



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
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	17 July 2024
Decision	Revised licence granted

**MANAGER, RESOURCE INDUSTRIES
INDUSTRY REGULATION (STATE-WIDE DELIVERY)**
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), located on tenements M59/644, M59/645, M59/721, G59/38, L59/99 and L59/109.

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 operation of 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 Application summary

On 5 April 2024, 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).

This licence amendment application is to incorporate category 6 mine dewatering infrastructure and operations from works approval W6762/2022/1. Licence L8721/2013/2 amended on 16 July 2020, authorises discharge of mine water from Karara Pit to Blue Hills North Pit (BHN Pit), with an assessed capacity of 573,600 tonnes per year. Due to the BHN Pit approaching capacity, on 21 October 2022, the Licence Holder applied to the department for a works approval to discharge water to Terapod West Pit. Works approval W6762/2022/1 was granted on 23 March 2023 and discharge to Terapod West Pit is occurring under time-limited operations.

A portion of the abstracted mine water is reused in the processing plant and for dust suppression, however, there remains a substantial volume of surplus mine water requiring disposal.

On 16 February 2024, the department determined construction of the dewatering infrastructure to be compliant. The infrastructure constructed is shown in Table 1 below.

Table 1: Works approval W6762/2022/1 installation requirements

Infrastructure and equipment	Installation requirements	Infrastructure location
Pipeline off-take	<ul style="list-style-type: none"> Off-take to be installed on the existing pipeline at the turning point to BHN Pit from Karara Pit. 	Schedule 1, Figure 2, Figure 3
Dewatering pipelines	<ul style="list-style-type: none"> 1.1 km between the off-take and BHN turkeys nest (TN); 8.5 km of 250 mm poly pipe pipeline between BHN TN to Terapod West Pit; Flow meters installed to quantify discharge flow volumes; Submersible pump and generator installed at BHN TN to pump water to Terapod West Pit; Use of a pipeline with a higher-pressure rating than the expected pressure to prevent leaks; All pipelines aboveground (apart from at vehicle crossings where they are to be buried), in windrows and in existing cleared areas; and Discharge pipe/point placed far enough over the pit crest or down the pit ramp to reduce exposure to wind so that blowback to remnant native vegetation is minimised. 	

This amendment is limited only to changes to Category 6 activities from the Existing Licence. No changes to the aspects of the existing Licence relating to Category 5, 12, 54 and 64 have been requested by the Licence Holder. Table 2 below outlines the proposed changes to the existing Licence.

Table 2: Proposed design capacity changes

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
6	573,600 tonnes per annum	573,600 tonnes per annum	There is no change to the design capacity. Authorised discharge of mine dewatering to Terapod West Pit.

2.2.1 Discharge to Terapod West Pit

The Terapod West Pit has an estimated capacity of 1,196,169 m³ (to a level of 330 m AHD) at a dewatering rate of 728 m³ per day (average 7.5 L/s). This rate of dewatering is expected to continue. A water balance of Terapod West Pit with discharge activities are shown in Table 3 below.

Table 3: Water Balance Terapod West pit with Water Discharge

Level (m AHD)	Area (m ²)	Volume (m ³)	Discharge (m ³ /d)	RR Accum. (m ³ /d)	Evap. Loss (m ³ /d)	Outflow (m ³ /d)	Time to Fill (Days)	Cum. Time (Years)
330	50,086	1,196,169	728	90	222	367	991	9.5
325	42,579	969,580	728	90	189	364	1446	6.8
315	33,820	586,560	728	90	150	254	689	2.9
305	22,879	301,293	728	90	102	141	325	1
295	13,892	114,539	728	90	62	6	27	0.1
294.5	12,909	94,255	728	90	57	0	0	0

The water balance has the following assumptions:

- Discharge from Karara pit is 728 m³/d;
- Rainfall (RR) accumulation is 80% of the average rainfall within the pit perimeter;
- Evaporation loss is 90 % of the average dam evaporation (rate reduced due to high salinity); and
- Outflow is model-calculated flows from Terapod west pit into surrounding rocks.

Freeboard and storage capacity of Terapod West Pit is shown in Table 4 below. The licence holder is proposing to maintain a freeboard of 40 m below crest level within the Terapod West Pit:

Table 4: Terapod West Pit Freeboard and storage capacity

Pit Level	Freeboard	Storage Capacity
294.5 m AHD	75.5 m	94,255 m ³
295 m AHD	75 m	114,539 m ³
305 m AHD	65 m	301,293 m ³
315 m AHD	55 m	586,560 m ³
325 m AHD	45 m	969,580 m ³
330 m AHD	40 m	1,196,169 m ³

Root depths of conservation significant flora species relative to groundwater

The Licence Holder commissioned Curtin University to conduct a desktop study to investigate indicative rooting zones of Priority listed flora species and vegetation communities recorded in the vicinity of Blue Hills North pit, south of Terapod. The investigation indicated that the deepest rooted species of conservation significance (*Acacia karina* P1 and *Melaleuca barlowii* P3) have estimated rooting depths of 5-20 m. Given that these same species in the Blue Hills area are shorter (shrubs to 1.8 m (*M. barlowii*) and up to 3.0 m (*A. karina*)), the Licence Holder considers it is highly unlikely that their rooting depth would reach the upper limit of this estimate. The study also does not consider priority species in the area to be groundwater dependent.

Vegetation of the Blue Hills Priority Ecological Community on the BIF ridge and slopes at

Terapod includes four vegetation associations mapped by Woodman Consultants. The investigation also indicated the deepest roots from only the largest Eucalyptus trees and possibly some Acacia species may exceed 20 m. Eucalyptus trees have been described in two vegetation associations and as low isolated clumps of mixed eucalyptus trees.

The licence holder proposes to maintain a minimum freeboard of 40 meters below the pit crest level (330 m ADH) about 20 m deeper than the deepest-rooted trees expected in the area. The closest vegetation to the pit is about 40 m south of the pit. Floristic communities with Eucalyptus trees described are as close as about 120 m north of the pit.

The Licence Holder has also stated that the Terapod West Pit is likely to act as a groundwater sink with evidence supported by the difference in water quality from the pit and the production bore, which reduces the likelihood that hypersaline water would mix with the groundwater. Water levels in monitoring bore TPD1001 fluctuated in response to variations in pumping rate and whether or not the bore was operating and have ranged from about 275 m to 290 m AHD (95 m to 80 m below the pit crest) during 2021-22. Lower standing water levels are likely to prevent hypersaline water from penetrating the root zone of the deepest-rooted vegetation.

Recommendations from the investigation included a monitoring programme to monitor for impacts of dewater disposal into Terapod West Pit upon deep rooted vegetation. The monitoring programme would comprise of:

- Locating any large Eucalyptus or trees of other species within one kilometre of Terapod West Pit to monitor their condition.
- Expanding the current groundwater monitoring programme to measure standing water levels, salinity and pH of the Terapod South pit lake; and in any other bores in the Terapod area that still exist and are open to the water table.

As a result of the investigation conditions were added to the works approval (W6762/2022/1) to require vegetation monitoring at four locations. The Licence Holder has proposed to continue this vegetation monitoring.

2.2.2 Water quality

Within the Banded Iron Formation, groundwater salinity ranges from fresh to hypersaline, generally increasing with depth.

Monthly water quality monitoring recorded between May and November 2022 was provided during the application for Works Approval W6762/2022/1.

The average water quality of the Karara Pit is hypersaline with an average total dissolved solids (TDS) of 47,365.17 mg/L. pH is slightly alkaline (mean pH 7.73).

The average water quality of the receiving Terapod West Pit is saline (mean 4,601 mg/L TDS) and acidic (mean pH 3.05). The Licence Holder suggests the lowering of water levels in the pit has exposed sulphides in the pit walls that have oxidised causing acidic conditions when water has re-entered the pit. Furthermore, water samples taken from the pit in June 2021 and 2022 indicate three analytes with elevated concentrations, they are aluminium (15.5, 21.2 mg/L), iron (15.0, 16.6 mg/L) and manganese (5.7, 5.9 mg/L).

The average water quality of the ambient groundwater sampled from monitoring bore TPD1001 is saline (mean 7,749 mg/L TDS) and neutral (mean pH 7.06).

Table 5 provides summary of average water quality results from 2020 to 2022.

Table 5: Average water quality in Karara Pit, Terapod West Pit, and ambient groundwater

Parameters	Units	Karara pit average (2020-2022)	Terapod West Pit average (2022)	TPD1001 (2022)
pH	pH units	7.95	3.10	7.40
Alkalinity	µg/L	160.5	<1	308
Electrical Conductivity	µS/cm	26,791	59,300	7,655
TDS (NaCl)	mg/L	42,155	4,706	7,760
TSS		ND	1	24
Major Cations (dissolved)				
Calcium, total as CaCO ₃	mg/L	6,160	1,060	7,770
Calcium		365	125	126
Potassium		1,082	66	121
Sodium		10,075	1,010	2,040
Magnesium		1,275	182	319
Manganese (total)		0.303 (0.402)	6.1 (5.91)	0.184 (0.179)
Mercury		<0.0001	<0.0001	<0.0001
Major Anions (dissolved)				
Chloride	mg/L	14,900	1,520	3,400
Fluoride		ND	ND	0.7
Sulfate as SO ₄ ²⁻		3,315	1,230	717
Heavy metals and metalloids (dissolved)				
Aluminium (total)	mg/L	<0.05	21.2 (22.6)	<0.01
Antimony		ND	<0.001	<0.001
Arsenic (total)		<0.005	0.017 (0.02)	0.01
Beryllium		ND	0.001	<0.001
Boron (total)		ND	3.16 (3.36)	4.63 (4.53)
Cadmium (total)		0.001 (0.0011)	0.0053 (0.0058)	0.0001
Chromium (total)		<0.005	0.06 (0.061)	<0.001
Cobalt (total)		ND	0.244 (0.251)	<0.001
Copper (total)		ND	0.335 (0.357)	0.004
Iron (total)		0.45 (<0.25)	16.8 (15)	2.28 (0.13)
Lead		<0.005 (0.01)	0.002	<0.001
Molybdenum		ND	<0.001	<0.001
Nickel (total)		ND	0.697 (0.729)	0.002 (0.002)
Selenium		<0.05	0.01	<0.01
Reactive Silica		ND	36.3	ND
Silver		ND	<0.001	<0.001
Thallium		ND	<0.001	<0.001
Vanadium		ND	<0.01	<0.01
Zinc (total)		<0.025 (<0.026)	<0.01 (0.192)	0.014 (0.012)
Nitrite + Nitrate as N		mg/L	27.9	<0.01
Ammonia (unionised)	16.5		<0.01	<0.01
Nitrate	25.7		<0.01	<0.01
Nitrite	2.18		<0.01	<0.01
TAN: being the sum of [NH ₄ ⁺] + [NH ₃]	30		<0.01	0.01
Total Kjeldahl Nitrogen	26.2		0.1	<0.1
Total Phosphate	0.2		<0.01	0.09
Total Phosphorus as P	<0.05		<0.10	0.03

ND – Not Determined

NG – Not Given

Note 1: Marine low reliability trigger value

Note 2: Recommended in literature for hypersaline conditions

2.2.3 Additional tenements

Terapod West Pit is not located within the existing licence premises boundary. Therefore, the following mining tenements are to be added to the premises boundary:

- Mining Leases M59/649-I; and
- Miscellaneous Licence L59/93.

Mining tenement M59/649-I is owned by DSO Ventures Pty Ltd (Figure 1). DSO Ventures Pty Ltd is fully owned by Karara Management Services Pty Ltd which is fully owned by Karara Mining Ltd. Access to this tenement is via L59/93, also owned by Karara Mining Limited (Figure 1)

2.3 Part IV of the EP Act

Ministerial Statement 806 (MS 806), published on 8 September 2009, has been issued for the Mungada Iron Ore Project; which encompasses the Blue Hills North and Terapod West and South pits. MS 806 addresses minimising disturbance to Priority Ecological Community Blue Hills vegetation complex, applying fauna protection from trenches and maintaining a fauna mortality register.

2.4 Other approvals

2.4.1 Mining Proposal

The proposed dewatering activities are consistent with the Mining Proposal (Registration ID: 114914) granted on 14 December 2022.

2.4.2 Groundwater licence

Groundwater Licence GWL171229 entitles the Licence Holder to abstract 1,000,000 kL per annum from up to ten abstraction bores, including the Karara Pit sump. The proposed activities are consistent with the groundwater licence addendum issued 06 November 2020.

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. Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 6 below.

Table 6 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 6: Licence Holder controls

Emission	Sources / Activities	Potential pathways	Proposed controls
Hypersaline water	Failure of transfer pipeline from the off-take & Blue Hills North turkeys nest to Terapod West Pit.	Contaminated overland run-off from leaks, bursts or run over by vehicles	<ul style="list-style-type: none"> • Pipelines are buried at road or track crossings to minimise risk of vehicles driving over pipelines. • Above ground pipelines are windrowed to contain any leaks. • Daily inspections will be carried out while the pipeline is in use. • Pipeline to Terapod West Pit has a higher-pressure rating operate at greater flow than the current peak monthly average flow rate (22.2 L/s). It has been constructed with PN12.5 poly, which is equivalent to 125 m head. The pump has a maximum flow rate of 60 L/s, which would generate a maximum head of 114m at the pump. The generator supplying the pump with power is programmed to operate at less than 50 Hz, which will reduce the top flow rate possible from the pump. Target flow rate is between 30 and 40 L/s, which would generate approximately 72 m of head. • Flow meter has been installed on headworks at BHN TN to quantify discharge flow volumes. The flow meter will be checked daily with volumes recorded. • If a leak is identified and it is determined that it could have an impact on surrounding vegetation then pumping will be ceased, the pipeline will be isolated, and repairs will be made as soon as practicable.
	Overtopping of the Blue Hills North turkeys nest	Overland runoff	<ul style="list-style-type: none"> • Instantaneous flows via submersible pump and generator from the BHN TN to Terapod West Pit is expected to be as high as 40 L/s to ensure the BHN TN does not overflow. • Freeboard maintained at 300 mm.
	Disposal and storage of dewater into Terapod West pit	Seepage from base and walls of the pit	<ul style="list-style-type: none"> • Investigations suggest vegetation species present in the vicinity are unlikely to be deep rooted and therefore unlikely to be impacted. • Discharge to Terapod West Pit limited to 330 m AHD (40 m below pit crest) minimising mounding and seepage to surrounding aquifer. • Monthly monitoring of water quality and review of data in Terapod West Pit and bore TPD1001 will

Emission	Sources / Activities	Potential pathways	Proposed controls
			<p>continue to identify any potential impact to groundwater level and quality in vicinity of Terapod West Pit for unexpected GWL increases and potential impact of saline water.</p> <ul style="list-style-type: none"> • Monthly monitoring of vegetation health at four monitoring points (TPDWM01-04) in vicinity of Terapod West Pit. • Quarterly monitoring of health of deep rooted vegetation within 1km of Terapod West Pit.
	Overtopping of Terapod West pit	Overland runoff	<ul style="list-style-type: none"> • Discharge to Terapod West Pit limited to 330 m AHD (40 m below pit crest) minimising mounding and seepage to surrounding aquifer. • Recovery of some stored water during the summer months for dust suppression.
	Discharge of dewater over the edge of Terapod West pit	Air/windborne pathway from discharge aerosolised as spray	<ul style="list-style-type: none"> • Discharge point placed on a bench deep into the Terapod West pit to reduce exposure to the wind, reducing risk of wind-blown saline water to surrounding vegetation. • Discharge pipe sited at least 100 m away from remnant vegetation and in windrows to contain any leaks. • Scheduled confirmatory inspections and audits of the discharge point when discharging dewatering to Terapod West Pit. • Incident reporting. If blowback observed, discharge point to be modified or moved to mitigate any impact to vegetation.
Diesel fuel	Refuelling of the pumps to BHN TN and Terapod by mobile fuel truck	<p>Leaks and spills direct to land contributing to contaminated overland runoff</p> <p>Migration via land to groundwater</p>	<ul style="list-style-type: none"> • All chemicals shall be stored in containment bunds, sea containers or chemical cabinets as appropriate for the volume and nature of the chemicals. • All hydrocarbons to be stored within bunding that meets <i>Dangerous Goods Safety Act 2004</i>. • Spill management equipment appropriate to the volume and type of hydrocarbons or chemicals being stored shall always be available, clearly labelled.

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

Table 7: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
-	<i>There are no sensitive human receptors within 10 km of the premises</i>
Environmental receptors	Distance from prescribed activity
Aboriginal heritage sites	<p>From the off-take / Blue Hills North turkeys nest</p> <ul style="list-style-type: none"> • MIOP02 (Euro Bore Quarry 01) – place ID – 26480 - Artefacts / Scatter, Quarry - No Gender Restrictions – 510 m south-west of the pipeline. <p>Along the pipeline route to Terapod Pit:</p> <ul style="list-style-type: none"> • Blue Hills – place ID – 20859 – Mythological - No Gender Restrictions – 0 m to 330 m from the pipeline and overlaps Terapod Pit. • MIOP09 (Terapod Artefacts 02) – place ID – 26486 - Artefacts / Scatter, Grinding Patches / Grooves - No Gender Restrictions – 40m south of the pipeline <p>All other Heritage Sites more than 500 m away have been ruled out due to distance.</p> <p>Near Terapod West Pit:</p> <ul style="list-style-type: none"> • MIOP08 (Terapod Artefacts 01) – place ID – 26485 - Artefacts / Scatter, Grinding Patches / Grooves - No Gender Restrictions – 110 m east of Terapod Pit • MIOP32 - Site ID 28481 - Approximately 300 m east of the Terapod West Pit. • TEQU12-01 – place ID – 33310 - Artefacts / Scatter, Quarry - No Gender Restrictions. – 440 m east of Terapod Pit.. <p>All other Heritage Sites more than 500 m away have been ruled out due to distance.</p>
Priority 1 PEC - Blue Hills (Mount Karara/Mungada Ridge/Blue Hills) vegetation complexes (banded ironstone formation)	Blue Hills PEC occurs within or in vicinity of the proposed premise extension boundary.
Threatened flora <i>Acacia karina</i> (P1) and <i>Acacia woodmaniorum</i> (T)	<i>Acacia karina</i> (P1) and <i>Acacia woodmaniorum</i> (T) occur within the proposed premise. Monitoring of impacts for dust, saline water application for dust control, fire and feral species are addressed in Ministerial Statement 805 and 806.
Groundwater	Depth is approximately 40 m below ground level. (~300 m AHD.)
Karara Rangeland Park	Overlaps the prescribed premises. Karara Iron Ore Project is located on formal pastoral land that has been incorporated into the Karara Rangeland Park.

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 0. 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 0), 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 8.

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

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

Table 8. Risk assessment of potential emissions and discharges from the Premises during operation

Risk Event					Risk rating ¹	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	C = consequence L = likelihood			
Operation								
Failure of transfer pipeline from the off-take & Blue Hills North turkeys nest to Terapod West Pit.	Hypersaline water	Overland run-off from pipeline leaks, bursts or run over by vehicles impacting health of vegetation and amenity	Aboriginal heritage sites Blue Hills PEC, Threatened flora, Karara Rangeland Park	Refer to Section 3.1	C = Slight L = Rare Low Risk	Y	Conditions 2, 3	Condition 2: Containment infrastructure operational requirements. Condition 3: Daily inspection of infrastructure when dewatering.
Overtopping the Blue Hills North turkeys nest		Overland runoff impacting health of vegetation and amenity		Refer to Section 3.1	C = Minor L = Rare Low Risk	Y		
Disposal and storage of dewater into Terapod West pit		Seepage from base and walls of the pit resulting in contamination of local aquifer	Groundwater	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 2, 3, 22, 28 and 31	Condition 2: Containment infrastructure operational requirements. Condition 3: Daily inspection of infrastructure when dewatering. Condition 22: Authorised discharge point changed to Terapod West Pit. Condition 28: Volumetric flow rate monitoring to occur at Terapod West Pit discharge point. Condition 31: Standing water level monitoring to occur at Terapod West Pit and ambient groundwater monitoring from TPD1001. <u>Expanding the suite at TPD1001 will record any significant changes to the</u>

Risk Event					Risk rating ¹	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	C = consequence L = likelihood			
								<u>chemical composition of the ambient groundwater as a direct result of discharging water to Terapod Pit if Terapod Pit does not act as a groundwater sink as expected.</u>
		Seepage impacting health of root zone of deep rooted vegetation from groundwater mounding	Blue Hills PEC, Threatened flora, Karara Rangeland Park	Refer to Section 3.1	C = Moderate L = Rare Medium Risk	Y	Conditions 2, 3, 22, 28, 31, 32,35	<p>Condition 2: Containment infrastructure operational requirements.</p> <p>Condition 3: Daily inspection of infrastructure when dewatering.</p> <p>Condition 22: Authorised discharge point changed to Terapod West Pit.</p> <p>Condition 28: Volumetric flow rate monitoring to occur at Terapod West Pit discharge point.</p> <p>Condition 31: Standing water level monitoring to occur at Terapod West Pit and ambient groundwater monitoring from TPD1001.</p> <p>Condition 32: Vegetation health monitoring around Terapod West Pit.</p> <p>Condition 35: Vegetation monitoring trigger action</p>
Discharge of dewater over the edge of Terapod West pit		Air/windborne pathway from discharge aerosolised as spray causing impacts to vegetation health and amenity.	Aboriginal Heritage site ID 28481 Blue Hills PEC, Threatened flora, Karara Rangeland Park	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Conditions 2, 3	<p>Condition 2: Containment infrastructure operational requirements.</p> <p>Condition 3: Daily inspection of infrastructure when dewatering.</p>

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Risk Event					Risk rating ¹	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	C = consequence L = likelihood			
Refuelling of the pumps to BHN TN and Terapod by mobile fuel truck	Diesel fuel	Leaks and spills direct to land contributing to contaminated overland run-off to enter the root zone of native vegetation, causing impacts to vegetation health and amenity.	Blue Hills PEC, Threatened flora, Karara Rangeland Park	Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	N/A	Diesel and other hydrocarbon spills are managed under Schedule 1 of the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> .
		Leaks and spills direct to land migrating via land to groundwater	Groundwater	Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	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 9 provides a summary of the consultation undertaken by the department.

Table 9: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website 24 June 2024	None received	N/A
Licence Holder was provided with draft amendment on 8 July 2024.	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 10 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 10: Summary of licence amendments

Condition no.	Proposed amendments
Throughout the licence	Updated figure numbers.
2, Table 1	Insert 'operational' to column 3 heading. Updated column 2 'Containment structure' inserting items 10 'Blue Hills North turkeys nest', 'submersible pump' and 12 'Terapod West Pit'. 'Blue Hills North Open Pit' is now item 11.
3, Table 2	Updated column 1 scope of inspection to include 'Blue Hills North turkeys nest', 'submersible pump' and 'Terapod West Pit'.
22, Table 11	Row added to include 'Terapod West Pit' as a discharge point.
28, Table 13	Row added to column 2 to include 'Terapod West Pit' as a monitoring point.
31, Table 15	'Terapod West Pit' monitoring requirements added to table 15 (including SWL limit) Blue Hills North Turkeys Nest added to the list of monitoring bores. TPD1001 and reference figure added to the list of monitoring bores.
32, Table 16	Figure 17 of Schedule 1 added to column 1 monitoring point reference and location. Table relabelled as Table 16a and Table 16b has been added outlining vegetation health monitoring requirements around the Terapod West pit.
33, Table 17	Figure 17 of Schedule 1 added to column 1 discharge point. Reference to Table 16a added

34, Table 18	Figure 18 of Schedule 1 added to column 1 monitoring location.
35	New condition added requiring production bores to be installed if vegetation health is impacted.
Definition	Acronym BHN added.
Figures	Figure 1 updated with a map which shows the updated licence boundary which includes tenements L59/93 and M59/649-1 and encompasses Terapod West Pit. Figure 3 added to show discharge infrastructure from Blue Hills North turkeys nest to Terapod West Pit and Production bore TPD1001. Figure 18 added. This figure shows vegetation monitoring locations around Terapod West Pit.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western 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
Draft Decision Report		
Section 2.2	Second paragraph - Licence L8721/2013/2 amended on 20 November 2023 was associated with extension of the drystack TSF. Licence amendment on 16 July 2020 authorised discharge of mine water from Karara Pit to Blue Hills North Pit (BHN Pit). Please revise it to reflect the correct Licence amendment date for incorporating mine dewatering activities in the Licence.	Date updated to 16 July 2020.
Table 2	As stated in the representation to the draft amended Licence, KML is still disposing water from mine dewatering of Karara Pit to the BHN pit and it is expected this will be ongoing until the BHN pit reaches its standing water level limit at 345m AHD in line with current Licence L8721/2013/2. Therefore, KML wishes to change "Authorised discharge of mine dewatering to change from Blue Hills North Pit to Terapod West Pit" to "Authorised discharge of mine dewatering to Terapod West Pit" in this table.	Text updated to to "Authorised discharge of mine dewatering to Terapod West Pit".
Table 10	As per KML's representations to the draft amended Licence, please update relevant proposed amendments in this table where those representations are accepted by the DWER.	Updated rows 2 to 5 to remove reference of replacing 'Blue Hills North Open Pit', and other related information which were stated as replaced. Terapod infrastructure has been stated as included as separate rows where applicable.
Draft Licence		
Premises details on the front page	Please add mining tenement M59/649-I and miscellaneous lease L59/93 as per the amended Licence boundary area shown in Figure 1 in Schedule 1.	Tenements M59/649-I and L59/93 added to the Licence cover page.
Table 1 Items 9 and 10	As we are still disposing of water from the mine dewatering of Karara Open Pit to BHN Pit and it is expected this will be ongoing until the standing water level at BHN Pit reaches its limit of 345m AHD in line with the current Licence L8721/2013/2. KML wishes to keep the current containment structure and infrastructure operational requirements	References to Blue Hills North Pit retained. Terapod West Pit

Licence: L8721/2013/2

Condition	Summary of Licence Holder's comment	Department's response
	<p>associated with BHN Pit in Table 1.</p> <p>Add the containment structure and associated infrastructure operational requirements relating to dewatering to Terapod West Pit in separate items in Table 1 as needed.</p>	<p>separated and added as items 10 and 12. BHN entries are now items 9 and 11.</p>
Table 2	<p>As above, we would like to keep the scope of inspection in relation to BHN Pit dewatering pipeline and discharge point in Table 2.</p>	<p>References to Blue Hills North Pit retained, Terapod West Pit listed separately.</p>
Table 11	<p>As above, we would like to keep the BHN Pit discharge point in Table 11.</p>	<p>As above.</p>
Table 15	<p>As above, we would like to keep the BHN Open Pit monitoring location and standing water level limit of BHN Open Pit in Table 15.</p>	<p>As above. Monitoring requirements for Terapod West Pit listed separately/ as a new row, to BHN Open Pit.</p>
Table 16b	<p>Terapod West Pit vegetation monitoring locations (TPDWM01 – 04) also includes monitoring of deep-rooted vegetation health within 1km of Terapod West Pit. We wish to combine the two monitoring point reference and change monitoring frequency to monthly.</p>	<p>Updated to monthly.</p> <p>Foot note added so that deep rooted vegetation is monitored at TPDWM01-4 monitoring locations.</p>
Condition 33	<p>Error of cross reference of Condition 34 in this condition, please fix this.</p>	<p>Cross-reference corrected.</p>
Condition 35(a)	<p>The timeframe indicated in “Additional production bores are to be installed within 2 months of the last photo date ...” is highly unlikely to be achieved given the timeframe to get approvals for a 26D licence for construction of the new production bores. Additional time will also be needed to add any new production bores to KML’s 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 additional production bores and commence pumping. We appreciate DWER to consider the above and revise the timeframe for installation of additional production bores in this condition.</p>	<p>Updated to 6 months.</p>