Government of Western Australia
Department of Environment Regulation

Licence

Environmental Protection Act 1986, Part V

Licensee: Karara Mining Limited

Licence: L8721/2013/1

Registered office: Level 8 London House
216 St Georges Terrace
PERTH WA 6000

ACN: 070 871 831

Premises address: Karara Minesite Beneficiation Plant
M59/644, M59/645, G59/38 and L59/99
PERENJORI WA 6620
as depicted in Schedule 1

Issue date: Thursday, 16 May 2013

Commencement date: Monday, 20 May 2013

Expiry date: Saturday, 19 May 2018

Prescribed premises category
Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
05	Processing or beneficiation of metallic or non-metallic ore	50 000 tonnes per year	Not more than 12 000 000 tonnes per year
64	Class II putrescible landfill site	20 tonnes or more per year	Not more than 5 000 tonnes per year
54	Sewage facility	100 cubic metres or more per day	540 cubic metres per day

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

Date signed: 11 November 2015
.....
Alana Kidd
Manager Licensing – (Resource Industries)
Officer delegated under section 20
of the *Environmental Protection Act 1986*

Contents

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
The Karara Minesite Beneficiation Plant (the Premises) is located within the Blue Hills Ranges in the Midwest region of Western Australia approximately 80 kilometres (km) east of Morawa. The nearest sensitive land use is the Karara Homestead, approximately 7 km distant.

The plant consists of a crushing plant (primary and secondary crushing), screens, magnetic separation, thickeners and filter plants, and a Tailings Storage Facility (TSF).

Primary disposal of tailings from the beneficiation plant is via dry-stacked tailings material. All tailings with a moisture content ≤ 20% are dry-stacked over the TSF footprint of 450 hectares (ha) using a radial stacker pattern.

Operational constraints have restricted the tailings filtration circuit of the processing plant. This has resulted in limitations in the total volume of dry tails that the plant can produce, and subsequently the total volume of saleable product. To alleviate this constraint, Karara has constructed and operates a wet tailings storage facility. Wet tailings are considered all material with moisture content greater than 20%, however is commonly operated at 45% moisture.

The wet TSF (TSF1) has been constructed within the footprint of the (dry) TSF under works approval W5545/2013/1. Out-of-specification tails are diverted to TSF1 via a slurry pipeline. The tailings are considered benign; therefore the TSF is not lined.

Karara also operates a category 54 batch type wastewater treatment plant (WWTP) on the premises, located 480 m west of the Karara Accommodation Village. Treated wastewater is discharged to a spray field or reused for dust suppression. The spray field is located 750 m north of the Accommodation Village and is bordered by native vegetation to the north and west.

A putrescible landfill is located in the waste rock dump. Tyres are included in waste buried.

This Licence amendment provides for the addition of a wet tailing storage facility TSF1 and also includes the amalgamation of L8486/2010/1 (the Karara Construction Camp and Accommodation Village Waste Water Treatment Plant).

The main risk of emissions from the premises is dust, potentially contaminated stormwater, wet tailings pipeline spillage, and effluent discharge to land. The premises risk is considered Low.

The licences and works approvals issued since 12/02/2010 are:

Instrument log		
Instrument	**Issued**	**Description**
W4596/2009/1	10/12/2009	Works Approval - Karara Landfill Facility
W4615/2009/1	12/02/2010	Works Approval - Karara Minesite Beneficiation Plant
W4620/2009/1	05/03/2010	Works Approval – WWTP

L8486/2010/1	09/12/2010	Licence – WWTP
L8721/2013/1	16/05/2013	Licence - Karara Minesite Beneficiation Plant
L8721/2013/1	26/09/2013	Amendment Licence - Karara Minesite Beneficiation Plant
W5545/2013/1	20/01/2014	Works Approval – wet tailings TSF1
W5664/2014/1	11/7/2014	Works Approval – wet tailings TSF2 (Stage 1 and Stage 2)

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 In the Licence, unless the contrary intention appears:

'AACR' means the Annual Audit Compliance Report;

'Acceptance Criteria' has the meaning defined in Landfill Waste Classification and Waste Definitions 1996 (As amended December 2009), published by the CEO and as amended from time to time;

'Act' means the *Environmental Protection Act 1986;*

'annual period' means the period from 1 July until 30 June in the following year;

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples;*

'AS/NZS 5667.10' means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters;*

'averaging period' means the time over which a limit or target is measured or a monitoring result is obtained;

'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
Email: info@der.wa.gov.au

'cfu/100mL means coliform forming units per 100millilitres;

'freeboard' means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

'HDPE" means high density polyethylene;

'Inert Waste Type 1' has the meaning defined in Landfill Waste Classification and Waste Definitions 1996 (As amended December 2009), published by the CEO and as amended from time to time;

'Inert Waste Type 2' has the meaning defined in Landfill Waste Classification and Waste Definitions 1996 (As amended December 2009), published by the CEO and as amended from time to time;

'Landfill Waste Classification and Waste Definitions 1996 (As amended December 2009)' means the document entitled "Landfill Waste Classification and Waste Definitions 1996 (As amended December 2009), published by the Chief Executive Officer and as amended from time to time;

'Licence' means this Licence numbered L8721/2013/1 and issued under the Act;

'Licensee' means the person or organisation named as Licensee on page 1 of the Licence;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'Putrescible' has the meaning defined in Landfill Waste Classification and Waste Definitions 1996 (As amended December 2009), published by the CEO and as amended from time to time;

'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;

'spot sample' means a discrete sample representative at the time and place at which the sample is taken; and

'tipping area' means the area of the landfill in which waste other than cover material is being deposited.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of 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.

1.1.5 Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:
(a) pollution;
(b) unreasonable emission;
(c) discharge of waste in circumstances likely to cause pollution; or

(d) being contrary to any written law.

1.2 General conditions

1.2.1 The Licensee shall operate and maintain all pollution control and monitoring equipment to the manufacturer's specification or any relevant and effective internal management system.

1.2.2 The Licensee shall immediately recover, or remove and dispose of spills of environmentally hazardous materials outside an engineered containment system.

1.2.3 The Licensee shall:
(a) implement all practical measures to prevent stormwater run-off becoming contaminated by the activities on the Premises; and
(b) treat contaminated or potentially contaminated stormwater as necessary prior to being discharged from the Premises.[1]

Note1: *The Environmental Protection (Unauthorised Discharges) Regulations 2004* make it an offence to discharge certain materials into the environment.

1.3 Premises operation

1.3.1 The Licensee shall ensure that materials listed in Table 1.3.1 are only discharged into containment structures with the relevant infrastructure requirements and at the location specified in Table 1.3.1 and identified in Schedule 1.

Table 1.3.1: Containment infrastructure

Containment structure	Reference location on maps of containment structures (Schedule 1)	Material	Infrastructure requirements
Tailings Storage Facility	TSF	Dry tailings (≤ 20% moisture content)	Constructed to ensure that all potentially contaminated surface water runoff from the TSF landform is directed to the retention pond as located in Schedule 1, Map 2.
Tailing Storage Facility 1	TSF1	Tailings	Constructed from compacted mine waste and filtered tailings.

1.3.1 The Licensee shall:
(a) undertake inspections as detailed in Table 1.3.2;
(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 1.3.2: Inspection of infrastructure

Scope of inspection	Type of inspection	Frequency of inspection
Tailings pipelines	Visual integrity	Daily
Return water lines	Visual integrity	Daily
TSF1 storage embankments	Visual to confirm no unusual changes and at least 500mm freeboard capacity	Daily

1.3.3 The Licensee shall ensure that where wastes produced on the Premises are not taken off-site for lawful use or disposal, they are managed in accordance with the requirements in Table 1.3.3.

Table 1.3.3: Management of waste		
Waste type	**Management strategy**	**Requirements**
Sewage	Biological, physical and chemical treatment	• No more than 540 m^3 per day. • Sludge drying beds on a bunded hardstand and disposal of dry sludge to the premises landfill.
Clean Fill Inert Waste Type 1 and 2 Putrescible Waste Other waste that meets the acceptance criteria for Class II landfills	Receipt, handling and disposal of waste by landfilling	<u>All waste types</u> • No more than 5,000 tonnes per year of all waste types cumulatively shall be disposed of by landfilling in the landfill. • Disposal of waste by landfilling shall only take place within the landfill area shown on Map 5 of Schedule 1. • Construction, operation and decommissioning of landfill cells can occur within the defined landfill area providing there is no waste within: o 100 m of any surface water body; and o 3 m of the highest level of the water table aquifer; • Waste shall be placed in a defined trench or within an area enclosed by earthen bunds; • The active tipping face shall be restricted to a maximum vertical height of 3 m; and • Cell locations where waste is to be buried will be surveyed and the latitude and longitude recorded.

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

1.3.4 The Licensee shall ensure that cover is applied to waste in accordance with Table 1.3.4 and that sufficient stockpiles of cover are maintained on site at all times.

Table 1.3.4: Cover requirements [1]			
Waste Type	**Material**	**Depth**	**Timescales**
Putrescible waste	Inert and incombustible material	300mm	At least weekly.
All waste		1000mm	Within 3 months of achieving final waste contours.
Inert Waste Type 2 (Tyres)	Soil	500mm	As soon as practical following the achievement of final waste levels in the area(s) where tyres are disposed of

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

1.3.5 The Licensee shall take all reasonable and practical measures to ensure that no windblown waste escapes from the landfill area and that windblown waste is collected on at least a monthly basis and returned to the active tipping area.

2 Emissions

2.1 General

2.1.1 The Licensee shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Licence.

2.2 Emissions to land

2.2.1 The Licensee shall ensure that where waste is emitted to land from the emission points in Table 2.2.1 and identified on the map of emission points in Schedule 1, Map 3 it is done so in accordance with the conditions of this Licence.

Table 2.2.1: Emission to land

Emission point [and location on Map of Emission Points]	Description	Source including abatement
Spray field	Discharge of wastewater to a 16 ha spray field area	Treated wastewater from the Waste Water Treatment Plant

2.3 Fugitive emissions

2.3.1 The Licensee shall ensure dust emissions are managed in accordance with the Karara Corporate Standard Environmental Plan – Dust Management Plan, Corp-EN-PLN-1010, 24 June 2014.

3 Monitoring

3.1 General monitoring

3.1.1 The Licensee shall ensure that:
(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;
(c) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured [unless indicated otherwise in the relevant table].

3.1.2 The Licensee shall ensure that:
(a) monthly monitoring is undertaken at least 15 days apart;
(b) quarterly monitoring is undertaken at least 45 days apart;
(c) six monthly monitoring is undertaken at least 5 months apart; and
(d) annual monitoring is undertaken at least 9 months apart.

3.1.3 The Licensee shall ensure that all monitoring equipment used on the Premises comply with the conditions of this Licence and is calibrated in accordance with the manufacturer's specifications.

3.1.4 The Licensee shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

3.2 Monitoring of emissions to land

3.2.1 The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of emissions to land

Emission point reference [as shown on Map of Monitoring Locations]	Parameter	Units	Reference Period	Frequency
M2	pH[1]	Non specified	Spot sample	Quarterly
	5-day biochemical oxygen demand	mg/L		
	Disinfection - chlorine residual[1]			
	total dissolved solids			
	total nitrogen as N			
	total phosphorus as P			
	Escherichia coli	cfu/100 mL		

Note 1: In-field non-NATA accredited analysis permitted.

3.3 Monitoring of inputs and outputs

3.3.1 The Licensee shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Monitoring of inputs and outputs					
Input/Output	**Monitoring point reference**	**Parameter**	**Units**	**Averaging period**	**Frequency**
Treated wastewater	Magflow metre (M1)	Volumetric flow rate (cumulative)	m^3/day	Monthly	Continuous
Treated wastewater discharged to the spray field	(M3)	Volumetric flow rate (cumulative)	m^3/day	Monthly	Continuous

4 Information

4.1 Records

4.1.1 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 4.1.1(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.

4.1.2 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.

4.1.3 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.

4.1.4 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.

4.2 Reporting

4.2.1 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 4.2.1 in the format or form specified in that table.

Table 4.2.1: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form[1]
-	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
-	Comparison of the approved production and design capacities and actual production/throughput for the Annual Period	None specified
Table 3.2.1	Monitoring of emissions to land	LR1
Table 3.3.1	Monitoring of inputs and outputs	None specified
4.1.3	Compliance	Annual Audit Compliance Report (AACR)
4.1.4	Complaints summary	None specified
N/A	An assessment of monitoring results collected within the Annual Period against previous monitoring results and any limits specified in this Licence.	None specified

Note 1: Forms are in Schedule 2

4.2.2 The Licensee shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements

Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form[1]
-	Copies of original monitoring reports submitted to the Licensee by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licensee from third parties

4.3 Notification

4.3.1 The Licensee shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements

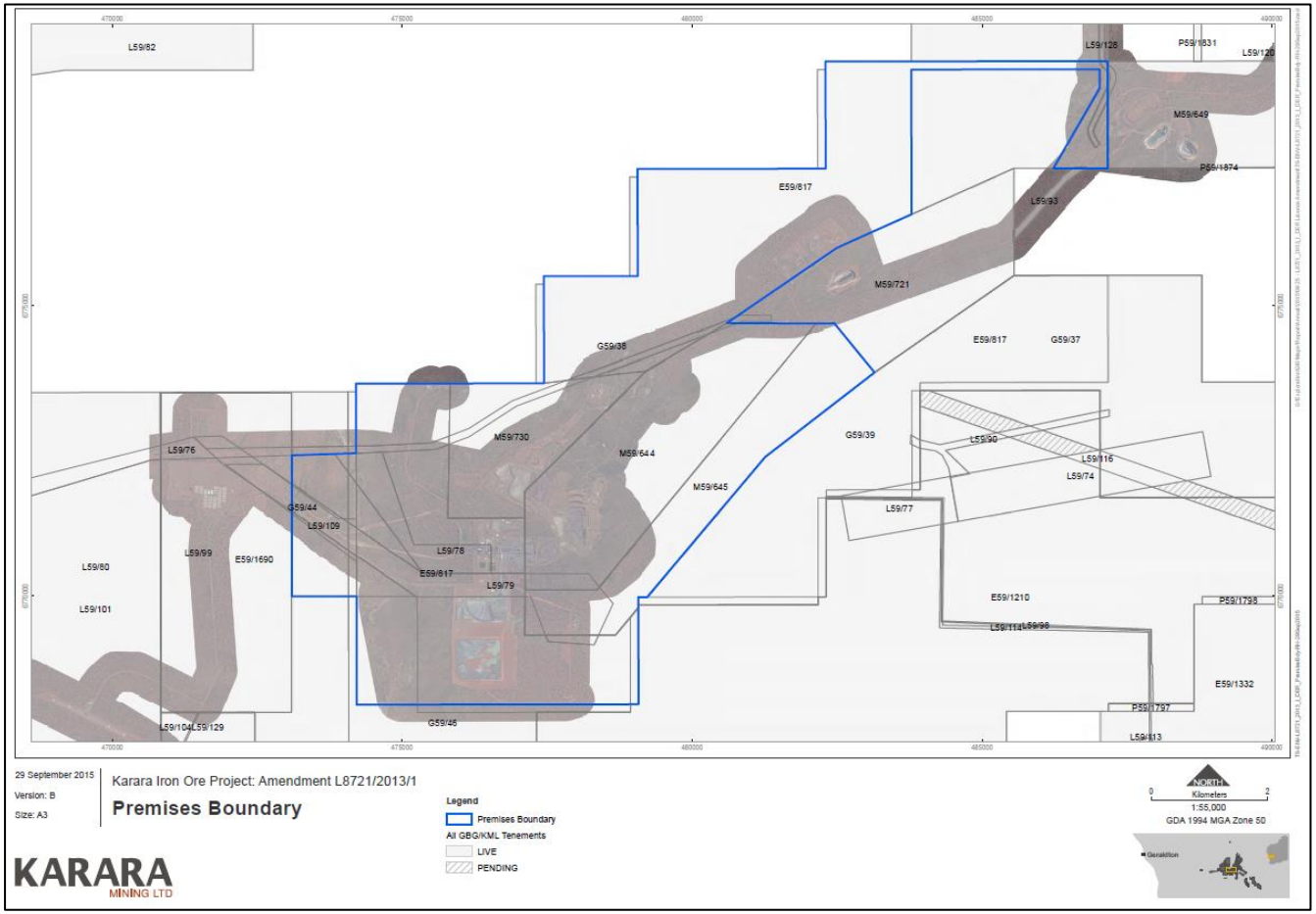
Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
2.1.1	Breach of any limit specified in the Licence.	Part A: As soon as practicable or within 72 hours after any incident which has caused, is causing or may cause pollution, has occurred.	N1
		Part B: As soon as practicable.	
-	Production ceasing for an unspecified period of time	As soon as practicable after the decision has been made.	None Specified
-	Production recommencing	At least 28 days prior to production recommencing.	None specified

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.

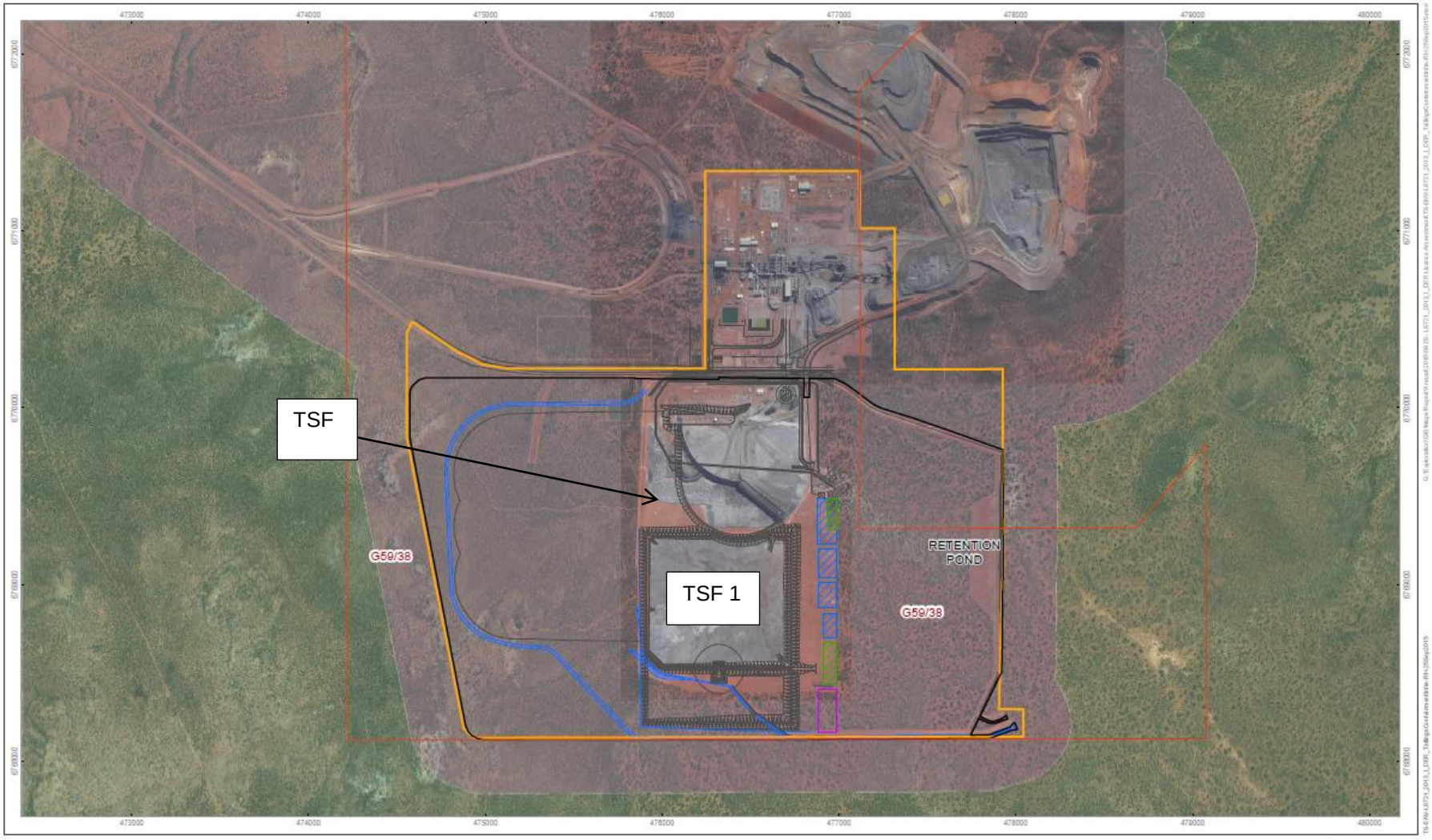
Schedule 1: Maps

Map 1: Premises map

The Premises is shown in the map below. The blue line depicts the Premises boundary.

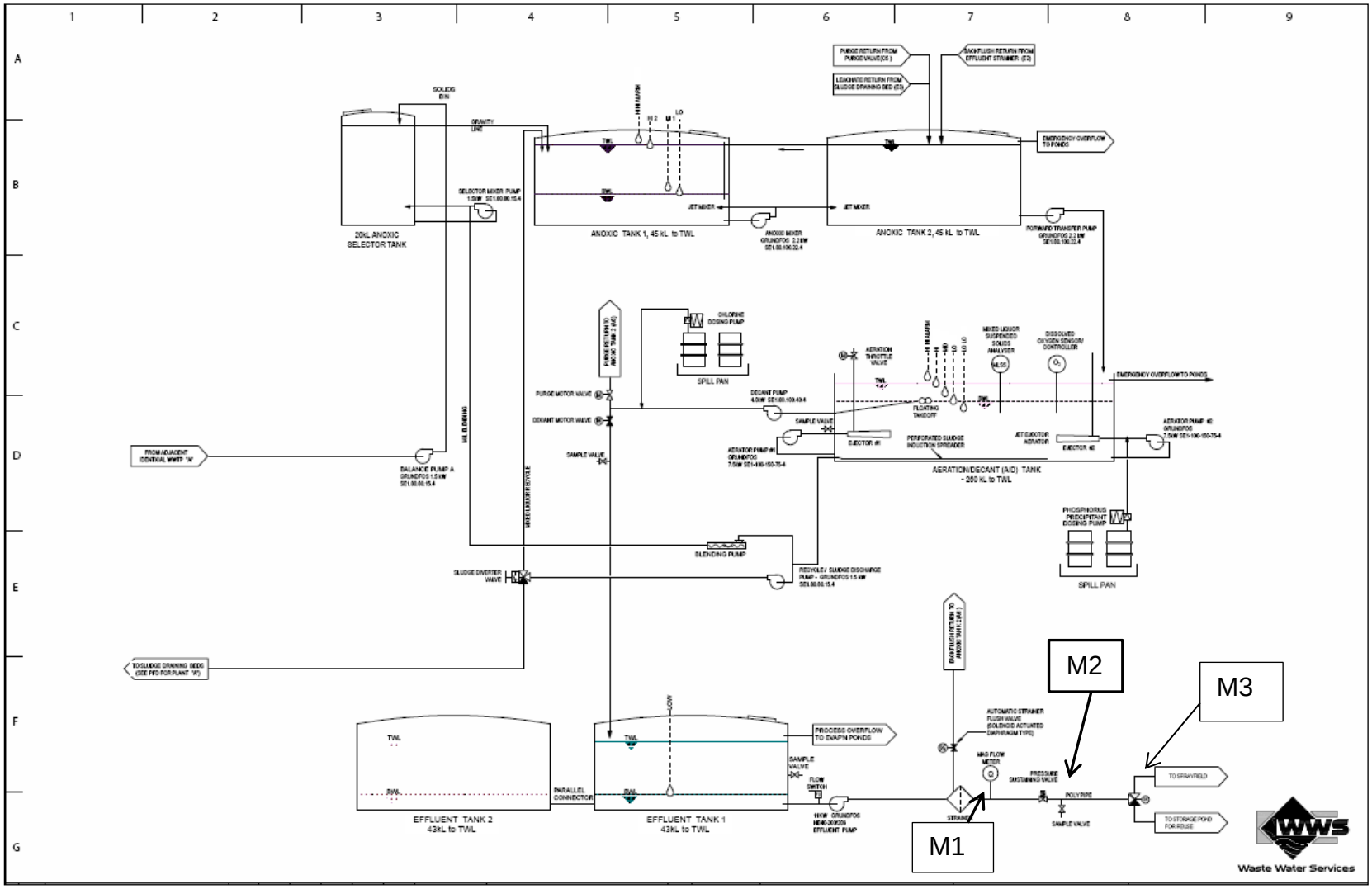


Map 2: Map of containment structures TSF and TSF 1

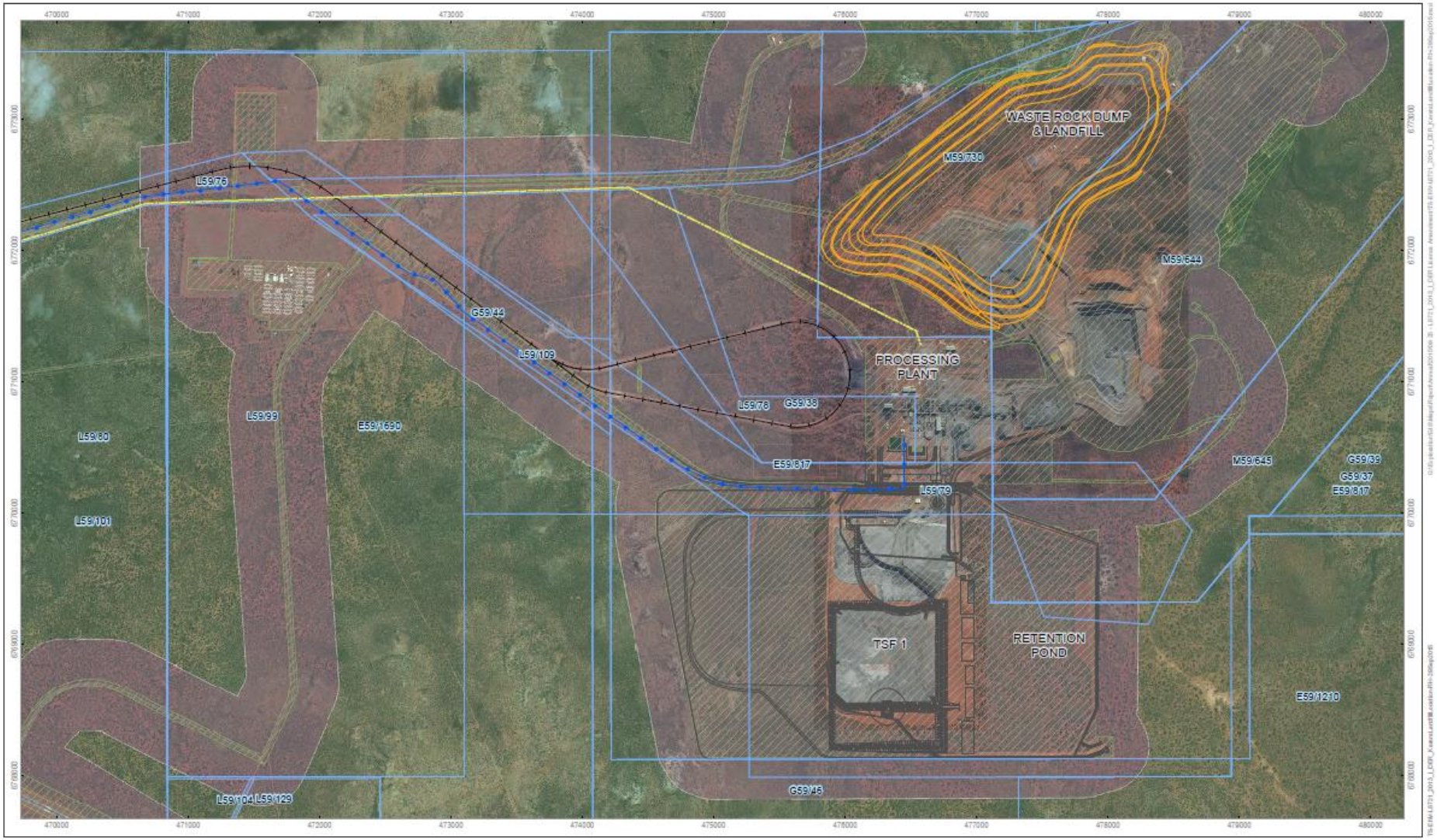


Map 3: Map of emission point - Spray field

Map 4: Map of monitoring points



Map 5: Map of waste rock dump/landfill location



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: Trading as:	ACN:
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?:	
☐ Yes ☐ Reported to DER verbally Date _____ ☐ Reported to DER in writing Date _____	☐ No
d) Has DER taken, or finalised any action in relation to the non compliance?:	
e) Summary of particulars of the non 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) must 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	□ □	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	□ □	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	□ □ □ □ □ □	by affixing the common seal of the licensee in accordance with the *Corporations Act 2001*; 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)	□ □	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	□ □	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: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SEAL (if signing under seal)

Licence: L8721/2013/1 Licensee: Karara Mining Limited
Form: LR1
Name: Monitoring of emissions to land **Period: ……**

Form LR1: Monitoring of emissions to land					
Emission point	**Parameter**	**Result**[1]	**Averaging period**	**Method**	**Sample date & times**
M1	Volumetric flow rate (cumulative)	m^3/day	Monthly		
M3	Volumetric flow rate (cumulative)	m^3/day	Monthly		
M2	pH	mg/L	Spot sample		
	5-day biochemical oxygen demand	mg/L			
	Disinfection - chlorine residual[1]	mg/L			
	total dissolved solids	mg/L			
	total nitrogen as N	mg/L			
	total phosphorus as P	mg/L			
	Escherichia coli	cfu/100 mL			

Note 1: All units are referenced to STP dry

Signed on behalf of Karara Mining Limited: …….. Date: …….

Licence: L8721/2013/1 Licensee: Karara Mining Limited
Form: N1 **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	

Notification requirements for the breach of a limit	
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 Karara Mining Limited	
Date	

Government of Western Australia
Department of Environment Regulation

Partial Decision Document

Environmental Protection Act 1986, Part V

Proponent: Karara Mining Limited

Licence: L8721/2013/1

Registered office:	Level 8, London House 216 St Georges Terrace PERTH WA 6000
ACN:	070 871 831
Premises address:	Karara Minesite Beneficiation Plant M59/644, M59/645, G59/38 and L59/99 PERENJORI WA 6620
Issue date:	Thursday, 16 May 2013
Commencement date:	Monday, 16 May 2013
Expiry date:	Saturday, 19 May 2018

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue an amended 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:	Lindy Twycross Licensing Officer
Decision Document authorised by:	Alana Kidd Manager Licensing – Resource Industries

Contents

1 Purpose of this Document

This decision document explains how DER has assessed and determined the application for a works approval or licence, 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 ☐ New Licence ☐ Licence amendment ☒ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	**Category number(s)**	**Design capacity**
	05	Not more than 12,000,000 tonnes per year
	64	Not more than 5,000 tonnes per year
	54	540m^3 sewage per day
Application verified Application fee paid	Date: NA Date: NA	
Works Approval has been complied with (W5545/2013/1) Compliance Certificate received (28/02/2014)	Yes ☒ No ☐ N/A ☐ Yes ☒ No ☐ N/A ☐	
Commercial-in-confidence claim	Yes ☐ No ☒	
Commercial-in-confidence claim outcome	NA	
Is the proposal a Major Resource Project?	Yes ☒ No ☐	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes ☒ No ☐	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Is the proposal subject to Ministerial Conditions?	Yes ☒ No ☐	Ministerial statement No: 805 and 895 EPA Report No: 1321 and 1436
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes ☐ No ☒ Department of Water consulted Yes ☐ No ☒	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes ☐ No ☒ If Yes include details of which EPP(s) here.		
Is the Premises subject to any EPP requirements? Yes ☐ No ☒ If Yes, include details here, e.g. Site is subject to SO_2 requirements of Kwinana EPP.		

3 Executive summary of proposal

Premises description and Licence summary
The Karara Minesite Beneficiation Plant (the Premises) is located within the Blue Hills Ranges in the Midwest region of Western Australia approximately 80 kilometres (km) east of Morawa. The nearest sensitive land use is the Karara Homestead, approximately 7 km from the Premises.

The depth to groundwater is approximately 50 metres below ground level. The area is described as 'bedrock with almost no porosity or permeability. The area has a high evaporation rate and low rainfall.

The plant consists of a crushing plant (primary and secondary crushing), screens, magnetic separation, thickeners and filter plants, and a Tailings Storage Facility (TSF).

Geochemical testing of the process tailings samples were undertaken in 2007 by Graeme Campbell & Associates (GCA). The combined tailings product was determined to be non-acid forming and inert, and slightly enriched with arsenic and selenium, however GCA concluded that the quantity in the samples was low and did not represent a significant risk of leaching under neutral pH conditions.

Primary disposal of tailings from the beneficiation plant is via dry-stacked tailings material. All tailings with a moisture content ≤ 20% are dry-stacked over the TSF footprint of 450 hectares (ha) using a radial stacker pattern. No embankments or pipelines are required for the dry tailings due to its inert dry nature. Due to the benign nature of the tailings, the TSF is not lined.

The TSF is surrounded and protected by stormwater berms and channels. Potentially turbid stormwater runoff from the TSF landform is directed to a retention pond lined with high density polyethylene (HDPE), and designed to accommodate flows from a 1-in-100-year, 72-hour rainfall event. Retention pond water can be pumped back to the processing plant or used for dust suppression.

Operational constraints have restricted the tailings filtration circuit of the processing plant. This has resulted in limitations in the total volume of dry tails that the plant can produce, and subsequently the total volume of saleable product. To alleviate this constraint, Karara has constructed a wet tailings storage facility under Works Approval W5545/2013/1. Wet tailings are considered all material with moisture content greater than 20%, however is commonly operated at 45% moisture.

Tailings with moisture content ≤ 20% are continued to be dry-stacked, wetter tailings are diverted by slurry pipeline and stored in temporary wet paddock style TSF1 located within the footprint of the (dry) TSF. TSF1 is a paddock type and the embankments are constructed from existing dry tailings material mixed with clayey/silt sub-soil material, compacted to restrict seepage. A key trench has been constructed to a depth of 1.5 m to bedrock on the internal embankment to restrict seepage.

Pipeline pressure is monitored within a Supervisory Control and Data Acquisition system. The slurry pipeline and water return line is visually checked daily for leaks and spills.

Excess water from TSF1 is drawn from the surface using a standard floating suction design and pumped via a HDPE pipeline network back to the processing plant process water tanks for reuse. The TSF1 is considered low risk.

As part of this amendment, the Wastewater Treatment Plant (WWTP) Licence L8486/2010/1 for Karara's accommodation village has been amalgamated into the Licence. The WWTP is designed to service up to 1500 persons and has a combined anticipated maximum flow rate of 486 m^3 of sewage per day, with a throughput design capacity of 540 m^3 of sewage per day. The WWTP comprises two

package (sequencing batch reactor) WWTPs. The WWTP is located approximately 480 m west of the Karara Accommodation Village. Treated effluent is discharge to an effluent spray field located approximately 750 m north of the Accommodation Village, or reused for on-site dust suppression.

A putrescible landfill is located in the waste rock dump.

For this amendment, DER has considered whether the risk profile of emissions and discharges from the premises has significantly changed since the previous licence was granted. No significant change to the risk profile has occurred and therefore DER has not amended conditions relating to emissions and discharges other than those relating to the addition of TSF1 and the amalgamation of Licence L8486/2010/1 (WWTP). Conditions for L8486/2010/1 were transferred and amalgamated into this licence. The amendment also includes updating to the latest licence version format.

The addition of TSF1 is considered low risk, as was the previous licences. The duration of the licence remains 5 years.

4 Decision Table

All applications are assessed under 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 W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference Documents**
General Conditions	L1.2.3	Previous condition relating to storage of environmentally hazardous materials has been removed due to other application legislation and a licence version update. General conditions for previous licences L8721/2013/1 and L8486/2010/1 remain. TSF1 is located within the larger TSF. L1.2.3 for stormwater management is applicable to TSF1.	Application documentation

DECISION TABLE			
Works Approval / Licence Section	**Condition Number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference Documents**
Premises operation	L1.3.1 L1.3.2 L1.3.3	**TSF1** <u>Emission Description</u> *Emission: S*eepage from wet tailings (> 20% moisture content) or spill from tailings pipelines. *Impact:* Potential impacts on the ecology of fauna and flora and ground due to flow and spread of tailings. *Controls:* There are no surrounding surface water features. Distance to groundwater is 50m. Tailings with more than 20% moisture content are discharged via HDPE pipeline into TSF1. TSF1 is constructed from existing clayey/silt sub-soil material which has been compacted to restrict seepage. TSF1 is located within the larger TSF. Net acid generation (NAG) test results indicated that the tailings are non-acid forming with pH results from 7.8 to 8.4. Tailings samples were found to be slightly enriched with arsenic and selenium, however consultants Graeme Campbell & Associates (GCA) concluded that the quantity was low and did not represent a significant risk of leaching under neutral pH conditions. The tailings are considered to be benign. Slurry pipe line pressure is monitored for early identification of leaks. Pipelines are inspected daily for leaks or spills. In the event of spillage from tailing pipes, spill is directed to the retention dam positioned east of the TSF. Excess water from TSF1 is drawn from the surface and pumped for re-use via HDPE pipe back to the process plant. Embankments and freeboard are inspected daily.	W5545/2013/1 application and compliance documents *Environmental Protection Act 1986.* *Environmental Protection (Unauthorised Discharges) Regulations 2004.*

DECISION TABLE			
Works Approval / Licence Section	**Condition Number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference Documents**
		Risk Assessment *Consequence:* Minor *Likelihood:* Unlikely *Risk Rating:* Moderate Regulatory controls L1.3.1 has been added to ensure wet tailings (moisture content >20%) are deposited in TSF1. L1.3.2 ensures 500mm freeboard and daily inspection of tailings and return pipelines and TSF1 embankments. Residual Risk *Consequence:* Minor *Likelihood:* Rare *Risk Rating:* Low	
Premises operation	L1.3.3	**WWTP** Premises operation for the WWTP remains the same with no changes to the risk profile identified. L1.3.3 for treatment limit and disposal of sludge have been added.	*Environmental Protection Act 1986.* L8486/2010/1
Premises operation	L1.3.3 L1.3.4 L1.3.5	**Putrescible Landfill** The landfill is located in the waste rock dump. Tyres are buried in the landfill and the Licensee requested the landfill be licenced as a class II landfill. L1.3.3 - L1.3.5 have been included for management and covering	*Environmental Protection Act 1986.* *Environmental Protection Regulations 1987,* Part 6

DECISION TABLE			
Works Approval / Licence Section	**Condition Number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference Documents**
		of waste.	Works Approval W54596/2009/1
Point source emissions to air including monitoring	NA	There are no point source emissions to air due to operation of TSF1. The previous licences did not impose any conditions for emissions to air and there is no change to the risk profile. Therefore, there are no conditions relating to point source emissions to air.	Works approval W5545/2013/1 application documents L8486/2010/1
Point source emissions to surface water including monitoring	NA	There are no point source emissions to surface water due to operation of TSF1. The previous licences did not impose any conditions for emissions to surface water and there are no changes to the risk profile Therefore, there are no conditions relating to point source emissions to surface water.	Works approval W5545/2013/1 application documents L8486/2010/1
Emissions to land including monitoring	NA L2.2.1 L3.2.1	**TSF1** There are no direct emissions to land due to operation of TSF1. The previous licence did not impose any conditions for emissions to land and there has not been a change to the risk profile identified. **WWTP** Effluent is discharged to a spray field. Map 3: Map of spray field is included to locate the irrigation area. Monitoring of emissions to land from the WWTP remains unchanged. L3.2.1 replaces conditions 12 and 13 of L8486/2010/1 for	Works approval W5545/2013/1 application documents L8486/2010/1

DECISION TABLE			
Works Approval / Licence Section	**Condition Number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference Documents**
		monitoring parameters and frequency. Targets have been removed as part of the update to the current licence format as the WWTP is low risk, given the distance to groundwater and effluent quality.	
Point source emissions to groundwater including monitoring	NA	There are no point source emissions to groundwater or requirement for monitoring of groundwater due to the operation of TSF1. The previous licences did not impose any conditions for emissions to ground water and the risk profile remains unchanged. Therefore there are no conditions relating to point source emissions to groundwater.	Works approval W5545/2013/1 application documents L8486/2010/1
Fugitive Emissions	L2.3.1	**TSF1 – Construction and operation** <u>Emission Description</u> *Emission:* Dust from TSF1. *Impact:* Dust emissions can be harmful to human health and the environment. Elevated total suspended particulates (TSP) can impact the ambient environmental quality and can smother vegetation. Blue Hills vegetation complexes (Priority Ecological Community) and two priority flora species are located within the Karara mine site. *Controls:* Distance to closest human land use is 7km. Dust management is in accordance with Karara Corporate Standard Environmental Plan – Dust Management Plan, Corp-EN-PLN-1010, 24 June 2014. Management of dust includes: • Sprays at conveyor transfer points; • Dust control system installed on the primary crusher; • Moisture control of crusher feedstock; • Water cannons at crusher feed hopper and ore stockpiles and ROM pads; • Stockpiles constructed to prevent soil lift-off;	Works approval W5545/2013/1 application and compliance documents L8486/2010/1 *Environmental Protection Act 1986.* *Environmental Protection (Unauthorised Discharges) Regulations 2004* Karara Corporate Standard Environmental Plan – Dust

DECISION TABLE			
Works Approval / Licence Section	**Condition Number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference Documents**
		• Dedicated water trucks are used to control dust from roads and exposed areas; • Speed of traffic managed; • Progressive vegetation clearance; • Dust monitoring collected monthly; • Vegetation health monitoring; and • Contingency actions if listed criteria breached. <u>Risk Assessment</u> *Consequence:* Moderate *Likelihood:* Unlikely *Risk Rating:* Moderate <u>Regulatory Controls</u> Ministerial Statement 805 condition 6-5 and 6-6 requires monitoring of the Blue Hills Vegetation Complex and implementing measures if disturbed. Previous conditions L 2.6.1 and L2.6.2 are removed with Licence format update, but given the risk is moderate, a condition for implementation of the dust management plan remains. <u>Residual Risk</u> *Consequence:* Moderate *Likelihood:* Rare *Risk Rating:* Moderate **WWTP** L8486/2010/1did not impose controls for fugitive emissions the risk profile remains low .	Management Plan, Corp-EN-PLN-1010, 24 June 2014

DECISION TABLE			
Works Approval / Licence Section	**Condition Number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference Documents**
Odour	NA	**TSF1** There is no odour associated with TSF1. No odour complaints have been received. The previous licences did not impose controls on odour and this remains a low risk. The general provisions of the EP Act apply. Therefore no conditions have been included in this section.	*Environmental Protection Act 1986.* Works approval W5545/2013/1 application documents L8486/2010/1
Noise	NA	There are no significant changes to noise from the premises due to operation of TSF1. The previous licences did not impose any conditions for noise and this remains a low risk. Therefore there are no specified conditions relating to noise in this section.	Works approval W5545/2013/1 application documents L8486/2010/1
Monitoring General	NA L3.1.1 L3.1.2 L3.1.3 L3.1.4	**TSF1** Monitoring is not required for TSF1. **WWTP** . L3.1.1 – L3.1.4 have been included and replace conditions 4, 10 and 11 of L8486/2010/1, for sampling and laboratory standards.	NA NA
Monitoring of inputs and outputs	NA L3.3.1	**TSF1** Monitoring of inputs and outputs is not required for TSF1. **WWTP** L3.3.1 replaces condition 7 of L8486/2010/1, for monitoring volume of sewage inflow and effluent discharged to the irrigation area.	NA NA
Process Monitoring	NA	As the previous licences did not require process monitoring, no specified conditions have been included in this section.	NA

DECISION TABLE			
Works Approval / Licence Section	**Condition Number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference Documents**
Ambient Quality Monitoring	NA	As the previous licences did not require ambient quality monitoring, no specified conditions have been included in this section.	NA
Meteorological monitoring	NA	As the previous licences did not require meteorological monitoring, no specified conditions have been included in this section.	NA
Information	L4.2.3 L4.3.1 L4.2.1 L4.2.2 L5.2.3 L5.3.1 L5.3.3 L5.3.3	Reporting requirements have been included for notification to DER when ceasing care and maintenance status and to submit copies of original monitoring reports upon request. **WWTP** Conditions L4.2.1 – L4.2.3 replace conditions 17(a) – (d) and 18 for annual reporting. Conditions 17(e) & (f) are considered unnecessary and have not been included or replaced. Previous conditions 14 and 16 for reporting target exceedances have not been transferred as targets have not been included in the Licence.	NA L8486/2010/1
Licence Duration	NA	The WWTP was assessed as low risk for L8486/2010/1. The addition of TSF1 has not substantially increased risk of the Premises and risk remains low. The duration of the licence remains 5 years.	NA

5 Advertisement and Consultation Table

Date	Event	Comments received/Notes	How comments were taken into consideration
15/10/2015	Proponent sent a copy of draft instrument	No comments received.	DER amended Licence as proposed.

Appendix A
RISK ASSESSMENT MATRIX

Note: These matrix are taken from the Corporate Policy Statement No.7 – Operational Risk Management

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