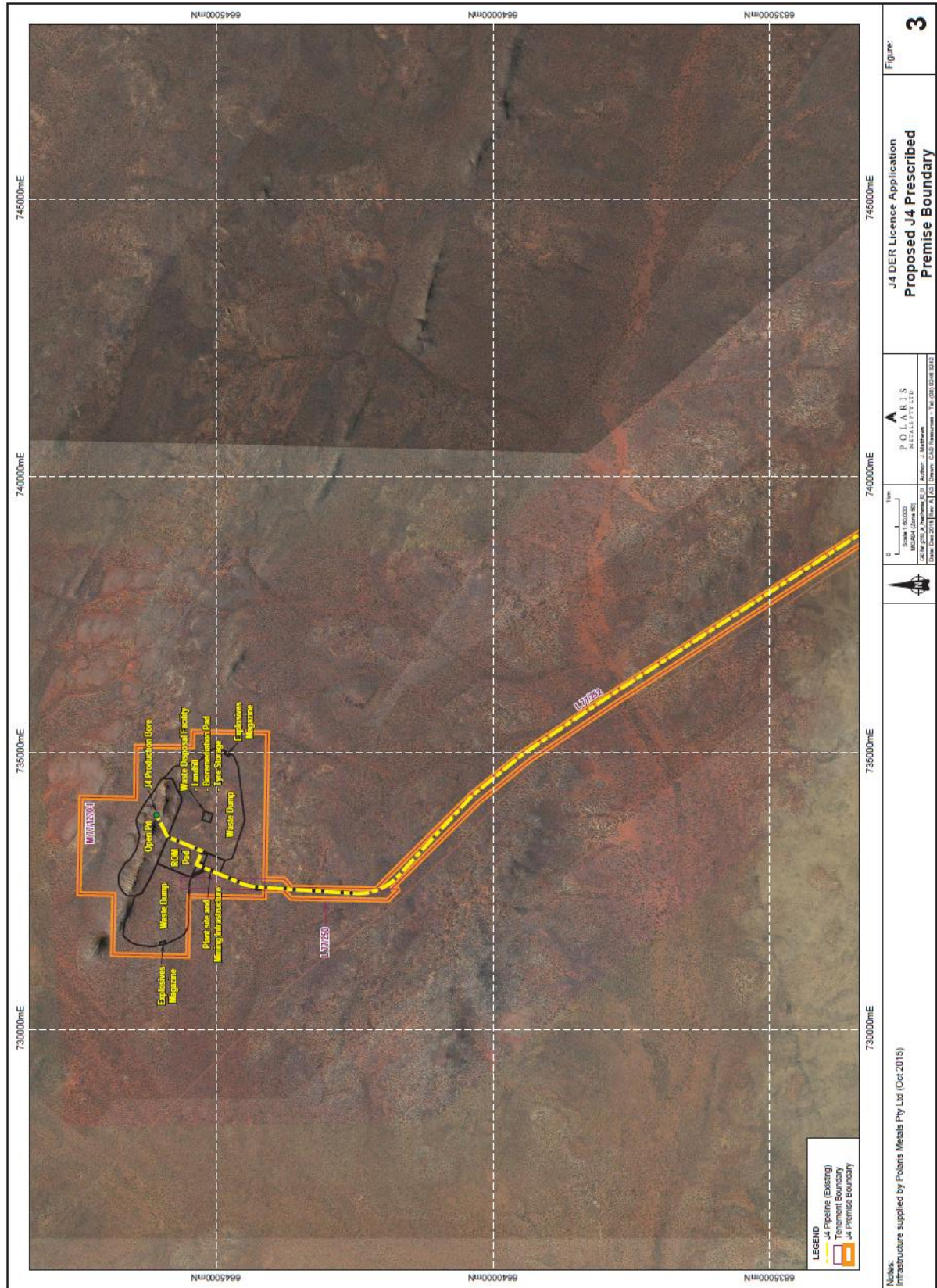






### Premises map and landfill location

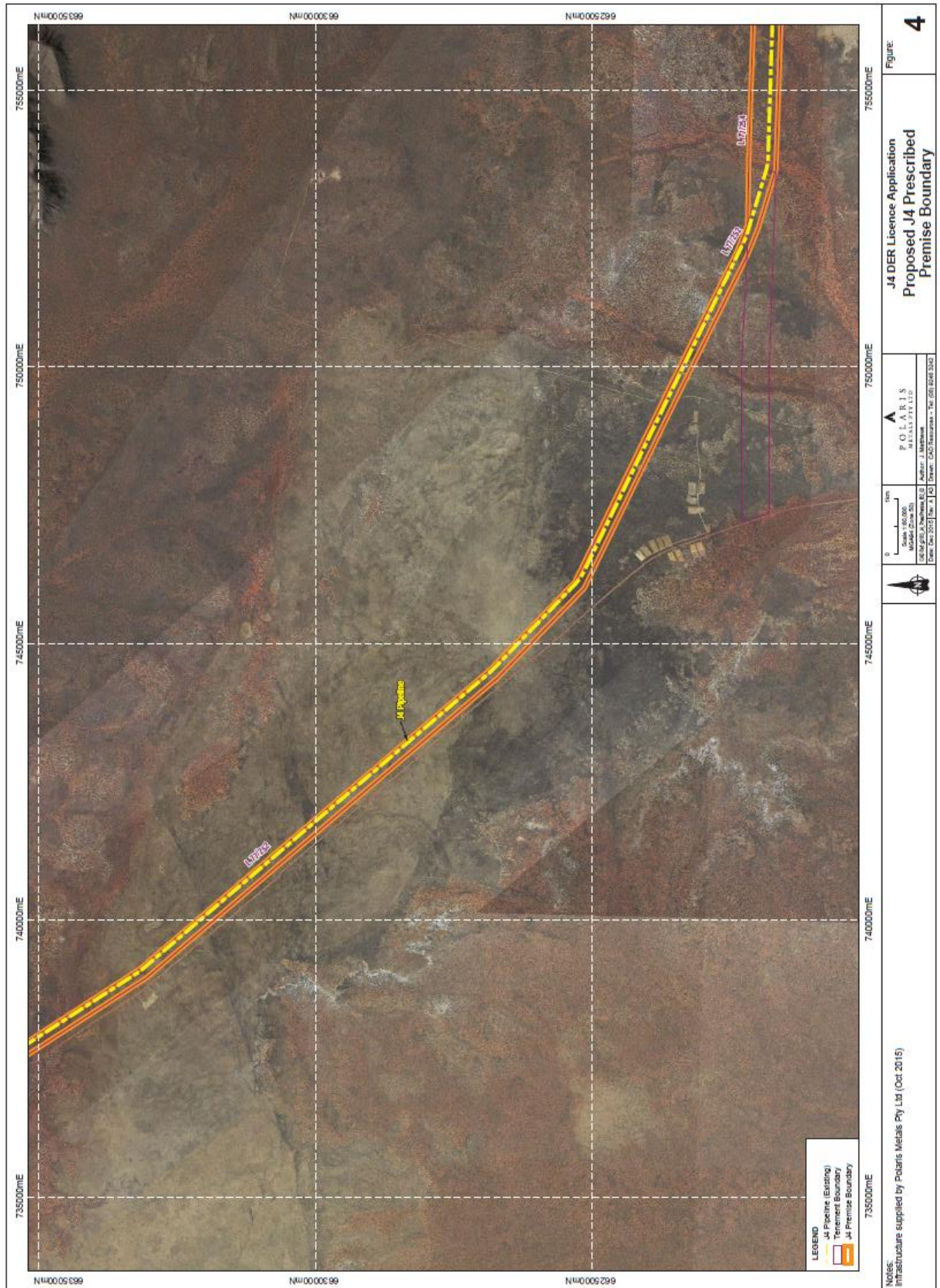
The landfill (Waste Disposal Facility) location is identified in the Premises map below.







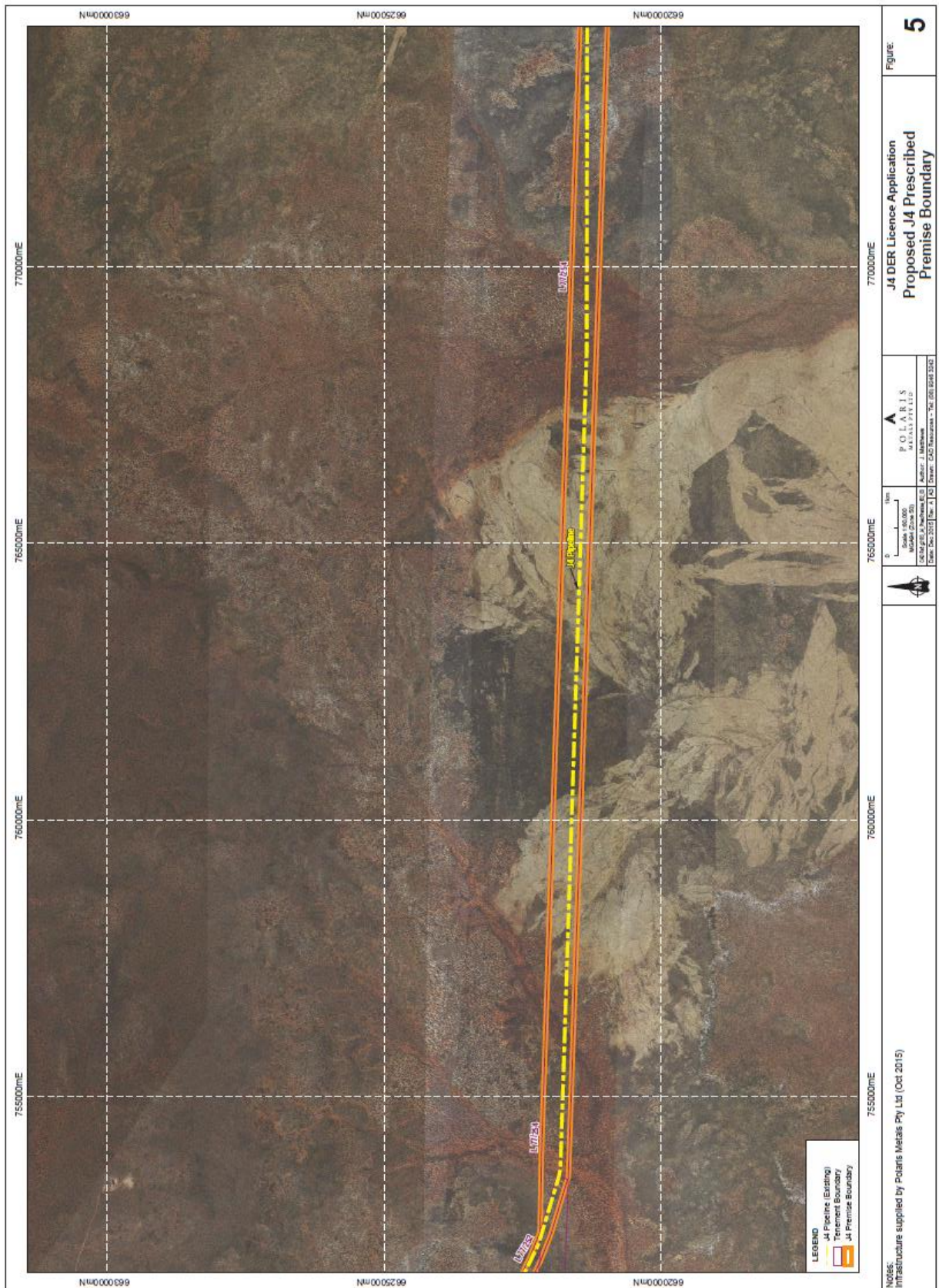
Premises map







Premises map

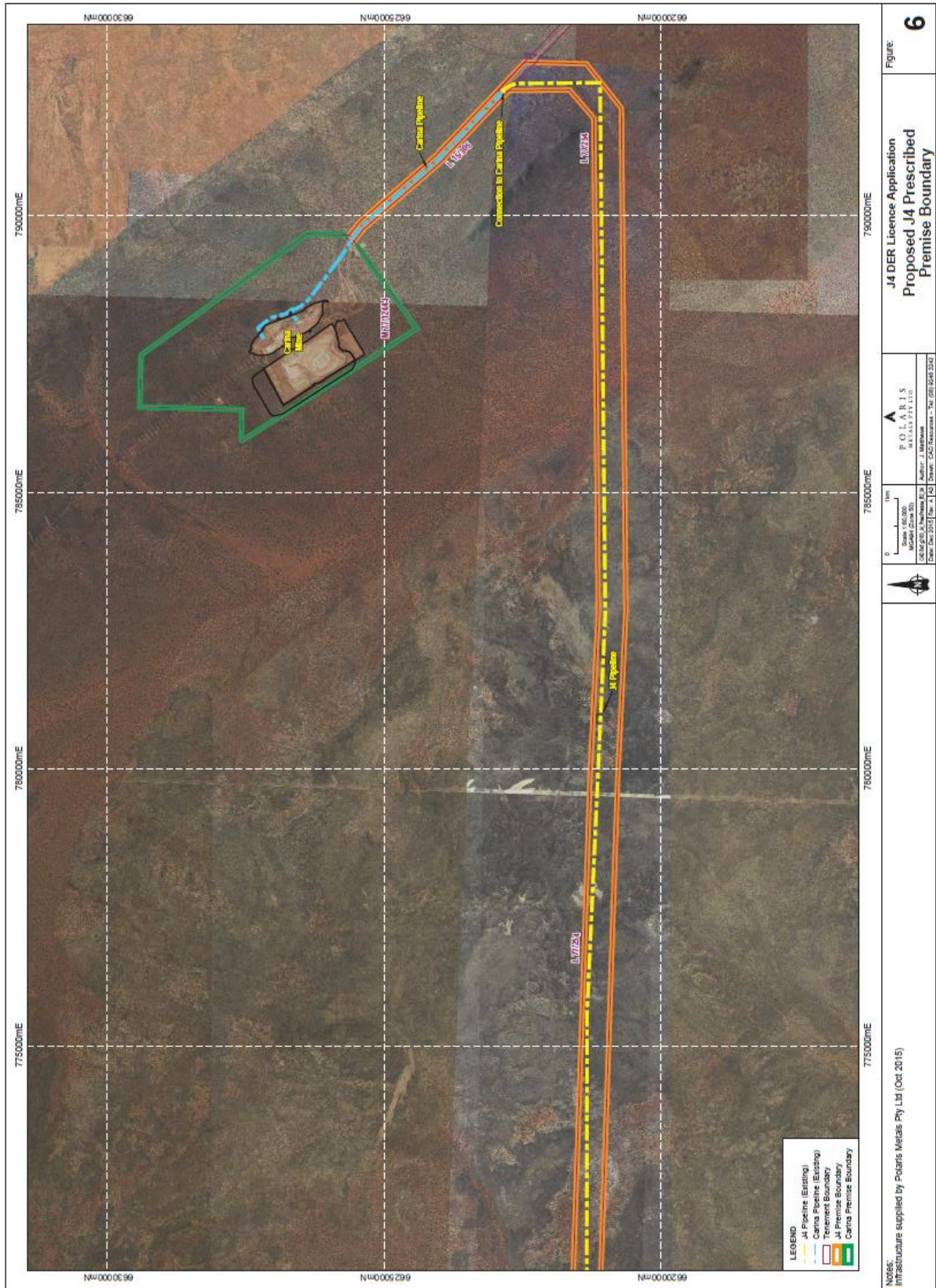






### Map of emission point

The locations of the emission point defined in condition 1.2.2 is shown below.





## Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

### ANNUAL AUDIT COMPLIANCE REPORT PROFORMA

#### SECTION A LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name:	ABN:
Trading as:	
Reporting period: _____ to _____	

#### STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of the Licence complied with within the reporting period? (please tick the appropriate box)

Yes  Please proceed to Section C

No  Please proceed to Section B

Each page must be initialled by the person(s) who signs Section C of this Annual Audit Compliance Report (AACR).

Initial:





**SECTION B**  
**DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.**

Please use a separate page for each Licence condition that was not complied with.

a) Licence condition not complied with:	
b) Date(s) when the non compliance occurred, if applicable:	
c) Was this non compliance reported to DER?:	
<input type="checkbox"/> Yes <input type="checkbox"/> Reported to DER verbally Date _____ <input type="checkbox"/> Reported to DER in writing Date _____	<input type="checkbox"/> No
d) Has DER taken, or finalised any action in relation to the non compliance?:	
e) Summary of particulars of thenon compliance, and what was the environmental impact:	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram):	
g) Cause of non compliance:	
h) Action taken, or that will be taken to mitigate any adverse effects of the non compliance:	
i) Action taken or that will be taken to prevent recurrence of the non compliance:	

Each page must be initialled by the person(s) who signs Section C of this AACR

Initial:



## SECTION C

### SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report (AACR) may only be signed by a person(s) with legal authority to sign it. The ways in which the AACR must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this AACR is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
An individual	<input type="checkbox"/> <input type="checkbox"/>	by the individual licence holder, or by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	<input type="checkbox"/> <input type="checkbox"/>	by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	by affixing the common seal of the licensee in accordance with the <i>Corporations Act 2001</i> ; or by two directors of the licensee; or by a director and a company secretary of the licensee, or if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	<input type="checkbox"/> <input type="checkbox"/>	by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	<input type="checkbox"/> <input type="checkbox"/>	by the chief executive officer of the licensee; or by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of \$50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

NAME:  
(printed) \_\_\_\_\_

NAME:  
(printed) \_\_\_\_\_

POSITION: \_\_\_\_\_

POSITION: \_\_\_\_\_

DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

SEAL (if signing under seal)



Licence: L8945/2016/1  
 Form: N1

Licensee: Polaris Metals Pty Ltd  
 Date of breach:

**Notification of detection of the breach of a limit.**

These pages outline the information that the operator must provide.  
 Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

**Part A**

Licence Number	
Name of operator	
Location of Premises	
Time and date of the detection	

<b>Notification requirements for the breach of a limit</b>	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

**Part B**

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of Polaris Metals Pty Ltd	
Date	



# Decision Document

## *Environmental Protection Act 1986, Part V*

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**Proponent:** **Polaris Metals Pty Ltd**

**Licence:** **L8945/2016/1**

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**Registered office:** 1 Sleat Road  
APPLECROSS WA 6153

**ACN:** 085 223 570

**Premises address:** J4 Iron Ore Project  
MOUNT JACKSON WA 6426  
Mining tenements M77/1270-I, L77/250, L77/252, L77/254, Part of L15/305  
as depicted in Schedule 1

**Issue date:** Thursday, 3 March 2016

**Commencement date:** Monday, 7 March 2016

**Expiry date:** Saturday, 6 March 2021

### **Decision**

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue a licence. DER considers that in reaching this decision, it has taken into account all relevant considerations and legal requirements and that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by: Clarrie Green  
Licensing Officer

Decision Document authorised by: Tim Gentle  
Delegated Officer



## Contents

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## 1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

## 2 Administrative summary

Administrative details		
Application type	Works Approval <input type="checkbox"/> New Licence <input checked="" type="checkbox"/> Licence amendment <input type="checkbox"/> Works Approval amendment <input type="checkbox"/>	
Activities that cause the premises to become prescribed premises	<b>Category number(s)</b>	<b>Assessed design capacity</b>
	06	450,000 tonnes per annual period
	12	100,000 tonnes per annual period
	57	1,000 tyres
	64	780 tonnes per annual period
Application verified	Date: 12/01/2016	
Application fee paid	Date: 11/02/2016	
Works Approval has been complied with	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
Compliance Certificate received	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Referral decision No: 988 Managed under Part V <input checked="" type="checkbox"/> Assessed under Part IV <input checked="" type="checkbox"/>



Is the proposal subject to Ministerial Conditions?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Ministerial statement No: 988 EPA Report No: 1511
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i> )?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Department of Water consulted Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes include details of which EPP(s) here.		
Is the Premises subject to any EPP requirements? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, include details here, eg Site is subject to SO <sub>2</sub> requirements of Kwinana EPP.		

### 3 Executive summary of proposal and assessment

Polaris Metals Pty Ltd (Polaris), previously an ASX listed iron ore explorer, was acquired by Mineral Resources Limited (MRL) in January 2010. It is now a wholly owned subsidiary of MRL.

The J4 Iron Ore Project (J4 Project) is located in the Goldfields Region approximately 50 km north of Koolyanobbing within the Mining Lease M77/1270-I. The objective of the J4 Project is to mine goethite-hematite ore from the J4 deposit, which will require an open cut operation below the water table. Ore will be transported to the Run-of-Mine before being hauled approximately 75 km for processing at the existing Carina Iron Ore Project – Northern Operations (Carina Project), currently licenced by DER under L8837/2014/1. For the purposes of this Licence, the dewatering pipeline end point will be at the boundary of Licence L8837/2014/1 although discharge at this location is not authorised under this Licence (L8945/2016/1). The physical point of discharge for the J4 Pit dewater will be to the Carina Pit within Licence L8837/2014/1. Dewatering infrastructure has been constructed without a works approval as it was originally only intended for abstracted water to be used for operational requirements such as dust suppression and to supply potable water to the mine.

The annual average operational demand will be approximately 1,525kL/day. Dewatering of the J4 Pit to the Carina Pit (L8837/2014) may occur in exceptional circumstances where surplus water can't be used for operational purposes such as during the wetter winter months. The J4 Project is subject to conditions under Ministerial Statement 988 (MS988) requiring Polaris to ensure that the surrounding environment is not impacted by dust or the use of saline water for dust suppression on the haul road.

A landfill and tyre storage area will be located within the waste rock landform. The landfill is authorised to accept up to 780 tonnes of waste per annual period including:

- general domestic and putrescible waste;
- inert wastes; and
- up to 1,100 used tyres.

No more than used 1,000 tyres will be stored at the tyre storage area at any given time. All hydrocarbon contaminated soils will be either removed by a licenced contractor or treated at the onsite bioremediation facility prior to disposal at the landfill. The bioremediation pad has been constructed and managed in accordance with DER's Contaminated Sites Guidelines, in particular Assessment and Management of Contaminated Sites as well as WQPN 27" Liners for containing pollutants, using engineered soils" with regard to permeability.





Screening equipment from the Carina Project (M77/1244) will be transferred to the J4 Project where it will be used to screen stemming material. The jaw crushers of the mobile plant will be left at the Carina Project as non-operational unless Polaris find a need for the equipment at another site. Screening of stemming material is not expected to exceed 100,000 tonnes per annual period to yield approximately 40,000 tonnes of stemming material.



## 4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	Condition number	Justification (including risk description & decision methodology where relevant)	Reference documents
Premises operation	1.2.4 – 1.2.12	<p>General conditions have been added to ensure that the landfill, tyre storage area and bioremediation facility are managed in a manner that will prevent odours, groundwater or soil contamination, windblown waste, fires and vector borne diseases. Waste processing conditions 1.2.5 and 1.2.6 have been placed on the Licence to promote the effective management of the bioremediation pad and ensure that hydrocarbon contaminated soil is treated effectively prior to disposal at the landfill. Bioremediated soil will be required to meet specifications for Class II landfills as outlined in the Landfill Waste Classification and Waste Definitions 1996 (as amended December 2009) before being landfilled.</p> <p>To prevent the runoff of hydrocarbon contaminated leachate and stormwater, the bioremediation pad will be required to have the capacity to hold stormwater from a significant rainfall event under condition 1.2.7. Conditions 1.2.8 to 1.2.10 and 1.2.12 have been transferred across to the Licence from the <i>Environmental Protection (Rural Landfill) Regulations 2002</i>.</p>	<p>Application supporting documentation</p> <p>General provisions of the <i>Environmental Protection Act 1986</i>.</p> <p>Landfill Waste Classification and Waste Definitions 1996 (as amended December 2009).</p>
	1.2.1 – 1.2.3	<p>Conditions 1.2.1 to 1.2.3 have been applied to ensure that native vegetation surrounding the J4 Project, including the haul road, are adequately protected from unauthorised discharges of saline dewater. See further discussion in Appendix C.</p>	<p><i>Environmental Protection (Rural Landfill) Regulations 2002</i></p>
	1.2.6 and 1.2.10	<p><b>Operation – Tyre fire</b> DER's assessment and decision making is provided in Appendix A.</p>	
Emissions general	N/A	<p>No emissions conditions have been placed on the Licence. Dewatering discharge points are not located within the prescribed premises of this Licence (L8945/2016/1) as discharges will be to Carina Pit within Licence L8837/2014/1. Dewatering into Carina Pit is deemed a point source emission to groundwater.</p>	N/A



DECISION TABLE			
Works Approval / Licence section	Condition number	Justification (including risk description & decision methodology where relevant)	Reference documents
Point source emissions to air including monitoring	N/A	Operation of the landfill, bioremediation pad, tyre storage area and dewatering infrastructure will not result in significant point source emissions to air.	N/A
Point source emissions to surface water including monitoring	N/A	No point source emissions to surface water are authorised under this Licence.	N/A
Point source emissions to groundwater including monitoring	N/A	DER's assessment and decision making is provided in Appendix B.	
Emissions to land including monitoring	N/A  1.2.1 – 1.2.3	There are no significant discharges to land anticipated from dewatering J4 Pit, landfilling, bioremediation or tyre storage activities during normal operations.  <b>Operation – Pipeline leak or rupture</b> DER's assessment and decision making is provided in Appendix C.	General provisions of the <i>Environmental Protection Act 1986</i> .  <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> .  MS988



<b>Fugitive emissions</b>	N/A	<b>Operation – General</b> DER’s assessment and decision making is provided in Appendix D.	General provisions of the <i>Environmental Protection Act 1986</i> .
<b>Odour</b>		<p><b>Operation – Landfill</b> <u>Emission Description</u> <i>Emission:</i> Odour generated from putrescible waste as it becomes putrid. <i>Impact:</i> Nearby animals may be attracted to the Premises as a result of odours and could potentially become hurt or killed through surrounding mining activities. <i>Controls:</i> Polaris proposes to regularly cover waste to prevent the attraction of animals.</p> <p><u>Risk Assessment</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate</p> <p><u>Regulatory Controls</u> Premises conditions L1.2.9 and 1.2.12 have been added to the Licence to ensure that putrescible waste is covered at least fortnightly and any windblown waste is returned to the landfill at least monthly.</p> <p><u>Residual Risk</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Rare <i>Risk Rating:</i> Low</p>	General provisions of the <i>Environmental Protection Act 1986</i> .
<b>Noise</b>	N/A	No noise conditions have been placed on the Licence due to the J4 Project’s significant distance to sensitive receptors.	<i>Environmental Protection (Noise) Regulations 1997</i>
<b>Monitoring general</b>	N/A	No general monitoring conditions will be required for the operation of proposed activities.	N/A
<b>Monitoring of inputs and outputs</b>	2.1.1	Polaris will be required to record the volumes and types of waste being deposited at the landfill and that leaving the J4 Project to prove compliance with Licence limits.	General provisions of the <i>Environmental Protection Act 1986</i> .



<b>Process monitoring</b>	N/A	No process monitoring is required under the Licence.	N/A
<b>Ambient quality monitoring</b>	N/A	The water level at the J4 Project averages about 80 metres below ground level, based on water level elevations measured from 50 exploration holes. Therefore groundwater is not expected to be impacted by landfilling or tyre storage operations. No ambient environmental quality monitoring is required under the Licence.	N/A
<b>Meteorological monitoring</b>	N/A	No specific meteorological monitoring is required on the Licence.	N/A
<b>Improvements</b>	N/A	No specific improvements are required by DER for the operation at the Project.	N/A
<b>Information</b>	N/A	Standard conditions relating to the management of records and complaints, notification requirements and the submission of an annual audit compliance report and annual environmental report are included in the Licence. The annual report will require evidence of inputs and outputs monitoring. Non-annual reporting requirements and notification requirements are also included in the Licence.	N/A
<b>Licence Duration</b>	N/A	The Licence expiry will be set five years from its commencement.	N/A



## 5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
18/01/2016	Application advertised in West Australian (or other relevant newspaper)	No comments received.	N/A
26/02/2016	Proponent sent a copy of draft instrument	No comments received.	N/A





## 6 Risk Assessment

*Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management*

**Table 1: Emissions Risk Matrix**

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High



## Appendix A

### Premises operation

#### ***Emission Risk Assessment – Operations***

##### **Operation – Tyre fire**

###### Emission Description

*Emission:* Tyre fires can lead to emissions of polycyclic aromatic hydrocarbons (PAHs), benzene, styrene, phenols, butadiene and some heavy metals.

*Impact:* Tyre fires can result in polluted water ways from both fallout and runoff from firefighting waters/foams. The project lies within the upper reaches of two large surface water systems, one of which drains west toward Hamersley Lake while the other drains south toward Lake Deborah East and Lake Eva. In addition, toxic gases from fire smoke can significantly impact on the respiratory systems of nearby fauna.

*Controls:* Although Polaris proposes to store and landfill up to 1,000 tyres per year, it is expected that about 125 tyres will accumulate in the storage area each month. Tyres will be stored for up to 3 months prior to disposal to the landfill.

Sufficient firefighting equipment will be stored onsite to quickly extinguish any fire that may flare up. In addition, aisles between rows of stored tyres will be up to 20 metres in width, to reduce the risk of spread of fire and allow for safe fire fighter access. Polaris has committed to covering landfilled tyres with a minimum 500 mm of soil to prevent fires and vector-borne diseases.

###### Risk Assessment

*Consequence:* Major

*Likelihood:* Unlikely

*Risk Rating:* Moderate

###### Regulatory Controls

Conditions 1.2.6 and 1.2.10 have been applied to the Licence to ensure the appropriate storage of tyres that allows for sufficient buffer zones, restricted stack sizes and easy access for fire equipment. In the unlikely event of a fire these management measures will assist in reducing the size and duration of the fire.

###### Residual Risk

*Consequence:* Major

*Likelihood:* Rare

*Risk Rating:* Moderate



## Appendix B

### Point source emissions to groundwater including monitoring

#### ***Emission Risk Assessment – Operations***

#### **Groundwater mounding**

##### Emission Description

*Emission:* Saline dewatering effluent discharged from J4 Pit to Carina Pit resulting in groundwater contamination and/or mounding.

*Impact:* Mine dewater is expected to raise the standing water level which may reach the root zone of the surrounding undisturbed Priority Ecological Community resulting in reduced plant growth or death. Groundwater beneath J4 Pit is saline with a TDS of approximately 25,000 mg/L compared to approximately 49,000 mg/L at Carina Pit. The two pits also share similar metal/metalloid characteristics meaning the likelihood of significant contamination is low. The cumulative volume of the Carina Pit is 9,935,925 m<sup>3</sup> suggesting that the rate of discharge will not result in mounding of groundwater to within the root zone of native vegetation. The maximum estimated root depth is 20 metres below ground level (mbgl) although groundwater levels are likely to subside at distance from the crest of the Carina Pit where trees are located.

Other than Polaris who utilise groundwater for dust suppression and potable water at the camp, there are no other users of the groundwater at Carina Pit, which is sited within a proposed mining and conservation area.

*Controls:* Polaris propose to cease dewatering at the end of the J4 Project life of mine, which is mid to late 2017. This is before groundwater within the Carina Pit is expected to recover to natural levels post dewatering. Natural groundwater levels within Carina Pit are approximately 80 mbgl providing adequate protection to nearby natural vegetation meaning that the root zone of vegetation is unlikely to be intercepted given the volume of dewater discharge proposed.

##### Risk Assessment

*Consequence:* Major

*Likelihood:* Rare

*Risk Rating:* Moderate

##### Regulatory Controls

As the likelihood of groundwater mounding into the root zone of Priority Ecological Communities is highly unlikely, freeboard limits have not been set in the Licence. However, decreased throughput limits will serve to protect native vegetation from rising groundwater. The residual risk remains unchanged.



## Appendix C

### Emissions to land including monitoring

#### ***Emission Risk Assessment – Operations***

#### **Operation – Pipeline leak or rupture**

##### Emission Description

*Emission:* Pipeline leak or spill dewatering effluent from J4 Pit which is saline with Total Dissolved Solids (TDS) recorded at 25,000 mg/L.

*Impact:* A discharge in the event of a pipeline leak or spill could result in salt scarring and/or vegetation death. The most likely point of discharge of saline water from a pipeline failure would be along the haul road where there are a number of Priority 3 Flora. The pipeline also crosses the Yendiberin Priority Ecological Community near to the Carina Pit and through the Mount Manning-Helena and Aurora Ranges Conservation Park. As a spill has the potential to cause long term impacts to listed species and high value ecosystems, the consequence of a spill is measured as 'major'.

*Controls:* Polaris has constructed pipelines within a shallow v-drain and/or bunding on either side for the pipeline to contain any unintentional leakage. These v-drains are designed to contain a spill/leak in the unlikely event of an overflow. Manual shutoff valves are located along pipelines to enable sections of pipeline to be isolated in the event of a failure or for undertaking maintenance and Polaris propose to regularly inspect pipeline infrastructure for leaks.

On 29 July 2015 the pipeline, which was only used for dust suppression at the time, failed releasing saline water and impacting approximately 500 m<sup>2</sup> of native vegetation. The cause of the pipeline rupture was a failed welding connection. Based on this recent incident, the likelihood of another pipeline failure is 'possible'.

##### Risk Assessment

*Consequence:* Major

*Likelihood:* Possible

*Risk Rating:* High

##### Regulatory Controls

Conditions 1.2.1 and 1.2.3 ensure dewatering pipeline remains within secondary containment capable of containing any spill for a period between the required routine daily inspections. Any discharge of saline dewater within the Premises boundary would be in contravention of condition 1.2.2. MS988 requires Polaris to ensure that the use of saline dewater for dust suppression does not impact the surrounding environment (native vegetation).

##### Residual Risk

*Consequence:* Major

*Likelihood:* Unlikely

*Risk Rating:* Moderate



## Appendix D

### Fugitive emissions

#### Operation – General

##### Emission Description

*Emission:* Vehicle movements around the J4 Project and along the haul road as well as landfilling activities such as covering and trench excavation resulting in fugitive dust emissions. Dust from the stemming plant is expected when rock screening is occurring.

*Impact:* Excessive dust depositing may interfere with the habits of native fauna by impacting their respiratory systems. As landfilling operations are small, mining will be conducted below ground level, dust emissions are not anticipated to be significant.

Screening of stemming material is expected to generate the greatest amount of dust of the prescribed activities at the J4 Project with finer screened materials used for stemming being a greater source of fugitive emissions than larger rock material. Although 100,000 tonnes of rock will be screened per annual period, this is only expected to produce 40,000 tonnes of stemming material. The nearest Threatened Fauna identified to the J4 Project was a migratory bird species located over 1.5 km to the north. Therefore it is likely that threatened or endangered animals sensitive to ambient dust will be able to easily vacate the area if necessary.

Dust emissions may also impact native vegetation as it can block stomata, limiting the plant's ability to photosynthesise and potentially resulting in stunted growth, death or inhibited reproductive potential. A Priority flora species has been identified approximately 450 m north of the J4 Pit and is unlikely to be impacted by fugitive emissions from J4 mining operations.

*Controls:* Dewatering water is currently pumped to a turkey's nest dams for use for dust suppression throughout the Yilgarn Operations. Water carts used for dust suppression on the haul road will also be equipped with cannons capable of suppressing dust at the plant and surrounding area. Discharge of dewater to the Carina Pit only occurs once all dust suppression requirements are met.

##### Risk Assessment

*Consequence:* Minor

*Likelihood:* Rare

*Risk Rating:* Low

##### Regulatory Controls

Stemming operations will not be permitted to exceed 100,000 tonnes per year. Polaris controls are expected to satisfactorily minimise dust impacts and no further regulatory controls are required. MS 988 requires Polaris to ensure that vehicle movements along the haul road do not result in dust emissions likely impact the surrounding environment.