Amendment Report

Application for Licence Amendment

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

Licence Number	L8721/2013/2
Licence Holder	Karara Mining Limited
ACN	070 871 831
File Number	2012/008499-1~13
Premises	Karara Minesite Beneficiation Plant M59/644, M59/645, M59/721, G59/38, L59/99 and L59/109 PERENJORI WA 6620 As defined by the Premises maps attached to the Revised Licence
Date of Report	20 November 2023
Decision	Revised licence granted

Sonya Poor

Digitally signed by Sonya Poor
Date: 2023.11.20 09:10:39 +08'00'

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

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1. Decision summary

Licence L8721/2013/2 is held by Karara Mining Limited (Licence Holder) for the Karara Minesite Beneficiation Plant (the Premises), on Mining Leases M59/721, M59/644, M59/645, General Purpose Lease G59/38 and Miscellaneous Licences L59/99 and L59/109, located within the Shire of Perenjori.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the construction and operation of the Dry Stack Tailings Storage Facility (dry-stack TSF) Expansion and associated works at the Premises. As a result of this assessment, Revised Licence L8721/2013/2 has been granted.

The Revised Licence issued as a result of this amendment supersedes the existing Licence previously granted in relation to the Premises.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Amendment summary

On 19 May 2023, the Licence Holder submitted an application to the department to amend Licence L8721/2013/2 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act).

The amendment is to:

- Expand the dry-stack TSF perimeter or footprint of lift 1 to the south and east.
- Staged construction of lift 2 and lift 3.
- Construction via excavation of a perimeter drainage line and a new entrance channel to connect into the existing perimeter drain, proposed to be constructed at the southern toe of the proposed expansion.
- Installation of two replacement TSF monitoring bores MB67 and MB68 to replace TSF-MB2-2018 (MB2) and MB49.
- Include TSF bores MB62 to MB66 recently installed under conditions 8, 9 and 10 of the licence.

This amendment is limited only to changes to Category 5 activities from the Existing Licence. No changes to the aspects of the existing Licence relating to Category 6, 12, 54 and 64 have been requested by the Licence Holder.

Table 1 below outlines the proposed changes to the existing Licence.

Table 1: Proposed throughput capacity changes

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
5	30,000,000 tonnes per year	30,000,000 tonnes per year	No change in throughput. Only a change in disposal location.

2.2.1 Dry-stack TSF southern and eastern expansion and lifts

Background

The Premises is located approximately 230 km east of Geraldton and current operation consists of a Magnetite mine, Processing Plant (Magnetite concentrator), export terminal, rail, and other infrastructure required to produce and export Magnetite concentrate (DWER, 2022).

The dry-stack TSF was constructed under the original licence granted in 2013 and a dry-stack TSF was chosen for the benefits a dry-stack TSF provides over conventional wet tailings (DWER, 2013).

The filtered tailings associated with the ore processing are dewatered to a moisture content of approximately 15% (by weight), with a particle size distribution for the tailings stream being 80% passing through a 0.06 mm sieve (DWER, 2013). The resulting material is then transported to a dedicated dry-stack TSF via mechanical stacking from the existing mobile conveyor system to form lift 1.

The dry-stack TSF has a current embankment height of RL 354 m (Figure 1). With storage heading towards capacity in September 2023, the Licence Holder has proposed to expand outwards the perimeter of the southern and eastern embankments of the dry-stack TSF. The expanded perimeter is proposed to be continued to be constructed out of dried tailings and built up from local ground level to RL 354 m (REE, 2021) (Figure 1).

Two additional lifts (lifts 2 and 3) are also proposed to be built on top of the existing and future perimeter expansion of lift 1, with dried tailings also delivered via mechanical stacking (Figure 1).

Construction

The proposed design of the dry-stack TSF is limited to a total of two lifts on a broad footprint which maximises stability and capacity (REE, 2021).

Lift 2 is proposed to be constructed up to RL 378.0 m and lift 3 is proposed to be constructed on top of lift 2, up to RL 402.0 m.

Lift 1 extension and lifts 2 and 3 will be placed without compaction. The state of the tailings in each lift is monitored using Cone Penetration Testing.

The dry-stack TSF expansion (lift 1) is expected to provide a capacity of approximately 5.1 million m^3 of dry tailings over a duration of approximately 9 months. The combined total of the lift 1 southern and eastern expansion and the two additional lifts will provide a maximum storage capacity of 94.5 million m^3 for dry tailings.

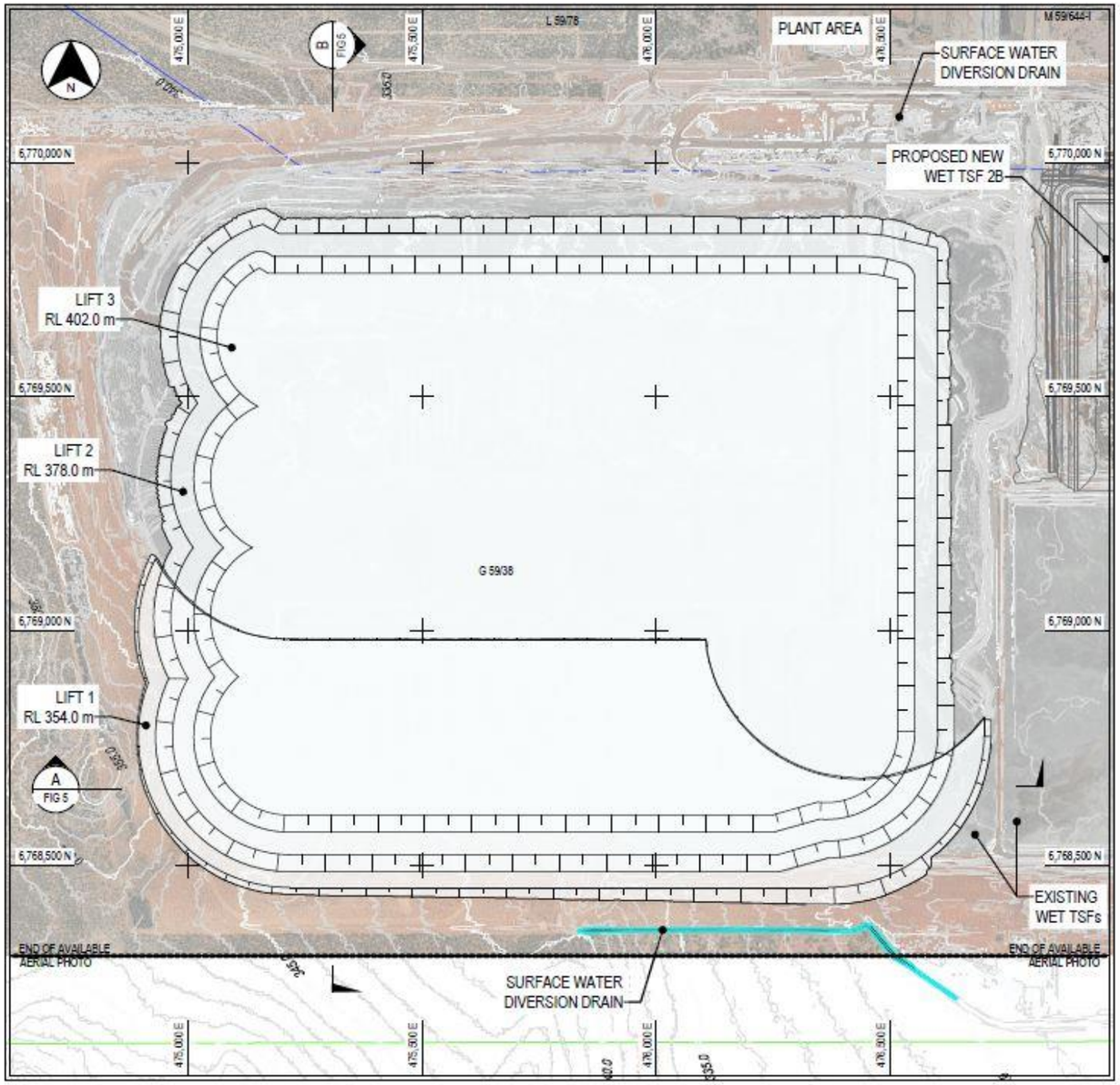
An existing mobile conveyor system is progressively moved across the TSF landform to deliver dried tailings. This action is called a sweep. Two sweeps, 11 and 12, are expected to deliver enough tailings to fill and construct the lift 1 expansion area. Further sweeps would be required to deliver tailings to construct lifts 2 and 3.

Tailings material content

Tailings material retains a high silica content which can be considered a potential hazardous substance. The impact of the silica is managed through relevant safety practices and standards

administered under the *Mines Safety and Inspection Act 1994* (refer to Appendix 1).

The Licence Holder's geochemical assessment of the tailings has identified that the material is chemically benign, with minimal impact on the surrounding environment through leaching or groundwater impact and suggests the tailings do not pose a significant environmental impact.



TSF LIFT VOLUMES	
LIFTS	VOLUMES (m³)
LIFT 1	9,576,533
LIFT 2	52,641,909
LIFT 3	41,883,568
TOTAL	104,102,010
ASSUMPTIONS: TAILINGS IN-SITU DRY DENSITY 1700 kg/m³	

SITE LAYOUT
SCALE 1:10,000

KML TENEMENTS:
- MINING LEASE
- GENERAL PURPOSE LEASE
- MISCELLANEOUS LICENCE

NOTES:
1. AERIAL IMAGE SUPPLIED BY KARARA MINING LIMITED DATED FEBRUARY 2023
2. EXISTING CONTOURS ARE BASED ON SURVEY SUPPLIED BY KARARA MINING LIMITED DATED FEBRUARY 2023
3. SWEEP DESIGN BY OTHERS

0 100 200 300 400 500
SCALE 1 : 10,000

KARARA MINE IRON ORE PROJECT
DRY STACK TSF EXPANSION SOUTH
LIFTS 1-3 SITE LAYOUT

Rev A | Figure No. FIGURE 1

Project No. J23038
Scale: 1 : 10,000
Date: 11 April 2023
Datum: MGA 94 ZONE 50, AHD
Revision: A Draft - Issued For Client Review

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J:\2023\J23038\KML Dry Stack TSF Expansion South\05 CAD_GIS\02 Drawings\Figure 1.dwg, April 19, 2023 1:22 PM

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Figure 1: Construction plan of the dry-stack TSF perimeter expansion and subsequent lifts.

2.2.2 Groundwater monitoring bores

Two existing groundwater monitoring bores (MB02 and MB49) are within the proposed dry-stack TSF expansion footprint. These two bores will be decommissioned and replaced approximately 200 m southeast and 165 m southwest of their existing locations respectively to make way for the proposed dry-stack TSF lift 1 southern expansion and remain accessible.

Five monitoring bores MB62 to MB66 were installed by the Licence Holder to comply with conditions, 8, 9 and 10 of the licence.

2.2.3 Surface Water diversion drain

To intercept and collect any seepage and surface water run-off from the dry-stack TSF expansion, a surface water diversion drain is proposed to be constructed along the southern and eastern embankment, and a new entrance channel to connect into the existing perimeter drain. The drain is proposed to be 5 m wide at the base of the channel with 2H:1V side slopes.

The Licence Holder currently directs surface runoff water to a sump located at the north-eastern corner of Wet TSF 2A, via the dirty surface water drainage channel, where water is returned to the Processing Plant for use in processing (REE, 2021).

2.3 Hydrogeological Report

Condition 8 of the existing licence L8721/2013/2 states:

"Prior to the construction of wet TSF 2B the Licence Holder must engage a suitably qualified hydrogeologist to conduct a hydrogeological study and submit to the CEO, a hydrogeological report."

This condition was applied during a review of the 2022 Annual Environmental Report where it was noted that five monitoring bores were reporting standing water levels (SWL) within 4 m of ground level (Figure 2, Figure 3) and absence of SWL limits in the licence.

The Licence Holder provided the 'Hydrogeological Assessment of Seepage Area' (hydrogeological report) to the department on 30 June 2023.

The hydrogeological report was referred internally to the department's Contaminated Sites Branch (CSB). Advice received stated that the information that was presented in the report included:

- A description of the lithology and thickness of the regolith that underlies TSF2A;
- A description of the bedrock lithology;
- Construction, well yield and hydraulic-testing details for the five additional bores that were installed as part of the investigations;
- Limited water quality data obtained from sampling these bores (although there were significant analyte gaps, such as the absence of sulfate analyses); and
- A recommended approach for using these bores to manage groundwater mounding near TSF2A.

Regarding a recommended SWL, CSB advised the critical depth at which capillary forces are able to draw dissolved salts from the water table to the soil surface largely depends on soil texture. The critical depth for the capillary updraw of dissolved salts through the shallow silty-sand regolith near TSF2A is suggested to be about 2 m (Li *et al*, 2013).

Therefore, CSB recommended that a water table depth is maintained at a depth greater than about 2 m to limit the risk of soil salinisation and vegetation dieback taking place near (100 m east of) the Wet TSFs.

During this assessment, the 2023 Annual Environmental Report was also reviewed. There has

been reported a stabilisation of groundwater levels between 0 and 2 mbgl for TSF MB30, MB32, MB06, MB40 and MB03 (Figure 4).

The department has included conditions 32 to 34 to monitor the health of vegetation downstream of the nearest operational TSF (wet TSF 2A) and implement management actions if mass vegetation death due to high SWLs are observed.

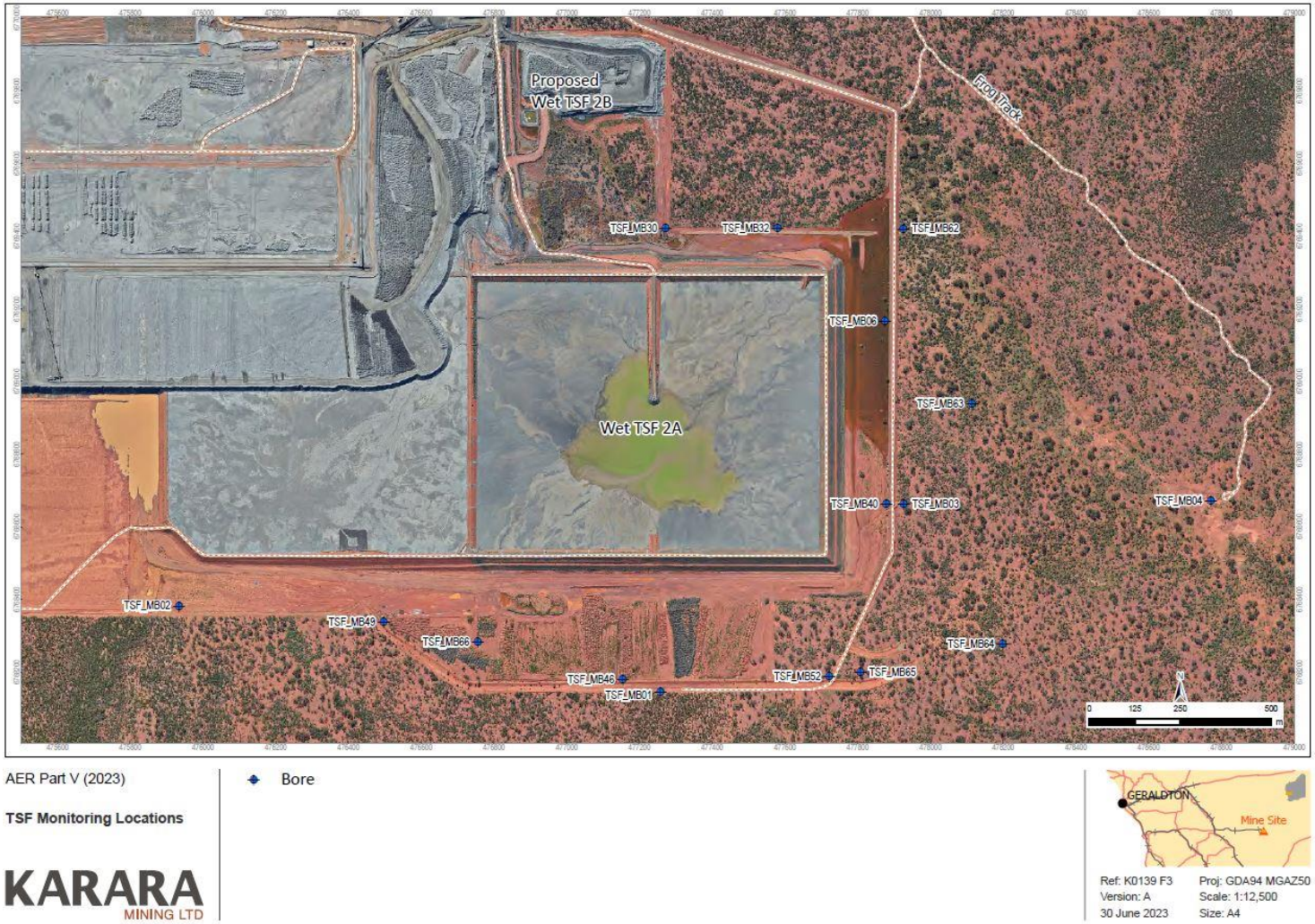

Figure 2: Map of monitoring bores around Wet TSF 2A

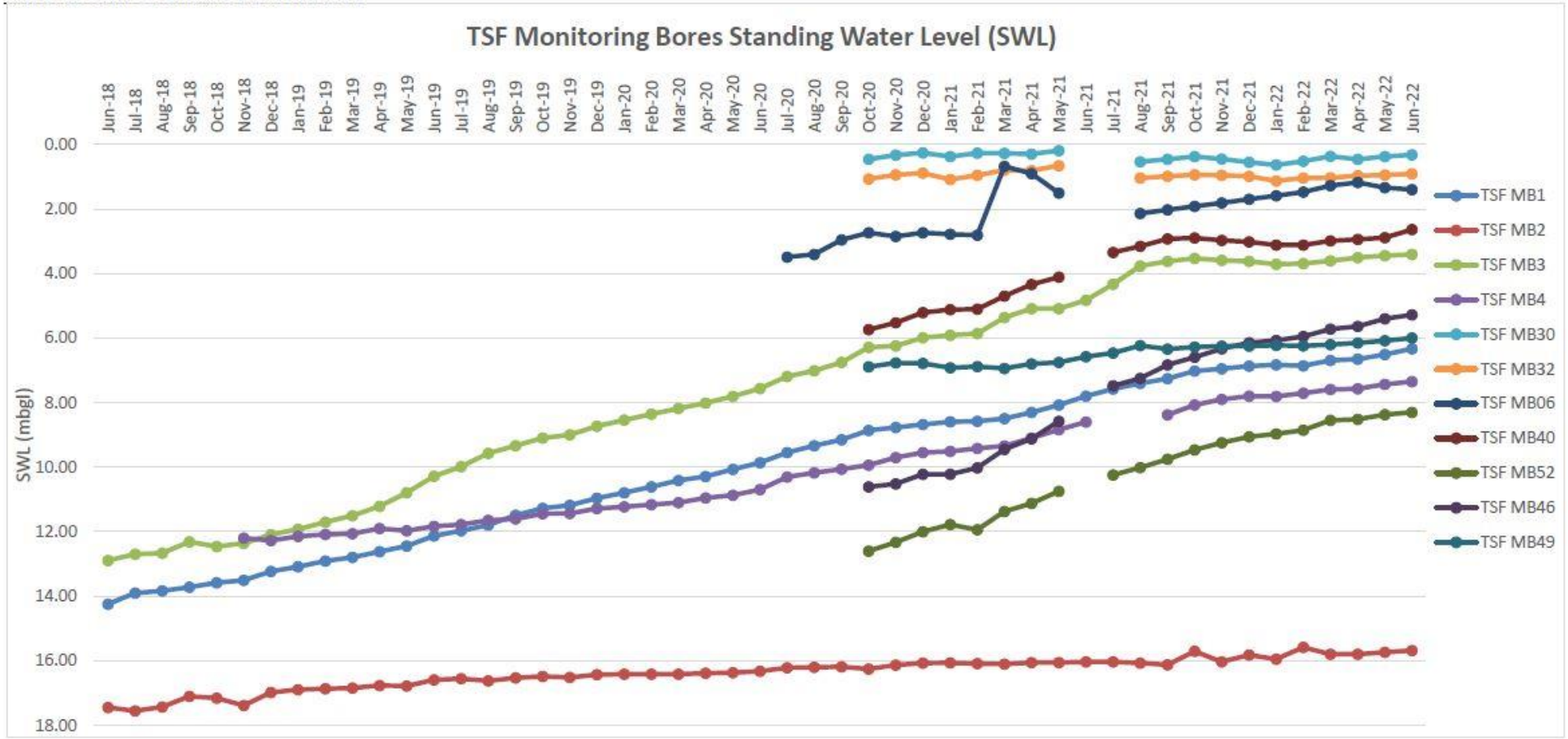

Figure 3: Graph of standing water levels from the Wet TSF 2A monitoring bores from the 2022 Annual Environmental Report

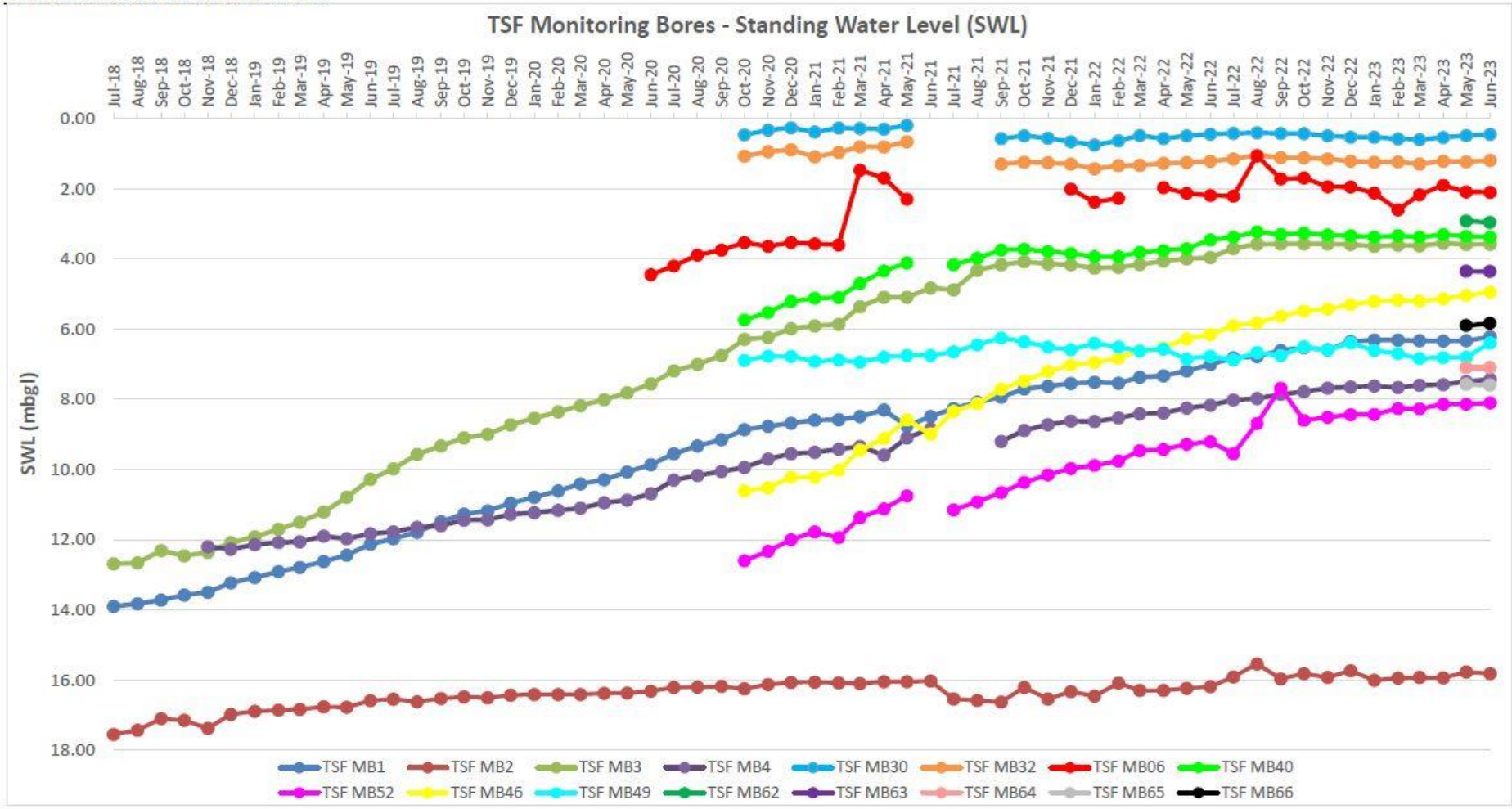

Figure 4: Graph of standing water levels from the Wet TSF 2A monitoring bores from the 2023 Annual Environmental Report

2.4 Part IV of the EP Act

2.4.1 Ministerial Statements

Ministerial Statements (MS) 805 and MS 895 apply to the Premises. Conditions 6 and 8 to 12 of MS 805 manages impacts from mining and mining related activities of the Blue Hills vegetation complex Priority Ecological Community, including from dust and saline water application for dust control; fauna protection from trenches; spider monitoring; fauna mortality register; conservation significant reptiles; and mine closure and rehabilitation.

MS 895 deleted Condition 7 from MS 805, which previously regulated impacts to groundwater dependent vegetation via abstraction, groundwater trigger levels and contingency actions, monitoring groundwater levels near the gilgai formation and health of the formation.

Gilgai are repeated mounds and depressions formed on shrink-swell and cracking clay soils. Due to gilgai's ability to accumulate water seasonally in the depressions forming gilgai wetlands, the vegetation which grow in association are not considered groundwater dependant (DERM, 2011). Gilgai are no longer considered formations and are not currently listed on the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or Department of Biodiversity, Conservation and Attractions (DBCA) Threatened Ecological Communities lists.

Based on the above gilgai has not been captured as a receptor in section 3.1.2.

2.4.2 Section 38C referral

The Karara Iron Ore Project - Mine Life Extension is currently with the Environmental Protection Authority (EPA) Services to amend a referred proposal under section 38C (s.38C) of the EP Act (EPA 2023a).

The revised proposal includes additional ground disturbance to support the revised Life of Mine strategy, including a revised development envelope, extension of the tailings storage facility and waste rock landform, incorporation of the areas previously approved under the Mungada Iron Ore Project (MIOP) (MS 806) and areas required for maintenance of the infrastructure previously approved under Part V of the EP Act (clearing permits), which will be utilised for the ongoing operations at the Premises.

This amendment application is not constrained by Part IV of the EP Act given the Licence Holder remains within the currently approved Development Envelopment under MS 805.

2.4.1 Vegetation Clearing

Approved under MS 805, a portion of the area for the proposed southern slope of the dry-stack TSF lift 1 expansion is cleared of native vegetation and about 33.5 ha of native vegetation remains to be cleared. Lifts 2 and 3 do not require any further clearing as they will be constructed on top of the lift 1 footprint.

2.4.2 Flora and fauna

The following management plans relating to flora and fauna have been prepared by the Licence Holder:

- KML Environmental Procedure – *Malleefowl Management and Monitoring CORP-EN-PRO-1035*
- KML Environmental Procedure – *Western Spiny-tailed Skink, Management, Monitoring and Translocation CORP-EN-PRO-1024*
- KML Environmental Plan – *Flora and Vegetation Management Plan CORP-EN-PLN-1011*

These plans are required and administered by Part IV of the EP Act.

2.5 Other Approvals

2.5.1 Mining Act 1978

The Mining Proposal was approved under Registration ID 118480 on 07 August 2023, authorising the construction of sweeps 11 and 12 for the dry-stack TSF expansion, construction of the perimeter drainage line at the southern toe of the dry-stack TSF expansion for sweeps 11 and 12, excavation of a new entrance channel for the existing drain and construction of replacement bores (TSF MB67 to replace TSF MB02 and TSF MB68 to replace TSF MB49) to the south of the proposed dry-stack TSF expansion (DMIRS, 2023).

3. Risk assessment

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

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this Amendment Report are detailed in Table 2 below. Table 2 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Licence Holder controls

Sources	Emission	Potential pathways	Proposed controls
Construction			
Vehicle movements Sourcing of material for the dry-stack TSF perimeter expansion and lifts and construction of the diversion drain Installation of replacement bores	Dust	Air/windborne pathway	• Starter embankment for lift 1 constructed with mine waste material to protect the slopes against erosion and dust emissions. • Start embankments at lifts 2 and 3 constructed with tailings materials with the outer slopes covered by mine waste material. • Dust suppression and mitigation techniques including water carts, sheeting of roads and implementing no drive areas - windrow off non trafficable areas and progressive rehabilitation. • Watering of roads for dust suppression purposes to occur as required. • Traffic speeds will be signposted and adhered to on site and within dry-stack

Sources	Emission	Potential pathways	Proposed controls
			TSF footprint. Traffic will be restricted to designated roads. Off road driving will be prohibited on site. • Scheduled inspections and audits. • No of exceedance of 10g/m^2/month at all ecological receptors. • Training and awareness on licence and approval conditions relating to tailings.
Operation			
Deposition of dry, windblown tailings off the dry-stack TSF perimeter expansion due to extra height	Dust	Air/windborne pathway due to extra height	• Dry tailings stacked with a moisture content of 15%. • Ongoing dust monitoring during operations. • Material drop heights (“luffing”) between loaders and trucks and from trucks or other machinery to stockpiles reduced, as far as practicable within operating limits, to minimise dust creation. • Scheduled inspections and audits. • No of exceedance of 10g/m^2/month at all ecological receptors. • Training and awareness on licence and approval conditions relating to tailings.
Leachate (seepage)	Increase in seepage due to additional pressure as the TSF lifts are constructed	Seepage through soils to groundwater	• Construction of a perimeter drainage line expansion at the southern toe of the dry-stack TSF and excavation of a new entrance channel for the existing drain as per the REE’s design. • Existing clean and dirty water diversion channels. • Existing retention pond to capture any seepage. Designed to accommodate greater than 1-in-100 year, 72 hour Average Recurrence Interval storm event. • Windrows and earth bunding around controlled areas. • Regular monitoring, inspections and maintenance of the drainage channel. • Monthly/six monthly measuring of SWL and sampling of groundwater bores around dry-stack TSF and wet TSF 2A to monitor groundwater level and quality. • Installation of replacement monitoring bores to monitor potential seepage and

Sources	Emission	Potential pathways	Proposed controls
			inform recovery measures for continuous rising water table. • Daily operational inspection of the dry tailings stacker. • Annual TSF review by a qualified geotechnical specialist.
Contaminated and sediment laden stormwater	Increased risk in overflow/ overtopping within the perimeter drainage line	Seepage through soils to groundwater	• Recovered stormwater collected through the existing and proposed perimeter drains is returned to the Process Plant, or for dust suppression with overflow into the Drainage Retention Area away from the dry-stack TSF. • Existing clean and dirty water diversion channels. • Existing retention pond to capture any seepage. Designed to accommodate greater than 1-in-100 year, 72 hour Average Recurrence Interval storm event. • Windrows and earth bunding around controlled areas. • Regular monitoring, inspections and maintenance of the drainage channel.

3.1.2 Receptors

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

Table 3 below provides a summary of potential environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental siting* (DWER 2020)).

Table 3: Sensitive environmental receptors and distance from prescribed activity

Environmental receptors[1]	Distance from prescribed activity
Aboriginal Heritage sites	5 sites located 200 m west, outside of the proposed dry-stack TSF Expansion footprint. Consisting of two gnamma, well artifacts, grind base and other artifacts. **Impacts to Aboriginal heritage sites have been addressed according to s18 of the Aboriginal Heritage Act 1972 (AHA) and has been ruled out as a receptor.**
Groundwater	Localised unconfined aquifer 3.5 m – 16 mbgl.
Native vegetation	100 m east. The Premises is located on formal pastoral land containing native vegetation that has been incorporated into the Karara Rangeland Park. To note, the management plan for the Karara Rangeland Park has not been finalised to date.

Note 1 - Clearing of native vegetation including the Blue Hills Priority Ecological Community and Priority fauna habitat such as prospective Malleefowl and Western Spiny-tailed Skink habitat is addressed under MS 805 and MS 895 as conservation significant fauna.

3.2 Risk ratings

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

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

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

The Revised Licence L8721/2013/2 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 4. Risk assessment of potential emissions and discharges from the Premises during construction and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Construction								
Perimeter drainage lines and a new entrance channel to connect into the existing perimeter drain	Dust	Air/windborne pathway causing impacts to vegetation health by reducing photosynthetic potential	Native Vegetation	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	The general provisions of the EP Act apply.	N/A
Operation								
Deposition of dry windblown tailings at the dry-stack TSF perimeter expansion due to extra height	Dust	Air/windborne pathway causing impacts to vegetation health by reducing photosynthetic potential	Native Vegetation	Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	Existing condition 2 relating to infrastructure requirements for the Dry-stack TSF including moisture content. The general provisions of the EP Act also apply.	N/A
Increase in seepage due to additional pressure as the TSF lifts are constructed	Leachate (seepage)	Overland runoff potentially causing sediment movement, erosion and build up.	Native Vegetation Groundwater	Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	Condition 4 for the construction of a perimeter drainage line.	N/A
Increased risk in overflow/overtopping within the perimeter drainage line	Contaminated and sediment laden stormwater			Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	Existing condition 1 relating to direction of surface water drainage to the retention area. Existing condition 2 relating to the capacity of the Drainage Retention Area.	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).
Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Shire of Perenjori advised of proposal (7 July 2023)	No response received.	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (7 July 2023)	DMIRS replied on 12 July 2023 advising that the description of these activities appears consistent with MP Reg ID 118480 for the Karara Iron Ore Project (KIOP) Dry-Stack TSF Expansion (currently Revision 5). This MP is currently being assessed. DMIRS has no objection or further comment regarding the referral of an amendment to licence L8721/2013/2 under the EP Act. The area proposed for the TSF expansion has been previously approved for clearing under MS 805. It is expected that mapped priority fauna habitat would have been considered through that process. On this basis DMIRS will not undertake an assessment in relation to the impacts of clearing resulting from this proposal (tenement G59/38).	The department notes that the TSF expansion is consistent with the MP.
Department of Planning Lands and Heritage (DPLH) advised of proposal (7 July 2023)	DPLH replied on 17 August 2023 advising they have no objections to the amendment to the licence (L8721/2013/2). DLPH have stated *"The Aboriginal Heritage Legislation Amendment and Repeal Bill 2023 is currently before Parliament for consideration, and we would appreciate Karara Mining Limited being referred to the Department's website for the most up-to-date information on the Aboriginal heritage legislation at: https://www.wa.gov.au/government/document-collections/aboriginal-cultural-heritage-act-2021."*	The department acknowledges the repealed Aboriginal Cultural Heritage Act 2021 and refers the licence holder to the website.
Licence Holder was provided with draft amendment on 3 November 2023	Refer to Appendix 1.	Refer to Appendix 1.

5. Conclusion

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

5.1 Summary of amendments

Table 6 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 6: Summary of licence amendments

Condition no.	Proposed amendments
Licence History	Removed Works Approval history, so only Licence History.
All	Conditions and table numbering has been updated throughout licence.
-	Updated multiple conditions to include the descriptor "wet" for consistency of referring to TSF 2A and 2B.
1	TSF “landform” replaced with its components of “dry-stack” and Wet TSFs so that “dry-stack TSF” wording is consistent throughout the amendment. Inclusion of Figures 14 and 15.
2, Table 1	TSF “landform” replaced with its components of “dry-stack” and Wet TSFs so that “dry-stack TSF” wording is consistent throughout the amendment. Added item numbers column for ease of reference. Separated the Wet TSF requirements (now item 2) from the dry-stack TSF requirements (now item 1). Removed stormwater and associated infrastructure requirements as this is adequately covered by condition 1 and item 5 of Table 1.
4, Table 3	Inclusion of construction requirements dry-stack TSF expansion for lifts 1 to 3 and associated infrastructure including perimeter drainage. Inclusion of Figures 14 and 15.
5	Inclusion of the requirement in the condition to report after the construction of the starter embankments for lifts 2 and 3.
7	Inclusion of the requirement in the condition to report after the construction of the starter embankments for lifts 2 and 3.
8 9, Table 4	Alteration of the condition to provide a hydrological report relevant to the wet TSF2B construction area prior to the construction of TSF2B. Removal of the previous submission date and inclusion of TSF2A.
22, Table 11	Inclusion of authorised discharge points table for category 6 dewatering listed in condition 18 Table 8, as there was no condition for where dewater could be discharged.
31, Table 15	Removal of redundant superscripts. Removal of MB2 and MB49. Inclusion of bores MB62 to MB66 and replacement bores MB67 and MB68. Shortening long reference numbers to short form to match and standardise with the rest of the short form reference bore numbers. Inclusion of Figure 6 of Schedule 1.
32, Table 16	Inclusion of vegetation monitoring condition.
33, Table 17	Condition for reporting exceedance of trigger value.
34	Inclusion of management action for when the trigger value is exceeded.
35	Updated reference numbering from condition 31(d) to 35(d).
38	Inclusion of condition detailing reporting for condition 33 including managements actions of condition 34.
39, Table 18	Updated table reference number.

Condition no.	Proposed amendments
	Updated annual water balance to correctly refer to condition 29.
41, Table 21	Updated table reference number.
Definitions, Table 22	Updated table reference number. Included conditions for “Dry-stack TSF”, “Wet TSF2A” and “Wet TSF2B”.
Figure 2	Updated figure with new monitoring points.
Figure 6	Updated figure with new monitoring points.
Figure 14	New figure for the Dry Stack TSF Expansion South Lifts 1-3 Site Layout Plan.
Figure 15	New figure for the location of the South Diversion Drain.
Figure 16	New figure for the vegetation monitoring locations.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Mines, Industry Regulation and Safety 2023, Karara Iron Ore Project Mining Proposal Registration ID: 118480, East Perth, Western Australia
3. Department of Water and Environmental Regulation (DWER) 2013, *Karara Minesite Beneficiation Plant Licence*, Perth, Western Australia
4. DWER 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
5. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
6. (DWER) 2020, *Karara Minesite Beneficiation Plant Amended Licence*, Joondalup, Western Australia
7. DWER 2022, *Karara Minesite Beneficiation Plant Amended Licence*, Joondalup, Western Australia
8. Environmental Protection Authority Services 2009*, Statement No 805 Karara Iron Ore Project, 215 Kilometres East-Southeast of Geraldton and 320 Kilometres North-Northeast Of Perth, Shire of Perenjori.* Western Australia.
9. Environmental Protection Authority Services 2012, *Statement No 895 Karara Iron Ore Project, 215 Kilometres East-Southeast of Geraldton and 320 Kilometres North-Northeast Of Perth, Shire of Perenjori.* Western Australia.
10. Environmental Protection Authority Services 2023a, *Request to amend a referred proposal under s.38C of the EP Act.* Joondalup, Western Australia.
11. Environmental Protection Authority Services 2023b, *Proposal Content Document.* Joondalup, Western Australia.
12. Li, X., Chang, S.X. and Salifu, K.F., 2013. Soil texture and layering effects on water and salt dynamics in the presence of a water table: a review. Environmental Reviews, 22(1), https://doi.org/10.1139/er-2013-0035. The paper is available from website www.researchgate.net.
13. Red Earth Engineering (REE) 2021, *Technical Memorandum*, Brisbane, Queensland.
14. Department of Environment and Resource Management (DERM) 2011 (updated 2013), *Conceptual Model Case Study Series Gilgai wetlands,* The State of Queensland and

Australian Government, Australia.

Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
Risk assessment		
Section 2.2	The perimeter drainage line at the southern toe of the proposed Sweeps 11&12 will be excavated and no compaction or erosion protection will be required as confirmed with the engineering design consultants. Therefore, no construction materials will be required. It should be noted that only one perimeter drainage line will be constructed at the southern toe of the proposed expansion, and it will be connected into the existing perimeter drain via a new entrance channel.	Noted.
	Bore construction logs for MB62 to MB66 has been provided in Appendix I: Bore Completion Data of the report 'Hydrogeological Assessment of Seepage Area, Karara Wet TSF' submitted to DWER on 12 June 2023 (noting Bore ID Test 1 – Test 5 in the report corresponds to MB62 to MB66). Copies of the bore construction logs for MB62 to MB66 are provided.	Noted and sighted.
Section 2.2.1	The filtered tailings (dry tailing materials) deposited at the dry-stack TSF have always been placed without compaction. Cone Penetration Testing (CPTu) have been completed in the past to monitor the in-situ state of the tailings (including density, pore pressure, etc.) deposited at the dry-stack TSF, which is proposed to be completed for the operation life of the facility. No compaction is therefore proposed as part of the design for Sweeps 11&12 and the future lifts 2 and 3.	Noted, Section 2.2.1 has been updated.
	KML basically follows the following health and safety Standards, Regulations and internal documents for management of silica content in the tailings material: • AS 2985 Workplace atmospheres • AS 2986 Workplace air quality • AS/NZS 1319, Safety signs for the occupational environment • AS/NZS 1715, Selection, use and maintenance of respiratory protective equipment	Noted, Section 2.2.1 has been updated to refer to this Appendix.

Condition	Summary of Licence Holder's comment	Department's response
	• AS/NZS 3640-2009. Workplace atmospheres – Method for sampling and gravimetric determination of respirable dust • Department of Mines, Industry Regulation and Safety, Guidance about risk-based approach to health surveillance • Department of Mines, Industry Regulation and Safety, Risk-based health surveillance and biological monitoring – guideline • Legislation (Western Australia) − Mines Safety and Inspection Act 1994 and associated Mines Safety and Inspection Regulations 1995 • Legislation (Western Australia) – Work Health and Safety Act 2020 and associated Work Health and Safety (General) Regulations 2022 • Safe Work Australia, Guidance on the interpretation of workplace exposure standards for airborne contaminants, 2012. • SafeWork Australia, Health Monitoring - Guide for crystalline silica KML's internal Health and Safety Management Plan and Procedure: • CORP-HS-PLN-1001, Health and Hygiene Management Plan • CORP-HS-PLN-1017, Respirable Crystalline Silica (Quartz) Management Plan • CORP-HS-PRO-1063, Respiratory Protection Procedure • CORP-HS-PRO-1037, Personal Protective Equipment Procedure	
Section 2.3	KML has set a few vegetation monitoring sites around the wet TSFs and has been undertaking quarterly photo monitoring of vegetation health at those sites since 2021. Please find attached map showing the current vegetation health monitoring sites around the wet TSFs.	The figure of 'current vegetation health monitoring sites around the wet TSFs' has been added to the licence and condition 32 updated.

Condition	Summary of Licence Holder's comment	Department's response
Section 3.1.1, Table 2	As stated above, the filtered tailings have always been placed at the dry-stack TSF without compaction. However, start embankment was constructed for the existing lift 1 with mine waste material to protect the slopes against erosion/dust emissions. Similarly, starter embankment will also be constructed at lifts 2 and 3 by using tailings materials with the outer slopes covered by mine waste material to allow the setup of the conveyors and mobile stacking system. The tailings material for construction of the embankment will typically be placed in nominal 1m thick layers and track compacted with a dozer. No material is required for construction/compaction of the proposed perimeter drain as stated in the above response to the first information request.	Updated mine waste material as an erosion and dust control on the starter embankment slopes.
Licence		
Licence History table	Refer to the highlighted summary of changes in last row of the table. KML wants to clarify that the proposed Sweep 11&12 forms the southern expansion of the existing Lift 1 within the current Ministerial Statement 805 approved boundary, therefore it should be just two new lifts (i.e. Lift 2 and Litt 3). KML suggests to change '3 new lifts' to '2 new lifts' in the summary of changes.	Changed to '3' lifts to '2'.
Table 3	Refer to the highlighted design and construction requirements for 'Dry-Stack TSF southern perimeter expansion and lifts' in last row. KML wants to clarify the new perimeter drainage line at the southern toe of the proposed expansion will be connected into the existing perimeter drainage via the new entrance channel (i.e. there will be only one perimeter drainage line at the southern toe of the proposed expansion.) – refer to the attached perimeter drainage design layout figure.	Last two bullet points combined as they refer to the same item of infrastructure.
Conditions 5 and 7	KML wants to clarify the Construction and Operations of the 'each lift for Item 5 in Table 3' as highlighted in the conditions. Please clarify if the construction of the lift refers to construction of the starter embankment of each lift and operations of each lift refer to the deposition of the dry tailings in those conditions? As the Lift 1 has been operating since 2013 and the starter embankment for Lift 1 was constructed with the mine waste materials as per the original dry-stack TSF design. KML appreciates DWER to consider to remove the Critical Containment Infrastructure Report requirements for the existing Lift 1 in Condition 5 and 7.	Clarified construction reporting requirements for the starter embankments and operational requirements for deposition of lifts 2 and 3.
Condition 29	Regarding the monthly water balance monitoring requirements for the dry-stack TSF. The Dry Stack Tailings Storage Facility Southern Expansion Design Report (Red Earth Engineering, May 2023) indicates that with the high evaporation conditions for the site, it is expected that very little to no water will be released to groundwater or the environment due to seepage at the downstream toe or through the base of the dry-stack TSF. During high rainfall events, surface run-off from the upper surface may run to the edges and seep through the loose materials to the base, but this is expected to be short-lived and would not represent an actual seepage flow regime observed in conventional slurry deposited tailings. Most of the water/moisture deposited with the tailings will be locked up in the particles or evaporate. The ongoing inspection of the dry-stack TSF operations over the past seven years has also not observed any	Reference to the dry-stack TSF removed from this condition.

Condition	Summary of Licence Holder's comment	Department's response
	seepage around the toe of the dry-stack TSF at any time (winter or summer), even with full surface water containment. Therefore, KML considers all moisture of the dry tailings and surface run-off is contained and evaporated and no seepage is expected to occur from the dry-stack TSF. We appreciate DWER to consider to remove the proposed monthly water balance monitoring requirements for the dry-stack TSF in this condition.	
Conditions 30 and 31 Tables 14 and 15	KML notices that a footnote associated with pH is missing from Table 14 and Table 15 and assumes it refers to 'in field non-NATA accredited analysis permitted' as in the footnote of Table 12. Please add the footnote for Table 14 and Table 15.	Footnotes added as requested.
	MB30 is in monitoring location of both tables. Please review and confirm MB30 is required to be monitored for both proposed wet TSF2B in Table 14 and existing wet TSF2A in Table 15. Also, the monitoring frequency in Table 14 and Table 15 is different. KML suggests the monitoring frequency in Table 14 to be amended in consistent with the frequency in Table 15 (six monthly) after deposition of tailings into wet TSF2B. Please note that MB67 and MB68 (replacement monitoring bores) for the proposed expansion of dry-stack TSF don't exist yet, so we will provide bore logs for those two bores when they become available.	Removed MB30 from Table 15. Included six monthly in Table 14 to align with monitoring frequency of Table 15.
Tables 15 and 17 Condition 33	Regarding the Standing water level (SWL) limit of 2 mbgl for the TSF monitoring bores in Table 15 and 4 mbgl trigger value in Table 17. DWER is aware that elevated groundwater levels (above either 2 mbgl or 4 mbgl) have been recorded at some of those monitoring bores in Table 15 in recent years and reported in the Annual Environmental Report to DWER. The most recent groundwater monitoring (Nov 2023) at those bores indicated the SWLs at most monitoring bores have exceeded the proposed trigger level of 4 mbgl in Table 17. Given the ongoing elevated SWLs recorded at those bores, KML is of the view that there is no point to set the SWL limit of 2 mbgl for those TSF monitoring bores in Table 15 and SWL trigger value of 4 mbgl in Table 17 as the SWLs recorded at most of those TSF monitoring bores will automatically breach the proposed SWL limit/trigger level and thus trigger the reporting requirement to the CEO in the proposed Condition 33. KML requests change to Condition 33 to reflect the above.	Currently, SWLs between 2 and 4 mbgl around TSF2A are not causing vegetation death and surface water expression is contained within the drainage retention area. The department has removed the limit and trigger values in relation to the SWL and altered the conditions to trigger based on vegetation death of at least 1 hectare due to high SWL and reduce notification reporting.

Condition	Summary of Licence Holder's comment	Department's response
Condition 32 Table 16	Refer to Condition 32 item (b), there's no 'corresponding unit' set out in Table 16, please review and update item (b). KML also wants to clarify the Limit set out in Table 16 and suggests it to be set in consistent with the vegetation health trigger level in Table 17. KML has existing vegetation monitoring sites around the wet TSFs and has been undertaking quarterly photo monitoring of vegetation health at those sites since 2021. Ongoing monitoring results showed vegetation health at south and southeast of TSF1 and TSF2A has not been significantly impacted by the seepage.	Updated to align with conditions.
Conditions 33 Table 17	KML wants to clarify the vegetation health trigger level set in Table 17. Please provide more details on or quantify the proposed trigger level of 'mass vegetation death' in Table 17.	Clarified to 'at least 1 hectare'.
Condition 34 Table 18	While KML commits to continue monitoring of groundwater in vicinity of the wet TSF2A in accordance with Condition 31 and implement mitigation measures to minimise the seepage in the area, we are concerned of the timeframe for those management actions set out in Table 18. "Install recovery bores and commence pumping within two months" is highly unlikely to be achieved given the timeframe to get approvals for a 26D licence for construction of the new recovery bores. Additional time will also be needed to add any new bores to our current 5C licence for the area and add the abstracted volumes to the licence and then to design pumping and pipeline systems followed by procurement. KML suggests at least six months would be required to install recovery bores and commence pumping. We appreciate DWER to consider the above and revise the timeframe for the management actions in Table 18. As detailed in above representation on Condition 33 regarding the ongoing elevated SWLs recorded at the TSF monitoring bores, we suggest DWER to amend Condition 34 with an 'Improvement Condition' for KML's ongoing management of the seepage as the SWLs of at some monitoring bores will always exceed the proposed corresponding trigger level set in Condition 33.	Updated timeframe from 2 to 6 months.
Condition 38	Please double check that Condition 32 referred in this condition should be Condition 33. As per the above representation on Condition 33, we appreciate DWER to reconsider the reporting requirements for those exceedances of the trigger levels set in Condition 33 and amend Condition 38 accordingly.	Condition number updated. Condition 33 updated as applicable.
Condition 39 Table 19	KML suggests to remove/amend Condition 38 – Exceedance reporting in Table 19 as per the above.	Removed reporting duplication.
Condition 41	As per the above representation on the SWLs in Table 15 and vegetation health monitoring limit in Table 16,	Removed reporting duplication as

Condition	Summary of Licence Holder's comment	Department's response
Table 21	KML suggests DWER to review and amend the notification requirements for Condition 31 and 32 in Table 21.	reporting for conditions 31 and 32 are addressed in condition 33. A 'Specified Actions' heading has been added for distinction of conditions 33 and 34 in the licence.
Table 22	Dry-stack TSF – please change to 'in Figure 2 of Schedule 1, as one feature'.	Corrected typological error from 'Table' to 'Figure' 2.

Appendix 2: Application validation summary

<table>
<tr><th colspan="7">SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)</th></tr>
<tr><td colspan="7">Application type</td></tr>
<tr><td>Works approval</td><td>☐</td><td colspan="5"></td></tr>
<tr><td rowspan="4">Licence</td><td rowspan="4">☒</td><td>Relevant works approval number:</td><td>Licence</td><td>☐</td><td colspan="2">Relevant works approval number:</td></tr>
<tr><td colspan="3">Has the works approval been complied with?</td><td colspan="2">Yes ☐ No ☐</td></tr>
<tr><td colspan="3">Has time limited operations under the works approval demonstrated acceptable operations?</td><td colspan="2">Yes ☐ No ☐ N/A ☐</td></tr>
<tr><td colspan="3">Environmental Compliance Report / Critical Containment Infrastructure Report submitted?</td><td colspan="2">Yes ☐ No ☐</td></tr>
<tr><td colspan="6">Date Report received:</td></tr>
<tr><td>Renewal</td><td>☐</td><td>Current licence number:</td><td colspan="4">Renewal</td></tr>
<tr><td>Amendment to works approval</td><td>☐</td><td>Current works approval number:</td><td colspan="4">Amendment to works approval</td></tr>
<tr><td rowspan="2">Amendment to licence</td><td rowspan="2">☒</td><td>Current licence number:</td><td colspan="4">Amendment to licence</td></tr>
<tr><td>Relevant works approval number:</td><td></td><td>N/A</td><td colspan="2">Relevant works approval number:</td></tr>
<tr><td>Registration</td><td>☐</td><td>Current works approval number:</td><td>Registration</td><td>☐</td><td colspan="2">Current works approval number:</td></tr>
<tr><td colspan="2">Date application received</td><td colspan="5">19 May 2023</td></tr>
<tr><td colspan="7">Applicant and Premises details</td></tr>
<tr><td colspan="2">Applicant name/s (full legal name/s)</td><td colspan="5">Karara Mining Limited (ACN 070 871 831)</td></tr>
<tr><td colspan="2">Premises name</td><td colspan="5">Karara Minesite Beneficiation Plant</td></tr>
<tr><td colspan="2">Premises location</td><td colspan="5">Mining Lease M59/721, expires 15/07/2029
Mining Lease M59/644, expires 09/04/2027
Mining Lease M59/645, expires 09/04/2027
General Purpose Lease G59/38, expires 28/08/2029
Miscellaneous Licence L59/99, expires 9/3/2031
Miscellaneous Licence L59/109, expires 18/9/2031</td></tr>
<tr><td colspan="2">Local Government Authority</td><td colspan="5">Shire of Perenjori</td></tr>
<tr><td colspan="7">Application documents</td></tr>
<tr><td colspan="2">HPCM file reference number:</td><td colspan="5">2012/008499-1~13</td></tr>
<tr><td colspan="2">Key application documents (additional</td><td colspan="5">Supporting Document</td></tr>
</table>

to application form):	Infrastructure figure Clearing Area figure
Scope of application/assessment	
Summary of proposed activities or changes to existing operations.	*Licence amendment* Construction and operation of a three-lift dry-stack expansion for sweeps 11 and 12 and provide a capacity of approximately 5.1 million m^3. A perimeter drainage line and a new entrance channel to connect into the existing perimeter drain is proposed to be constructed at the southern toe of the proposed expansion. Due to the expansion of the dry-stack TSF, two existing TSF monitoring bores (TSF MB2 and TSF MB49) will be covered with the proposed Sweeps 11 and 12, therefore two replacement bores (TSF MB67 to replace TSF MB2 and TSF MB68 to replace TSF MB49) will be installed to the south of the proposed dry-stack TSF expansion area.

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	**Assessed production or design capacity**	**Proposed changes to the production or design capacity (amendments only)**
Category 5: Processing or beneficiation of metallic or non-metallic ore	45,000 tonnes/day T 30,000,000 tonnes per year	No change to existing licence

Legislative context and other approvals

Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	**Yes** ☒ No ☐	Ministerial statement No: **805** EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	**Yes** ☒ No ☐	Reference No: **EPBC 2006/3017**
Has the applicant demonstrated occupancy (proof of occupier status)?	**Yes** ☒ No ☐	Certificate of title ☐ General lease ☐ Expiry: **General Purpose Lease G59/38, expires 28/08/2029** Mining lease / tenement ☒ Expiry: **M59/721, expires 15/07/2029** **M59/644, expires 09/04/2027** **M59/645, expires 09/04/2027** Other evidence ☒ Expiry: **Miscellaneous Licence L59/99,**

		expires 9/3/2031 **Miscellaneous Licence L59/109, expires 18/9/2031**
Has the applicant obtained all relevant planning approvals?	Yes ☒ No ☐ N/A ☒	Approval: Expiry date: If N/A explain why? **Approval has been granted under Part IV of the Environmental Protection Act 1986 and Ministerial Statement 805 applies to this site.**
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	**Yes ☒** No ☐	CPS No: N/A **Clearing is approved under Ministerial Statement 805.** **Approximately 33.5 ha (within previous approved area)** **September – October 2023**
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ **No ☒**	Application reference No: **N/A** Licence/permit No: **N/A**
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	**Yes ☒** No ☐	Application reference No: Licence/permit No: **GWL171229**
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☐ **No ☒**	Name**: Gascoyne** Type: **Proclaimed Groundwater Area** Has Regulatory Services (Water) been consulted? Yes ☐ **No ☒** N/A ☐ Regional office: **Mid-West Gascoyne**
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	**Yes ☒** No ☐	Name: **N/A** Priority: **N/A** Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes ☐ No ☐ **N/A ☒**
Is the Premises subject to any other Acts or subsidiary regulations (e.g. *Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx*)	Yes ☐ **No ☒**	

Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ☐ **No ☒**	
Is the Premises subject to any EPP requirements?	Yes ☐ **No ☒**	
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☐ **No ☒**	Classification: **N/A** Date of classification: **N/A**
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	**Yes ☒** No ☐	Ministerial statement No: **805** EPA Report No: