Government of Western Australia
Department of Environment Regulation

Amendment Notice # 1

Licence Number	L8721/2013/1
Licensee	Karara Mining Limited
ACN	070 871 831
File Number:	2012/008499
Premises	Karara Minesite Beneficiation Plant M59/644, M59/645, G59/38 and L59/99 PERENJORI WA 6620
Date of Amendment	30/06/2017

Amendment

The Chief Executive Officer (CEO) of the Department of Environment Regulation (DER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act and follows.

Date signed: 29 June 2017

Alana Kidd

MANAGER LICENSING – RESOURCE INDUSTRIES

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

Definitions and interpretation

Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
ARI	Average recurrence interval
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the *Environmental Protection Act 1986* Locked Bag 33 Cloisters Square PERTH WA 6850 info@der.wa.gov.au
DER	Department of Environment Regulation
Decision Report	refers to this document
Delegated Officer	an officer under section 20 of the EP Act
DMP	Department of Mines and Petroleum
DRF	Declared Rare Flora
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
HDPE	High Density Polyethylene
Licensee	Karara Mining Limited
m^3	cubic metres
mg/L	milligram per litre

Minister	the Minister responsible for the EP Act and associated regulations
MS	Ministerial Statement
Mtpa	million tonnes per annum
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Risk Event	as described in *Guidance Statement: Risk Assessment*
TDS	Total Dissolved Solids
TSF	Tailings Storage Facility

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence L8721/2013/1 issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited only to an amendment for:

- a raise of the wet Tailings Storage Facility;
- a change of premises boundary map; and
- an increase of the approved throughput capacity listed on the Licence.

Through this notice, DER has also updated the Licence to align with administrative changes implemented within the Department.

The following DER Guidance Statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles* (July 2015)
- *Guidance Statement: Setting Conditions* (October 2015)
- *Guidance Statement: Decision Making* (February 2017)
- *Guidance Statement: Risk Assessment* (February 2017)
- *Guidance Statement: Environmental Siting* (November 2016)

Amendment background and description

On 28 March 2017 the Licensee, Karara Mining Limited (KML), submitted an application to amend Works Approval W5545/2013/1 in order to:

- Raise the wet Tailings Storage Facility (Wet TSF1) downstream embankment from 8 metres (m) to 16 m at its deepest edge (Phase 1); and
- Extend Wet TSF1 to the south (Phase 2). The external footprint of the extended wet TSF1 will occupy an area approximately 104 hectares (ha) and be located entirely within the existing approved TSF disturbance footprint for works approval W5545/2013/1.

The amendment to W5545/2013/1 was signed on 17 December 2015. Construction compliance documents for Phase 1 were received by DER on 28 March 2017 with certification signed as being by a Fellow of Engineers Australia #1010673 and Member-Associate of the Australian National Committee of Large Dams (ANCOLD).

An application to amend Licence L8721/2013/1 (the subject of this amendment) was included to:

- include the wet TSF raise;
- correct the category 5 throughput capacity to 30,000,000 tonnes per annum; and
- amend the premises boundary map.

Wet Tailings Storage Facility (TSF) - background

The ore processing/beneficiation plant at the Karara Minesite consists of a crushing plant (primary and secondary crushing), screens, magnetic separation, thickeners and filter plants, and a TSF. The final product, magnetite concentrate, is transported by rail to Geraldton Port.

Tailings geochemistry

KML commissioned Graeme Campbell & Associates Pty Ltd (GCA) in 2007 to conduct geochemical testing on process-tailings samples. Tests for characterisation of acid-base properties were undertaken, comprising acid neutralization capacity; pH buffering; net acid generation and mineralogy assessment.

Test results on the acid-base chemistry of the tailings samples indicated that the sulphide-sulphur content of the samples ranged from 0.06 to 0.13%, correlating to a very low maximum acid generation potential of about 2 to 4 kg H_2SO4 equivalent/tonne. Acid neutralisation capacities ranged from 27 to 50 kg H_2SO4 equivalent/tonne and exceeded the acid generation potential by a large margin. The pH buffering results indicated that for circum neutral pH buffering, the available acid neutralization capacity is much less, at 5 to 15 kg H2SO4 eq/tonne. Thus available acid neutralisation capacity exceeds the acid generation potential and therefore the tailings samples are considered to be non-acid forming. Net acid generation (NAG) test results confirm that the tailings sample are non-acid forming with pH results from 7.8 to 8.4. Any combined tailings product will therefore also be non-acid forming.

Elemental compositions of the tailings samples were found to contain low levels of leachable salts and were slightly enriched with respect to arsenic and selenium. GCA concluded that the material did not represent a significant risk of leaching under neutral pH conditions. The tailings are considered to be benign.

Tailings disposal and storage

Primary disposal of tailings from the beneficiation plant was originally intended to be via dry-stacked tailings material over a TSF footprint of 450 ha using a radial stacker pattern. However, operational constraints restricted the tailings filtration circuit of the processing plant resulting in limitations in the total volume of dry tails that the plant can produce.

To alleviate this constraint, a temporary wet tails TSF was constructed within the larger dry TSF landform for disposal of tailings with a moisture content of more than 20%, under Works Approval W5545/2013/1. The wet TSF was included in the Licence by an amendment signed on 12 November 2015. Tailings with moisture content ≤ 20% continue to be dry-stacked, wetter tailings are diverted by slurry pipeline and stored in the wet TSF (now named Wet TSF1).

Wet TSF1 is a paddock type (consisting of perimeter embankment) and was originally constructed to store up to 3.6 million tonnes of wet tailings. The embankment is designed as a single stage continuously constructed embankment with material borrowed from surrounding areas. The external footprint of the wet TSF was constructed to occupy an area of approximately 60 ha with an additional area to accommodate drainage, top soil stockpiles and other infrastructure, such as pipelines.

The wet TSF is not lined due to: the inert nature of the tailings; drill holes within the wet TSF footprint demonstrated a minimum depth to groundwater of 36 metres (m); and ground is considered bedrock with almost no primary porosity or permeability.

Wet TSF1 has now been raised with a downstream embankment raise from 8 m to 16 m at its deepest edge, and has been designed to store an additional 3.7 million m^3 of tailings.

The raise has been constructed from existing dry tailings material mixed with clayey/silt sub-soil material which was compacted to restrict seepage. Obvious significant seepage paths identified within the storage area during construction were treated to minimise seepage losses.

Excess water from Wet TSF1 is drawn from the surface using a standard flotation suction design and pumped via an HDPE pipeline network back to the processing plant for reuse.

Any potentially impacted surface water runoff from the larger TSF landform (which includes Wet TSF1) is directed to a retention pond designed to accommodate flow from a 1-in-100 year rainfall event. Water from the retention pond is pumped back to the processing plant or used for dust suppression.

Dry stack material will ultimately cover the wet tails facility after the closure of the wet tailings facility.

Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 3.

Table 2: Relevant approvals

Legislation	Approval	Date
Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)	EPBC Approval Reference Number 2006/3017	29 October 2009
Rights in Water and Irrigation Act 1914 (RiWI Act)	Licence to abstract groundwater GWL 158673	7 January 2011
Mining Act 1978 (Mining Act)	Mining Proposal Years 1 to 6 Reg. ID 24232	2 November 2009
	Wet TSF1 lift and extension Mining Proposal Reg. ID 56329.	21 October 2015

Amendment history

Table 4 provides the instrument log of the licences and works approvals issued since 10/12/2009 related to L8721/2013/1.

Table 3: Instrument log

Instrument	Issued	Amendment
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 – Waste Water Treatment Plant
L8486/2010/1	09/12/2010	Licence – Waste Water Treatment Plant
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	11/07/2014	Works Approval – wet tailings TSF2 (Stage 1 and Stage 2)
L8721/2013/1	11/11/2015	Amendment Licence to include wet TSF1 and amalgamate L8486/2010/1 (WWTP).
W5545/2013/1	17/12/2015	Amendment Works Approval – extend and raise wet TSF1.
L8721/2013/1	29/04/2017	Notice of Amendment to extend licence expiry date to 19 May 2021
L8721/2013/1	30/06/2017	Amendment Notice 1 to include raise and extension of the wet TSF1, change premises boundary and increase category 5 production capacity.

Location and receptors

Table 5 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 4: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Closest sensitive land use is Karara Homestead.	Approximately 7 km southwest of the processing plant.

Table 6 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 5: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Priority Ecological Community (Blue Hills Range).	Occurs on the premises and in the close vicinity.
One DRF, 20 Priority Flora and four other taxa of conservation significance.	Occurs on the site and in the close vicinity.
Three invertebrate and 15 vertebrate species of conservation significance.	Recorded during a fauna survey of the mine site, or are very likely to be present.
Rights in Water and Irrigation Act 1914 proclaimed Gascoyne Groundwater Area – Mullewa/Byro Sub Area.	The premises is located within the proclaimed Gascoyne Groundwater Area.

Geology and Soils

The hydrogeology of the region has been mapped by the Geological Survey of Western Australia. This area consists of metasediments and mafic volcanic rocks of Achaean age that are overlain in low-lying areas by a generally thin sequence of alluvium and colluvium. The mine site area is described as 'bedrock with almost no primary porosity or permeability', indicating the groundwater yields are likely to be low.

Hydrology

The Karara Minesite is within the Yarra Yarra Catchment basin which has a total area of 41,880 km^2. The Catchment drains southwards via a series of interconnecting salt lakes to Yarra Yarra lakes near Carnamah. Within the Yarra Yarra Catchment, the premises is located in a small sub-catchment area (44.7 km^2) and catchment runoff is diverted south, around infrastructure, and returned to existing drainage channels.

Groundwater

Drill holes within the wet TSF footprint demonstrate a minimum depth to groundwater of 36 m. The TSF is located over low porosity granite, mafic and ultramafic rock.

Groundwater salinity at existing monitoring bores within the vicinity of TSF landform range from 600 to 81,000 mg/L Total Dissolved Solids (TDS). The groundwater is slightly acidic to slightly alkaline (pH 6.8 to 8.6) and is of a sodium chloride type, with proportionately high sulfate concentrations.

Topography

The land is predominantly flat, sloping northwest to southeast.

Meteorology

The area has a high evaporation rate and low rainfall. Pan evaporation is almost an order of magnitude greater than average rainfall and exceeds rainfall every month of the year.

Part IV of the *Environmental Protection Act 1986*

Statement No 805 (MS805)

The Karara Iron Ore Project was assessed at the level of Public Environmental Review by the Environmental Protection Authority (EPA), with Report 1321 released in April 2009. Karara received Ministerial Approval for the project on 8 September 2009 (MS805).

Condition 6-5 requires the proponent to monitor impacts from mining and mining related activities due to:

1 dust;
2 saline water application for dust control;
3 fire; and
4 feral species

on the Blue Hills Vegetation complex Priority Ecological Community, to the satisfaction of the CEO of the Office of the EPA.

Statement No 895 (MS895)

Statement No 895 to amend conditions applying to the proposal received Ministerial Approval on 4 May 2012. MS895 deleted condition 7 of MS 805 regarding groundwater dependent vegetation.

Administrative Changes

Conditions have been removed from Licence L8721/2013/1in accordance with Administrative changes within DER and DER's *Guidance Statement: Setting conditions* (October 2015). Conditions removed and changes to definitions are listed below in Table 7.

Table 6: Administrative changes

Condition number	Condition removed	Justification	Replacement condition
1.1.2	***'AACR'*** *means the Annual Audit Compliance Report*	Format update	**'AACR'** means an Annual Audit Compliance Report in a format approved by the CEO as presented by the Licence Holder or as specified by the CEO (guidelines and templates may be available on the Department's website).
	'CEO' *means Chief Executive Officer of the Department of Environment Regulation.*	Format update	'**CEO'** means Chief Executive Officer.
	'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*	Format update	**'CEO'** for the purposes of notification means: Director General Department Administering the Environmental Protection Act 1986 Locked Bag 33 Cloisters Square PERTH WA 6850 info@der.wa.gov.au
	NA	Definition missing	**'clean fill'** has the meaning defined in the 'Landfill Waste Classification and Waste Definitions'
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.*	This condition is not valid, enforceable or risk based.	N/A
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.*	This condition is not enforceable as it is not sufficiently clear or certain.	N/A

1.2.2	*The Licensee shall immediately recover, or remove and dispose of spills of environmentally hazardous materials outside an engineered containment system.*	This condition is not enforceable as it is not sufficiently clear or certain.	N/A The general provisions of the *Environmental Protection Act 1986* are applicable. *The Environmental Protection (Unauthorised Discharges) Regulations 2004* are applicable.
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.	This condition is not enforceable as it is not sufficiently clear or certain.	N/A The amendment application documents state that KML manages surface water on the site in accordance with *KML Environmental Procedure CORP-EN-PRO-1011 Surface Water Management.* The general provisions of the *Environmental Protection Act 1986* are applicable. *The Environmental Protection (Unauthorised Discharges) Regulations 2004* are applicable.
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.*	This condition is not enforceable as the requirements for compliance are not clear.	N/A
Schedule 2	*Annual Audit Compliance Report Proforma*	This Proforma is superseded by DER's *Guideline: Annual Audit Compliance Reports* (August 2016)	N/A - Applicable form is downloadable from DER's website.
	Form LR1	Specific Proforma for monitoring reporting not required.	NA

Risk assessment

Table 7: below describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments* and Appendix 3. Table 8 identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 8: Risk assessment for proposed amendments during operation

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**				
Category 5: Processing or beneficiation of metallic or non-metallic ore	Tailings disposal into Wet TSF1.	Seepage of tailings leachate.	On site: • Ground • DRF and Priority Flora • Priority Ecological Community	Path of seepage.	Contamination of ground. Smothering and inundation of vegetation receptors.	**Minor** (Low level on-site impacts).	**Unlikely** (The risk event will probably not occur in most circumstances)	**Medium** (Generally subject to regulatory controls)	Applicant's construction management controls included: Embankments were constructed from existing dry tailings material mixed with clayey/silt sub-soil material which was compacted to restrict seepage with hydraulic conductivity less than 1 x 10^{-8} m/sec. Obvious significant seepage paths identified within the storage area during construction were treated to minimise seepage losses.
		Seepage of tailings Leachate	Groundwater (Proclaimed Gascoyne Groundwater Area)	Infiltration of leachate through ground.	Contamination of groundwater.	**Minor** (Low level on-site impacts. Minimal local off-site impacts).	**Rare** (The risk event may only occur in exceptional circumstances)	**Low** (Not subject to licence controls)	The tailings are considered benign. Within the vicinity of the TSF, TDS ranges from 600 to 81,000 mg/L Total Dissolved Solids (TDS). Depth to groundwater at the TSF is approximately 36 m.

									The TSF is located over low porosity granite, mafic and ultramafic rock (low permeability).
		Tailings overflow of Wet TSF1	On site and local vicinity: • Ground • DRF and Priority Flora • Priority Ecological Community	Path of overflow.	Contamination of ground. Smothering and inundation of vegetation receptors.	**Moderate** (mid-level on site impacts)	**Unlikely** (The risk event will probably not occur in most circumstances)	**Medium** (Generally subject to regulatory controls)	Applicant's management controls include: Wet tailings (moisture content >20%) deposited and contained in Wet TSF1. Excess water from Wet TSF1 is pumped for re-use via return pipe back to the process plant. Sized to contain a 1:100 year ARI, 72 rainfall event for planned storage. Minimum freeboard of 1,000 mm maintained at the southern embankment area around the decant chamber (TSF Operating Manual, 2017). Minimum freeboard of 300 mm maintained at the north, east and west embankments (TSF Operating Manual, 2017). Embankments and freeboards are inspected daily.
		Rupture of the tailings and return water pipelines	On site and local vicinity: • Ground • DRF and Priority Flora	Path of flow.	Contamination of ground. Smothering and inundation	**Moderate** (mid-level on site impacts)	**Unlikely** (The risk event will probably not occur in	**Medium** (Generally subject to regulatory	Applicant's management controls include: Tailings and return pipelines constructed of

			• Priority Ecological Community		of vegetation receptors.		most circumstances)	controls)	250 mm diameter HDPE. Tailings and return pipelines inspected daily for leaks. Spillage from tailing pipes is directed to the Retention Pond.
		Contaminated stormwater (sediments, tailings contaminants)	On site and local vicinity: • Ground • DRF and Priority Flora • Priority Ecological Community	Path of stormwater.	Contamination of ground. Smothering and inundation of vegetation receptors.	**Moderate** (mid-level on site impacts)	**Unlikely** (The risk event will probably not occur in most circumstances)	**Medium** (Generally subject to regulatory controls)	Applicant's management controls include: Impacted surface water runoff from the TSF landform (which includes Wet TSF1) is directed to the Retention Pond. Retention Pond designed and constructed to accommodate stormwater flows from a 1 in 100 year, 72 hour ARI rainfall event. Water from the Retention pond is directed to the processing plant or used for dust suppression.

Decision

Category 5 – production capacity

The Karara Minesite has been assessed as a 'prescribed premises' as it meets the requirements of categories 5, 54 and 64 under Schedule 1 of the *Environmental Protection Regulations 1987.*

The current licence category 5 approved premises production or design capacity is 12,000,000 tonnes per annual period. KML has requested this be amended to *"a correct throughput of the processing plant of 30Mtpa".*

Mine proposal Reg. ID 24232 Table 3-1 Key projects characteristics table is shown below.

Aspect	Project Element	Karara Iron Ore Project
General	Project life	This proposal relates to Years 1 to 6 of a 40 year project
	Resource	Estimated 522 Mt of magnetite reserve Estimated 1962 Mt of magnetite resource
	Ore mining rate	Up to approximately 21 Mtpa of magnetite ore
	Timing	Construction beginning 2009
		Mining from 2010 to 2016
Disturbance footprint	Minesite	830 ha – see Tables 3-2, 3-3 and 3-4 for a detailed breakdown of disturbance.
Mining	Mining method	Conventional open cut.
	Operations	24 hours per day, 7 days per week
	Number of pits	One
	Pit depth	Approximately 180 m (below average ridge crest, corresponding to a base depth of RL 210 mAHD)
	Total mining rate	Approximately 30 Mtpa (average over project life).
	Ore production rate	21 Mtpa.
	Waste rock mining rate	9 Mtpa
	Stripping ratio	Approximately 0.6:1 waste to ore.
	Waste rock management	Waste will be stored in a single dump. Potentially acid-forming or fibrous materials will be placed within the dump.
	Mineralised waste	Mineralised waste will be stored in a combined facility with other waste rock.
Ore processing	Ore stockpile	One ROM pad will be located at the mining operations centre.
	Processing method	Crushing/screening and concentrating.
	Tailings production	12 Mdmtpa (average over project life)
	Taliings storage	Dry stacked tailings storage facility
Transport	Movement of ore around the minesite	Haul trucks to ROM pad.
	Movement of product from the minesite	Railed from Karara to Geraldton via rail spur connecting to existing rail network (rail development not part of this mining proposal).
Power requirement	Minesite	The power requirement is estimated at 9.5 MW up until plant commissioning and up to 110 MW at full production. Initially power will be generated on-site by means of diesel generators. Ultimately, power will be sourced from the Southwest Interconnected Grid (SWIS).
Supporting infrastructure	Accommodation village	Peak capacity for up to 1800 people (including construction, operational maintenance and operations).
	Additional minesite support facilities	Airstrip, workshops, hardstand areas, bulk fuel storage and refuelling pads, magazine and ammonium nitrate (AN) storage, waste water and sewage treatment plants, access roads, offices, power and water reticulation.
	Landfill	Putrescible waste (Class II).
Water supply	Source	An application for development of a borefileld near Mingenew was lodged with DoW in April 2008 (*Rights in Water and Irrigation Act* 1914).
Water consumption	Minesite	Approximately 6.6 GLpa of process water is required to produce 8 Mdmtpa of concentrate and supply potable water to the mining operation and accommodation camp.

Tailings production is tabled as 12 million dry tonnes per annum average over the project's life. Previous works approvals and licences assessment was based on this tailings amount and has been incorrectly described as the premises production and design capacity. The total

mining rate is tabled as approximately 30 Mtpa (average over project life).

The Delegated Officer considers the Licence's premises production or design capacity should be the total mining rate, as this is an amount that may be processed as a category 5 activity.

Assessed Category 5, 54 and 64 amounts

The Delegated Officer considers the assessed amounts should be conditioned as a limit, to ensure throughput production does not exceed the amounts for which risks have been assessed.

Wet TSF1

The risk assessment of the raise of Wet TSF1 is outlined in Table 8 above. The Delegated Officer considers that the applicant controls which contributed to determination of risk should be conditioned, in accordance with the DER's *Guidance Statement: Risk Assessments* (February 2017).

Premises boundary

The applicant has submitted a corrected premises boundary map. The Delegated Officer considers the premises boundary map should be amended as submitted.

Administrative changes

The Delegated Officer considers the administrative changes as justified in Table 7 above should be included in the amendment.

Licence Holder's comments

KML was provided with the draft Amendment Notice on 12 June 2017 for comment, and KML submitted a signed 21 day comment waiver on 29 June 2017.

Amendment

1. The approved premises production or design capacity on page 1 of the licence is amended by the deletion of the text shown in strikethrough below and the insertion of the text highlighted in bold underline as shown below.

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~~ **30,000,000** tonnes per year
54	Sewage facility	100 cubic metres or more per day	540 cubic metres per day
64	Class II putrescible landfill site	20 tonnes or more per year	Not more than 5 000 tonnes per year

2. The licence is amended by the deletion of the definitions as shown in strikethrough below and the insertion of the definitions highlighted in bold underline as shown below.

~~'AACR' means the Annual Audit Compliance Report~~

'AACR' means an Annual Audit Compliance Report in a format approved by the CEO as presented by the Licence Holder or as specified by the CEO (guidelines and templates may be available on the Department's website).

'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~~

'CEO' for the purposes of notification means:
Director General
Department Administering the Environmental Protection Act 1986
Locked Bag 33 Cloisters Square
PERTH WA 6850
info@der.wa.gov.au

'clean fill' has the meaning defined in the 'Landfill Waste Classification and Waste Definitions'

3. Table 1.3.1 of the Licence is amended by the deletion of the text shown in strike through below and the insertion of the text in bold underline as shown below:

Table 1.3.1: Containment infrastructure infrastructure			
Containment structure.	**Reference location on ~~maps~~ Map 2: Map 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~~	~~TSF 1~~	~~Tailings~~	~~Constructed from compacted mine waste and filtered tailings.~~
TSF landform	**Bounded by green lines**	**Dry tailings (≤ 20% moisture content)**	**Located as depicted in Schedule 1, Map 2.** **All potentially contaminated surface water runoff from the TSF landform (including Wet TSF1) is directed to the Retention pond.**
Wet TSF1 Phase1	**Temporary TSF Expansion – Phase 1 downstream raising.**	**Tailings**	**Located as depicted in Schedule 1, Map 2.** **Embankments constructed from compacted mine waste and filtered tailings with hydraulic conductivity less than 1 x 10^{-8} m/sec.** **Minimum freeboard of 300 mm maintained at the north, east and west embankments.** **Minimum freeboard of 1,000 mm maintained at the south embankment around the decant chamber.** **Excess water delivered by return water lines to the processing plant.**

Retention Pond	**Retention Pond**	**All potentially contaminated surface water runoff from the TSF landform (including Wet TSF1**	**Located as depicted in Schedule 1, Map 2.** **Constructed and maintained to accommodate stormwater flows from a 1 in 100 year, 72 hour ARI rainfall event.** **Water from the retention pond reused in the processing plant or for dust suppression.**
Tailings pipelines	**N/A**	**Tailing slurry**	**Constructed of 250 mm diameter HDPE.** **Spillage from tailing pipes is directed to the Retention Dam.**
Return water lines	**N/A**	**Return water from Wet TSF1**	**Constructed of 250 mm diameter HDPE.** **Spillage from return pipes directed to the Retention Dam.**

4. Table 1.3.2 of the Licence is amended by the deletion of the text shown in strike through below and the insertion of the text in bold underline as shown below:

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
Wet TSF1 ~~storage~~ embankments	Visual to confirm no unusual changes and at least 500mm freeboard capacity	Daily
Retention pond	**Visual to confirm able to accommodate stormwater flows from a 1 in 100 year, 72 hour ARI rainfall event.**	**Daily**

5. The Licence is amended by the addition of the following Condition 1.3.6:

1.3.6 The Licensee shall ensure the limits specified in Table 1.3.5 are not exceeded.

Table 1.3.5 Production or design capacity limits		
Category[1]	**Category description[1]**	**Premises production or design capacity limit**
5	**Processing or beneficiation of metallic or non-metallic ore**	**30,000,000 tonnes per year**
54	**Sewage Facility**	**540 cubic metres per day**
64	**Class II putrescible landfill site**	**5,000 tonnes per year**

Note 1: *Environmental Protection Regulations 1987*, Schedule 1.

6. The Licence is amended by the deletion of the following Condition 4.1.2 as shown in strikethrough below:

~~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.~~

6. Table 4.2.1 of the Licence is amended by the deletion of the text shown in strike through below and the insertion of the text in bold underline as shown below:

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/throughputs 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	~~LR1~~
4.1.3	~~Compliance~~ report **Annual Audit Compliance Report (AACR)**	~~Annual Audit Compliance Report (AACR)~~ **None specified**
4.1.4	Complaints summary	None specified
-	An assessment of monitoring results collected within the Annual period against previous monitoring results and any limits specified in this Licence.	None specified

7. Schedule 1: Map 1: Premises map of the Licence is amended by the deletion of the text shown in strike through below and the insertion of the text in bold underline as shown below, and replacement of Map 1: Premises map, with the map below.

Map 1: Premises map
The Premises is shown in the map below. The ~~blue~~ **red** line depicts the Premises boundary.

8. The Licence is amended by the deletion of the text shown in strike through below and the deletion of Map 2: Map of containment structures TSF and TSF 1.

~~**Map 2: Map of containment structures TSF and TSF 1**~~

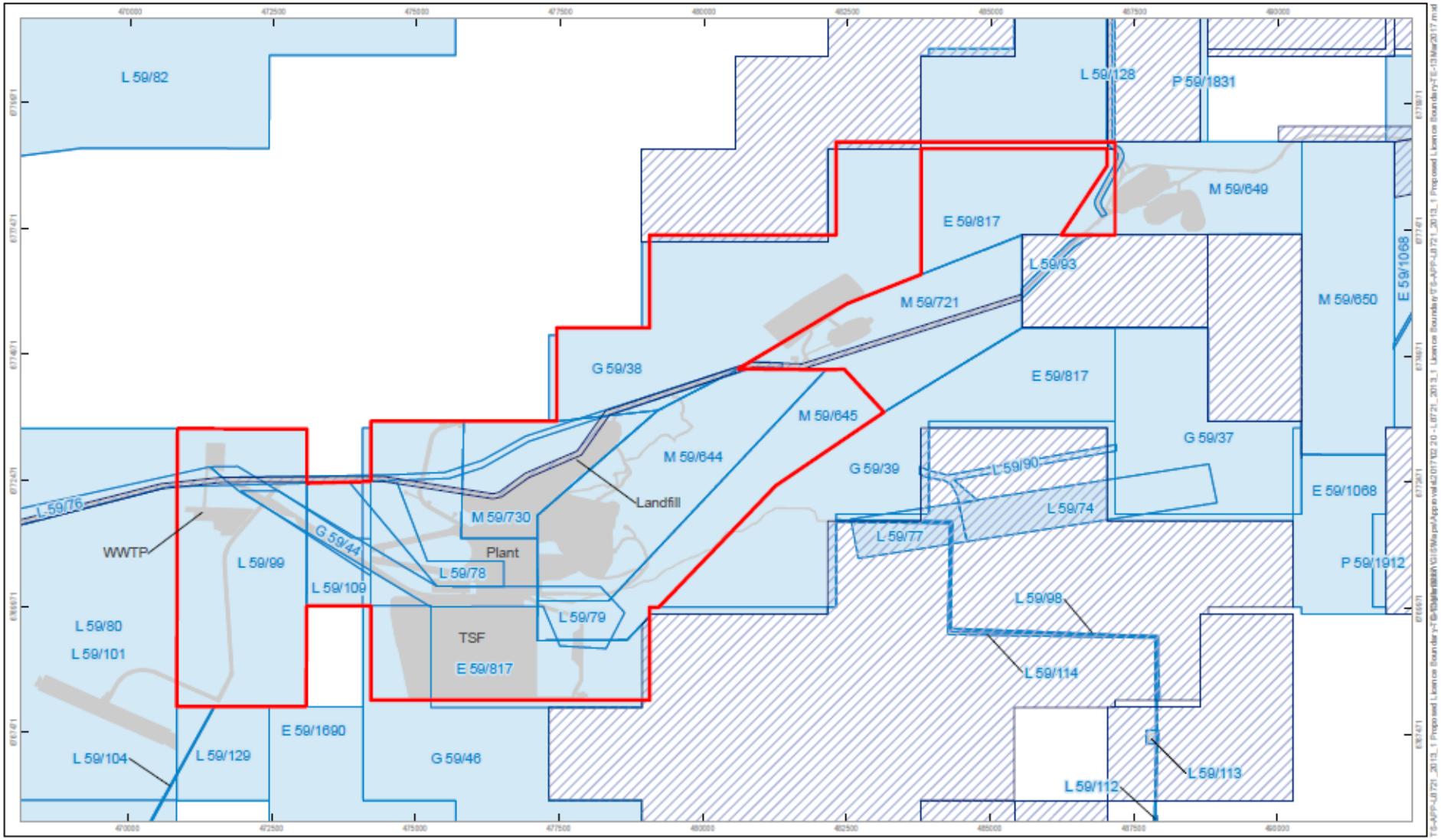
9. The Licence is amended by the insertion of the text in bold underline as shown below and the addition of Map 2: Map of containment structures as shown below:

Map 2: Map of containment structures
The TSF landform is bounded by the green lines. Wet TSF1 Phase 1 is labelled 'Temporary TSF Expansion - Phase 1 downstream raising'. The Retention Pond is labelled 'Retention Pond'.

10. Schedule 2: Reporting and notification forms of the Licence is amended by the deletion of the text shown in strike through below and the insertion of the text in bold underline as shown below.

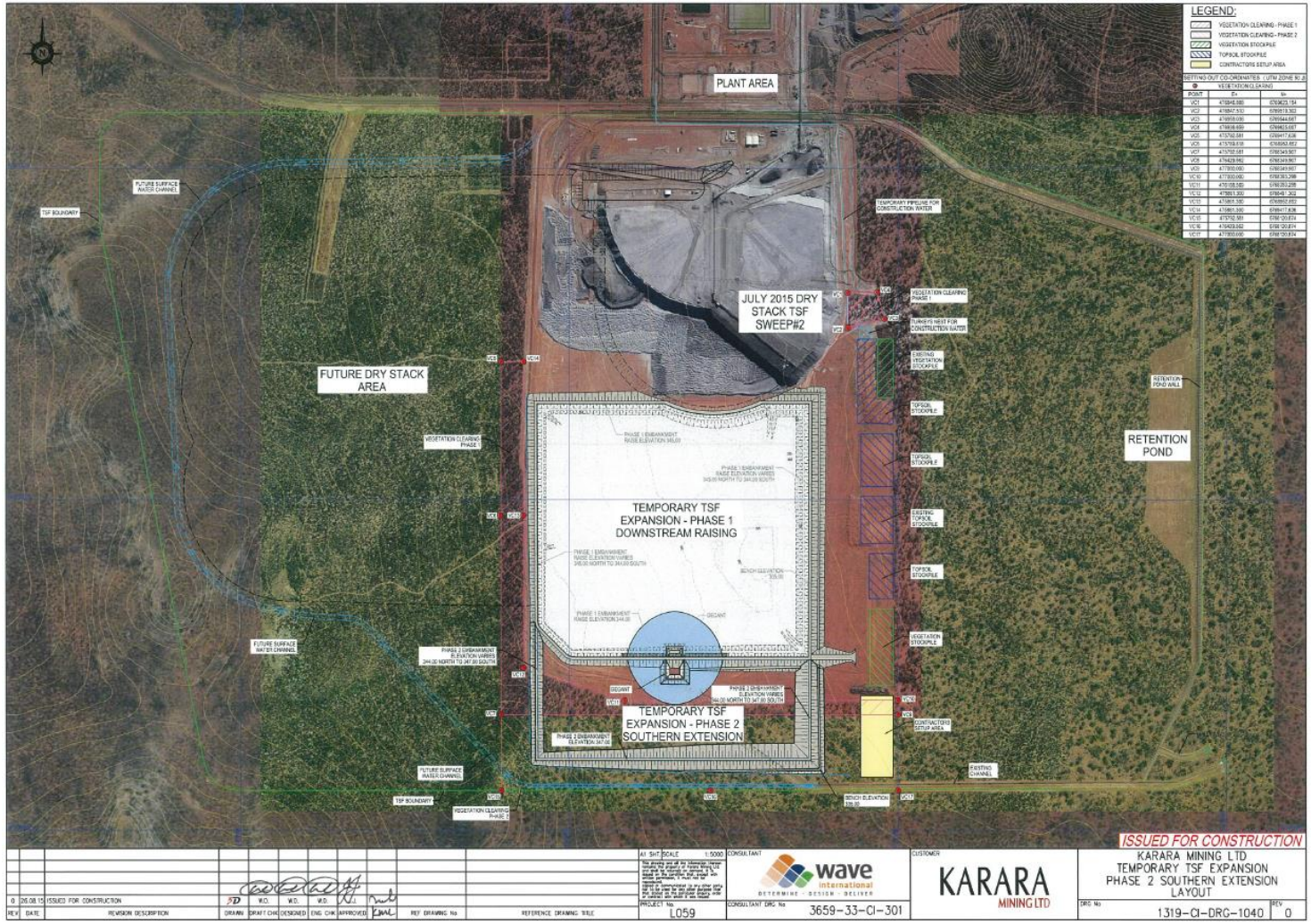
Map 1: Premises map

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



Map 2: Map of containment structures

The TSF landform is bounded by the green lines. Wet TSF1 Phase 1 is labelled 'Temporary TSF Expansion -Phase 1 downstream raising'. The Retention Pond is labelled 'Retention Pond'.



3 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 _____	

4 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:	
5 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.

6 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 7 if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or 8 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 and inputs and outputs **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: ……

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Application form and documents: works approval/licence received by DER 28/03/2017.	Application	DER records (A1402016)
2	*Guidance Statement: Regulatory principles.* Department of Environment Regulation, July 2015.	N/A	accessed at www.der.wa.gov.au
4	*Guidance Statement: Setting conditions.* Department of Environment Regulation, October 2015.		
5	*Guidance Statement: Risk Assessments*. Department of Environment Regulation, February 2017.		
6	*Guidance Statement: Decision Making*. Department of Environment Regulation, February 2017.		
7	*Guidance Statement: Environmental Siting* Department of Environment Regulation, *November 2016.*		
8	*Karara Iron Ore Project Works Approval Number W5545/2013/1 Compliance Assessment Report Raising of Existing Wet Tails Storage Facility Embankments* (CORP-EN-REP-1096), Karara Mining Ltd, 28 March 2017.	Karara, 2017a.	DER records (A1402016)
9	Licence L8721/2013/1	L8721/2013/1	accessed at www.der.wa.gov.au
10	Ministerial Statement 805	MS805	accessed at www.epa.wa.gov.au/
11	Ministerial Statement 895	MS895	accessed at www.epa.wa.gov.au/
12	*Operating Manual for Wet Tailings Storage Facility*, Karara Mining Limited, 21 March 2017	TSF Operating Manual, 2017	DER records (A1446330)
13	Works Approval W5545/2013/1	W5545/2013/1	accessed at www.der.wa.gov.au

Appendix 2 – Risk Rating

A risk rating will be determined for risk events in accordance with the Risk Rating Matrix set out in Table 7 below.

Table 9: Risk Rating Matrix

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

DER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 8 below.

Table 10: Risk Criteria Table

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		The following criteria has been used to determine the consequences of a Risk Event occurring:		
			Environment	Public Health* and Amenity (such as air and water quality, noise, and odour)
Almost Certain	The risk event is expected to occur in most circumstances	Severe	• **on-site impacts**: catastrophic • **off-site impacts local scale**: high level or above • **off-site impacts wider scale:** mid level or above • Mid to long term or permanent impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are significantly exceeded	• Loss of life • **Adverse health effects:** high level or ongoing medical treatment • Specific Consequence Criteria (for public health) are significantly exceeded • **Local scale impacts:** permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	• **on-site impacts**: high level • **off-site impacts local scale**: mid level • **off-site impacts wider scale**: low level • Short term impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are exceeded	• **Adverse health effects:** mid level or frequent medical treatment • Specific Consequence Criteria (for public health) are exceeded • **Local scale impacts**: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	• **on-site impacts**: mid level • **off-site impacts local scale**: low level • **off-site impacts wider scale**: minimal • Specific Consequence Criteria (for environment) are at risk of not being met	• **Adverse health effects:** low level or occasional medical treatment • Specific Consequence Criteria (for public health) are at risk of not being met • **Local scale impacts:** mid level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	• **on-site impacts**: low level • **off-site impacts local scale**: minimal • **off-site impacts wider scale**: not detectable • Specific Consequence Criteria (for environment) likely to be met	• Specific Consequence Criteria (for public health) are likely to be met • **Local scale impacts:** low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	• **on-site impact**: minimal • Specific Consequence Criteria (for environment) met	• **Local scale**: minimal to amenity • Specific Consequence Criteria (for public health) met

^ Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting.*

* In applying public health criteria, DER may have regard to the Department of Health's, *Health Risk Assessment (Scoping) Guidelines*

"on-site" means within the prescribed premises boundary.

Acceptability and Treatment of Risk Event

DER will determine the acceptability and treatment of Risk Events in accordance with the Risk Treatment Table below:

Table 11: Risk Treatment Table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DER may refuse application.
High	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled	Risk Event is acceptable and will generally not be subject to regulatory controls.