



Application for Licence Amendment

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

Licence Number L5850/1993/11

Licence Holder Yilgarn Iron Pty Ltd

ACN 626 035 078

File Number 2012/002671-1~3

Premises Koolyanobbing Mine

Mining Tenements L77/319, M77/606 I, M77/607 I, M77/611 I, L77/988 I, M77/989 I, M77/990 I, and M77/1278 1, and Crown Lease N466339

KOOLYANOBGING

As defined by the Premises maps attached to the Revised Licence

Date of Report 24 May 2024

Decision Revised licence granted

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1. Decision summary

Licence L5850/1993/11 is held by Yilgarn Iron Pty Ltd (Licence Holder) for the Koolyanobbing Mine (the Premises), located in Koolyanobbing.

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 Premises. As a result of this assessment, Revised Licence L5850/1993/11 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the Premises. The Revised Licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

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

Koolyanobbing has been mined by two operators prior to the Licence Holder. BHP operated from the 1960s to 1980s when it closed the mine. Cliffs Asia Pacific Iron Ore Pty Ltd recommissioned the operations and mined from 1994 until 2018, when the Licence Holder entered into a sales agreement. The Licence Holder acquired the Koolyanobbing site including ownership of all remaining iron ore, fixed plant, equipment, and non-process infrastructure in the Yilgarn and at the Port of Esperance.

On 6 December 2023, the Licence Holder submitted an application to the department to amend Licence L5850/1993/11 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The application is for the construction of transfer pads, redesign of C Pit and the dewatering of A Pit. The following amendments are being sought:

Category 5:

C Pit is an existing in pit tailings storage facility at Koolyanobbing proposed to contain up to 600,000 tonnes per annum (tpa) (400,000 tpa increase) of lithium refinery tailings sourced from the Albemarle Kemerton Plant. This is within Albemarle's authorised tailings production capacity of 1.1 million tonnes per year, as specified in Ministerial Statement 1085. Kemerton Lithium Plant Tailings is currently hauled by road train directly to Koolyanobbing Project C Pit tailings storage facility (TSF) for storage. However, logistical and safety issues have caused the Licence Holder to seek two transfer pads for ore to be unloaded onto before being picked up by mining equipment which will deliver ore to the C Pit. Changes to the onsite methodology for deposition of lithium tailings into the C Pit mining void are also proposed based on the outcomes of the 'Koolyanobbing C-Pit TSF – CPT Test work and preliminary assessment' undertaken by the Licence Holder.

In summary, the following amendments are sought as part of category 5:

C Pit:

- Construction of two tailings transfer pads:
 - C Pit crest transfer pad; and

- laydown transfer pad;
- Installation of four monitoring bores surrounding the C Pit Tailings Storage Facility (TSF);
- Tailings deposition changed from batter berm to a 'flat top design' within C pit; and
- Increasing C pit deposition volumes to 600,000 tonnes per annum.

Category 6:

A and B Pits:

- Construction and operation of dewatering infrastructure (from A Pit to B Pit via the B Pit turkeys nest) (up to 600,000 tpa); and
- Installation of contingency production bore (for B Pit).

This amendment is limited only to changes to Category 5 and 6 activities from the Existing Licence. No changes to the aspects of the existing Licence relating to Category 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	13,100,000 tonnes per annual period	13,100,000 tonnes per annual period of ore processed on site 600,000 tonnes per annual period of tailings being deposited into C pit.	Increased tailings throughput to C pit. No changes to ore processing capacity within Koolyanobbing mine site.
6	0	600,000 tonnes per annual period	To allow for dewatering from A Pit to the B Pit mine void.
12	500,000 tonnes per annual period	No change	No change.
54	300 cubic metres per day	No change	No change.
64	4,000 tonnes per annual period	No change	No change.

2.2.1 Changes to Category 5

The Licence Holder proposes to build two transfer pads, four monitoring bores, and implement a 'flat top design' for tailings within C Pit rather than a 'stacked batter berm design', increasing C pit tailings capacity.

Transfer pads at C Pit

The transfer pads will address logistical issues associated with the haulage and deposition of Kemerton Lithium Plant tailings within the Koolyanobbing Project C Pit TSF. Tailings will be unloaded at the transfer pads before being picked up by mining equipment and transported into the C Pit TSF for storage.

C pit transfer pad

The C Pit crest transfer pad is a bunded hardstand proposed to be located on a crest within the north west catchment of C Pit TSF. It is designed to provide a location for temporary transfer of inert dry lithium by-products between delivery vehicles and equipment used to store the tailings in C pit. During extreme weather conditions or mobile equipment breakdown where tailings cannot be delivered to C Pit for storage, the transfer pad has a capacity for up to five days temporary storage as a contingency. The crest transfer pad will have the capacity for 6,100 tonnes stockpiled to a height of 3 m. Any leachate generated from rain percolating through the material will drain back into the C Pit TSF. The C Pit crest transfer pad is designed to divert a 100 year average return interval 24 hour rainfall event to the C Pit TSF. Clean stormwater will be diverted around the C Pit crest transfer pad and directed into the existing access road drainage system.

Laydown transfer pad

The laydown transfer pad will be a bunded hardstand designed for the transfer of tailings between delivery vehicles and mobile equipment used to store the tailings in C pit. During extreme weather conditions or mobile equipment breakdown where tailings cannot be delivered to C Pit for storage it will have a temporary stockpiling capacity of up to 27 days as a contingency. Capacity will be for 35,100 tonnes stockpiled to a height of 3 m. Tailings deposited are high in moisture content which reduces dust lift off from the stockpile. This laydown transfer pad is proposed to be used when access to the C Pit crest transfer pad is unavailable. It will be located about 1.7 km north west of the C Pit TSF and will be constructed with drainage and a sump. The soil used to construct the hardstand will be compacted to a sufficient permeability and thickness to manage seepage. The laydown transfer pad, drainage and sump are designed to contain a 100 year ARI 24 hour rainfall event. The sump will be operated with a 500 mm freeboard. Collected water is proposed to be used for dust suppression at the C Pit TSF.

Monitoring bores

Four monitoring bores will be installed. Of these bores, two are replacements. One replacement bore (MB02A) has been drilled to replace dry bore MB02, while the other (MB05) will replace MB03 in a location downstream of Koolyanobbing ridge away from potential rock fall to increase the safety of personnel taking samples.

The two new bores (MB06 and MB07) will be installed in the southwest area of B Pit to monitor water levels from dewatering activities in the downstream area proposed under this amendment.

The Licence Holder has provided indicative drilling locations for these monitoring bores. Sites are proposed to be chosen taking into account vegetated versus disturbed areas, heritage areas, safety, land access and approval requirements.

C Pit TSF tailings storage

Under this amendment, the Licence Holder proposes a transition from the initial stacked batter berm design to a flat surface design. Compaction of placed tailings will continue. The revised design will remove the potential risks to personnel and plant working within C Pit if tailings slope failures (from the batter-berm design) were to occur. A review of the liquefaction potential of the tailings was also completed. The outcomes of this review, together with the design change, suggests that liquefaction risks and potential impacts of tailings deformation on personnel and plant are low. The associated infiltration basin which currently provides drainage and erosion control associated with the batter-berm design will also be removed as it is not needed to support the flat top design.

The Licence Holder advises that future tailings material will remain inert and dry stacked (eliminating the need for a decant system) and rainwater will continue to evaporate or dissipate along the banded iron formation (BIF) (consistent with the existing approved design).

No new impacts to the environment are anticipated by the Licence Holder due to the change in storage design or from the increase in tailings stored.

The flat top design benefits the Licence Holder by increasing the tailings storage capacity potential laterally by 400,000 tpa.

The Licence Holder has confirmed that has been no change to the source of the tailings, tailings characteristics, including type of ore being processed or changes to processing methodology or produced tailings stream characteristics. Radiation remained generally below laboratory reporting limits and below exposure guidelines.

The key characteristics of the tailings are shown in Table 2.

Table 2: Key tailings properties from representative tests and Yilgarn TSF 2023 tests

Measured Parameters	Representative Sample Results	Representative Sample Results	Yilgarn TSF 2023 Testing
Specific gravity (t/m ³)	2.53 to 2.56	2.46 to 2.91	2.5 to 2.95
Particle size distribution (%)	Approximately 95% passing through 150-micron sieve with 70 to 80% passing a 75-micron sieve	Approximately 95% passing through 150-micron sieve with 42 to 87% passing a 75 micron sieve	100% passing through 75- and 150-micron sieve.
Liquid limit (%)	35 to 36	37.5 to 44	26.6 to 26.8
Plastic limit (%)	29 to 30	28 to 36(1)	21 to 32
Plasticity index (%)	5 to 7	8 to 9*	6.7 to 15.3
Linear shrinkage (%)	1 to 2	24 to 31	4 to 6
Hydraulic conductivity by failing head (m/s)	8.2 x 10 ⁻⁸ to 1.0 x 10 ⁻⁷	1.4 x 10 ⁻⁶ to 4.2 x 10 ⁻⁶	4.41 x-10 ⁻⁸ to 11.94 x 10 ⁻⁸
Permeability by constant head (m/s)	3.6 x 10 ⁻⁹ to 1.0 x 10 ⁻⁷	-	-
Mean resistivity (Ω.m)	16 to 18	4 to 5(2)	-
pH	7.7 to 7.8	7.6 to 7.7	2-13
Emerson Class number (qualitative scale)	4	2 to 4	-
CBR (%)	-	1.5 to 3	-

(1) 1 test non-plastic

(2) Converted from conductivity tests

2.2.2 Changes to Category 6

Pipeline construction

The Licence Holder is proposing to dewater A Pit over a period of 16 months (up to 600,000 tpa) to allow for the expansion of A Pit through the mining of a cutback. Dewater from A Pit will be transferred to a turkeys nest via a High Density Polyethylene (HDPE) pipeline. The water will be used for dust suppression on the premises in a manner that does not impact native vegetation. Then surplus water will be directed from the turkeys nest and discharged into B Pit. An indicative pipeline route is proposed, and the Licence Holder with consideration of

vegetated and disturbed areas, heritage areas and safety.

B Pit Hydrological Assessment

The suitability of B Pit to receive dewater was assessed by the Licence Holder. B Pit is predicted to act as a local terminal groundwater sink, where A Pit water level is lower than B Pit. It should also be noted that the hydraulic connectivity between the pits is not well developed along the banded iron formation (BIF) as the water levels of the pits differ, although the pits are in proximity of one another. Therefore, groundwater mounding is not predicted to rise above 311 m reduced level (mRL) (which is 26 m below the pre mining water level (337 mRL)), nor would water quality issues impact the surrounding environment. However, the Licence Holder has identified the possibility that dewater may seep and cause groundwater to rise above pre mining water levels (337 mRL) within the adjacent C Pit. In the event this occurs, the Licence Holder proposes to install a contingency production bore (PB01) between B Pit and C Pit to recirculate water back into B Pit.

Quality of the dewater

The groundwater in A Pit was measured to be 40 to 60 m below ground level (mbgl), slightly acidic (pH 6.2) and highly saline to brine ranging from 150,000 to 160,000 mg/L. The elevated TDS may indicate that groundwater recharge to the aquifer is low. A comparison of water quality data from A Pit and B Pit for pH and TDS sampled between 2019 and 2023 are provided in Table 3.

Table 3: Field water quality of pH and TDS for A Pit and B Pit

Date	A Pit	B Pit	A Pit	B Pit
	pH		TDS (mg/L)	
19-Jan-19	6.57	6.39	99,420	107,400
16-Apr-19	7.04	7.17	103,400	95,660
20-Jul-19	7.63	7.26	65,140	64,940
19-Oct-19	6.75	7.24	98,230	100,600
25-Jan-20	6.14	6.45	100,400	108,000
10-Apr-20	7.27	7.64	101,100	531,200 ¹
25-Jul-20	7.20	7.47	104,300	86,400
15-Oct-20	6.94	7.54	99,030	98,050
22-Jan-21	6.91	6.63	105,400	104,200
14-Apr-21	8.01	7.66	38,000	56,130
10-Jul-21	7.79	7.45	38,410	56,109
08-Jan-22	7.41	7.66	38,608	56,210
07-Mar-23	6.30	6.71	118,500	125,000
10-Jun-23	7.42	7.67	119,340	69,050
03-Sep-23	7.39	7.52	122,655	114,335
25-Dec-23	7.07	7.20	127,530	128,660

Notes:

¹ Erroneous reading

The Licence Holder undertook groundwater sampling in March 2023 for laboratory analysis and the following results have been summarised:

- pH were similar in both pits, with A Pit measuring 7.6 and B Pit measuring 7.5.

- TDS is mostly hypersaline, with A Pit measuring at 120,000 mg/L while B pit shows 100,000 mg/L.
- Electrical conductivity at both pits were very high, A Pit was 130,000 $\mu\text{S}/\text{cm}$ and B Pit was 120,000 $\mu\text{S}/\text{cm}$.
- Manganese concentrations were slightly elevated in both pits, but this was comparable to other saline water quality data in the Yilgarn area, for example Deception and Windarling north of Koolyanobbing.
- Metal parameters (aluminium, barium, chromium, cobalt, and copper) and the cation / anion parameters (magnesium, potassium, sodium, bicarbonate, and sulphate) results generally similar for both pits.

The Licence Holder notes that the water quality between A Pit and B Pit are comparable and that the slightly higher metal concentrations in A Pit may be due to the pit acting like a local groundwater sink. The licence holder suggests that discharge of dewater from A Pit to B Pit will result in negligible water chemistry change in B Pit.

2.3 Other Approvals

2.3.1 Mining Proposal

Mining Proposal (MP) (ID: 85627) was approved by the Department of Energy, Mines, Industry, Regulation and Safety (DEMIRS) on 11 December 2020 for an addendum to the Koolyanobbing Range C Pit TSF. The addendum was to deposit 1 million m^3 of lithium tailings within C Pit TSF. Mining Proposal (MP) (ID: 119305) was approved on 15 November 2023 for dewatering of up to 2.1 gigalitres of water from A Pit to B Pit turkey's nest. As per this application, the deposited water is proposed for use in dust suppression, with the remainder of the water discharged into B Pit.

Details of consultation with DEMIRS regarding the application are provided in Section 4.

Approval from DEMIRS has not yet been obtained for proposed tailings pads, monitoring/production bores and changes to TSF design and capacity. It is the Licence Holder's responsibility to ensure all necessary approvals are obtained under other relevant legislation prior to conducting proposed activities.

2.3.2 Part IV of the EP Act

There are no Ministerial Statement that apply to the Premises. Ministerial Statement 982 requires the implementation of environmental management plans (EMPs) across three other Yilgarn Operations. Of those EMPs, the Yilgarn Operations Dust Management Plan (2011) is voluntarily applied. Vegetation is currently monitored for the impacts of dust and the Licence Holder has reported that no declines in vegetation health have been observed to date at the Premises.

2.3.3 Groundwater Licence

Groundwater licence (GWL) 154459 allows for the abstraction of 6,200,000 kilolitres (kL) per annum of groundwater from the Goldfields aquifer system for mining activities related to mine dewatering, dust suppression, mineral exploration, mineral ore processing and other mining purposes, camp uses and road construction. This abstraction entitlement is ten times this application's requirement of 600,000 tpa.

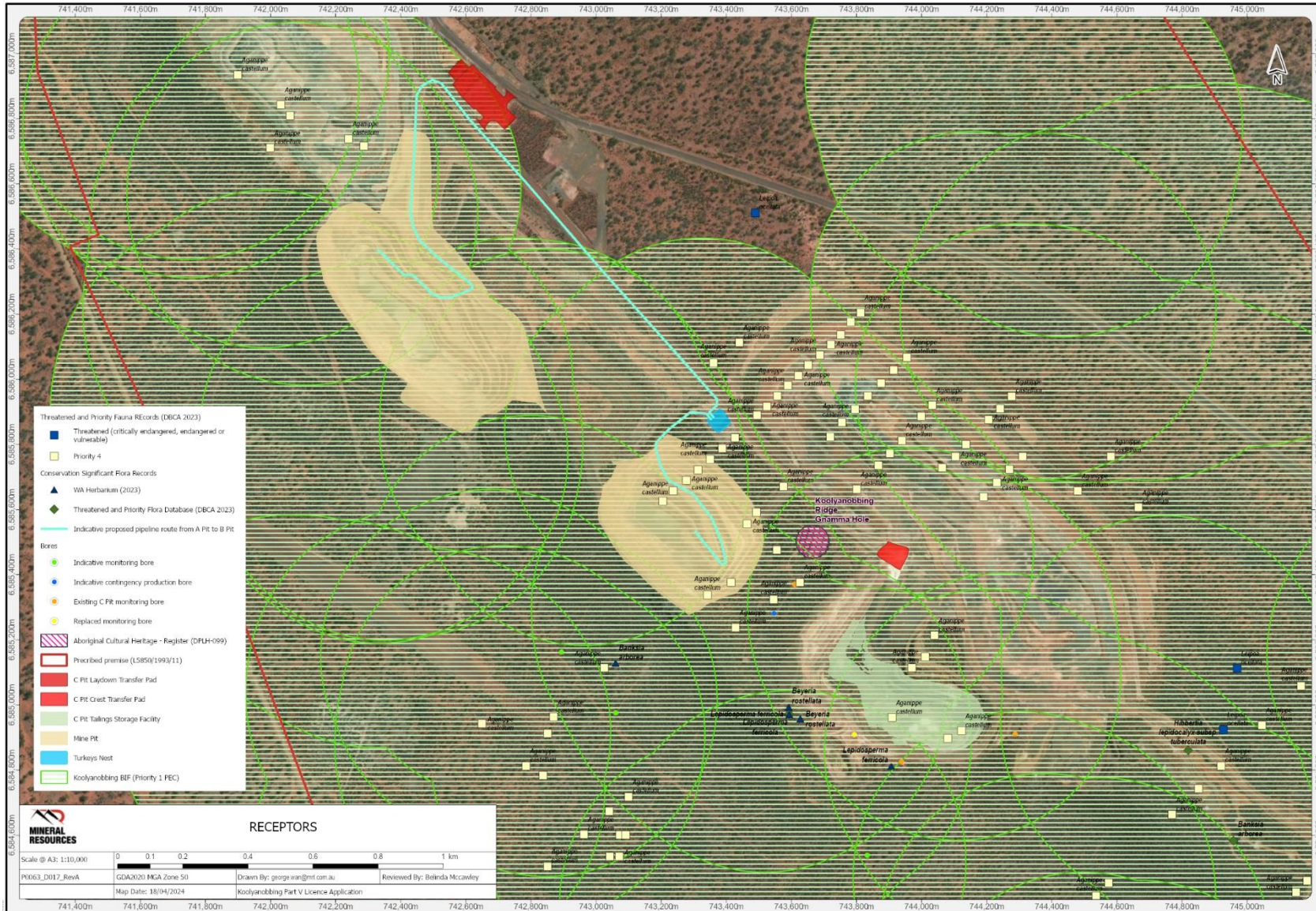


Figure 1: Environmental receptors in relation to the location of infrastructure proposed to be installed at the Premises.

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IR T15 Amendment report template v3.0 (May 2021)

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 3 below. Table 3 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 4: Licence Holder controls

Sources	Emission	Potential pathways	Proposed controls
Construction of: <ul style="list-style-type: none"> two transfer pads and two sumps dewatering infrastructure from A pit to B pit turkeys nest bores (x1 contingency production bore and x5 monitoring bores) redesign of tailings storage in C pit to a 'flat top design' 	Dust	Air/windborne pathway	<ul style="list-style-type: none"> Use of water trucks and/or water sprays to control emissions. Targeted dust suppression activities in direct response to visible dust reports by site staff during inspections. Reducing activities which cause visible dust emissions during periods of high winds if dust cannot be controlled through water sprays.
	Construction waste	Overland reducing amenity	<ul style="list-style-type: none"> Minor quantities of construction waste will be managed in accordance with existing waste management processes at the site.
Sumps	Leachate / contaminated stormwater from tailings	Overtopping	500 mm freeboard maintained.
Transfer pads and sumps		Overland runoff potentially causing ecosystem disturbance or impacting vegetation	<p><u>C Pit Crest Transfer Pad</u></p> <ul style="list-style-type: none"> The pad is located within the C pit catchment and will have a hardstand with 1% fall to an exit drain, to ensure any surface water is directed back into the C Pit. Pad storage has been designed for 100 year ARI 24 hour event. Surface water from surrounding areas is diverted away from both the Pad and work areas to prevent cross contamination. <p><u>Laydown Transfer Pad</u></p> <ul style="list-style-type: none"> The pad will have a hardstand which achieves a minimum permeability of 1×10^{-8} m/s and drainage control by way of 100 mm

Sources	Emission	Potential pathways	Proposed controls
			<p>bunds (elongated speed humps) with 1% fall to an exit drain, to ensure any surface water is directed back into a dedicated sump.</p> <ul style="list-style-type: none"> • Pad storage and sump have been designed for 100 year ARI 24 hour event with the sump designed to hold 2,200 m³. • This water will be taken for dust suppression inside the C Pit TSF. • Diversion channels are designed to intercept surface runoff and convey the external flow into the existing road drainage system.
		Seepage into groundwater reducing groundwater quality	<ul style="list-style-type: none"> • Dry stockpiling of inert, non-toxic tailings. • Deposition method specification of 12 passes with a static weight 16 tonne smooth drum roller with vibration, and compacted layers of a maximum nominally 400 mm thickness. • Layers will be surveyed prior to subsequent layers being emplaced to ensure design thickness is achieved.
Fine and dry tailings temporarily stockpiled on the C Pit Crest Transfer Pad and laydown transfer pads.	Dust	Lift off into the air to an air/windborne pathway	<ul style="list-style-type: none"> • Dust suppression activities (e.g. use of water trucks and/or water sprays) to be conducted during operational activities to minimise the potential for dust to be deposited on native vegetation • Targeted dust suppression activities in direct response to visible dust reports by site staff during inspections • Visual monitoring of dust emissions during Proposal activities, with activities to be modified or suspended if unacceptable dust emissions are observed. • Appropriate speed limits on unsealed roads • Use of defined haul routes for mobile equipment travelling on unsealed surfaces or unformed roads • Any complaints relating to dust emissions will be recorded and investigated.

Sources	Emission	Potential pathways	Proposed controls
Increase in tailings deposition to C pit by 400,000 tpa	Dust	Lift off into the air to an air/windborne pathway	<ul style="list-style-type: none"> • Use of water trucks and/or water sprays to control emissions. • Targeted dust suppression activities in direct response to visible dust reports by site staff during inspections. • Reducing activities which cause visible dust emissions during periods of high winds if dust cannot be controlled through water sprays. • Capping of C Pit TSF once tailings deposition has ceased. • Deposition method specification of 12 passes with a static weight 16 tonne smooth drum roller with vibration, and compacted layers of a maximum nominally 400 mm thickness. • Layers will be surveyed prior to subsequent layers being emplaced to ensure design thickness is achieved. • The final surface of the deposited tailings will be about 13 m below the lowest natural ground surface level.
	Leachate from tailings	Seepage into groundwater reducing groundwater quality and mounding impacting native vegetation	<ul style="list-style-type: none"> • The tailings have been processed to remove excess water to enable dry stacking. The tailings will have little to no water upon placement in the pit. • The Licence Holder advises that future tailings material will remain inert and rainwater will continue to evaporate or dissipate along the banded iron formation (BIF) (consistent with the existing approved design).
Mine dewatering for up to 600,000 tpa of dewatering from A Pit to the B Pit Turkeys Nest and B Pit mine void	Hypersaline water	Overland discharge from pipeline failure causing temporary inundation impacting native vegetation.	<ul style="list-style-type: none"> • The dewatering pipeline will be HDPE pipeline with welded joints. • Pipelines will be fitted with telemetry, pressure sensors, leak detection, automatic cut off and secondary containment.
		Seepage into groundwater reducing groundwater quality and mounding impacting native vegetation	<ul style="list-style-type: none"> • Contingency production bore between B Pit and C Pit for recirculation will be installed if the water levels in C Pit rise above pre mining water levels (337 mRL) following discharge from A pit into B pit.

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 5 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)). It should be noted that there are no sensitive human receptors within 10 km of the premises and no further risk assessment was undertaken due to the long distance to be potentially impacted from prescribed activities.

Table 5: Sensitive environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
PEC	<p>The C Pit is within the Priority 1 banded ironstone formation containing the Koolyanobbing vegetation complex (banded ironstone formation).</p> <p>No additional clearing required for this application. The deposition of the tailings material is within an already highly disturbed footprint and will not be increasing the area of impact already created by the mine void and associated infrastructure.</p>
Conservation significant flora	<p>The following conservation significant flora can be found within 1 km of mining activities:</p> <ul style="list-style-type: none"> • <i>Beyeria rostellata</i> – Priority 1. • <i>Lepidosperma ferricola</i> – Priority 3. • <i>Banksia arborea</i> – Priority 4. <p>The nearest conservation significant flora (<i>B. rostellata</i>) is located approximately 500 m from the transfer pad.</p> <p>No additional clearing required for this application. The deposition of the tailings material is within an already highly disturbed footprint and will not be increasing the area of impact already created by the mine void and associated infrastructure.</p>
Threatened and/or priority fauna	<p>Priority 4, <i>Aganippe castellun</i>, Treestem Trapdoor Spiders specimens are located less than 100 m from the edge of C Pit. The roads accessing C Pit traverse areas where this species has been identified. Surveys have found that <i>A. castellum</i> is able to live near operational areas, with burrows recorded within 25 m of A Pit.</p>
Groundwater	<p>Current interpreted water level at the following pits are:</p> <ul style="list-style-type: none"> • A pit: 300.9 mRL (40 to 60 mbgl); • B pit: 308.7 mRL; and • C pit: 328.0 to 328.7 mRL (MB1 and MB2). <p>Below the waste rock dump is 337 mRL, which is the pre mining water level. pH was measured at 7.6 for A Pit and 7.5 for B Pit and TDS was around 130,000 µS/cm for A Pit and 120,000 µS/cm for B Pit.</p>
Koolyanobbing Ridge Gnamma Hole (Registered Site (16721))	<p>125 m north east of MB1 and between B and C pits.</p>
Lake Deborah (Lake and registered heritage site (20344))	<p>Lake Deborah is a salt lake, located approximately 7 km from C Pit down the hydraulic gradient (WA Salt Group, 2024).</p>

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 in complete 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 6.

The Revised Licence L5850/1993/11 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Category 5 and 6 activities.

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

Table 6. Risk assessment of potential emissions and discharges from the Premises during construction and 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			
Construction								
Construction of: <ul style="list-style-type: none"> The two transfer pads and two sumps dewatering infrastructure from A pit to B pit turkey's nest bores (x1 contingency production bore and x5 monitoring bores) redesign of tailings storage in C pit to a 'flat top design' 	Dust	Air/windborne pathway causing impacts to health and amenity	Gnamma Hole PEC Threatened flora	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Condition 25	N/A
	Construction waste	Overland reducing amenity			Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Condition 13, 14, 15, 16, 35
Operation								
Transfer between equipment and stockpiling of tailings in transfer pads Increase in dry tailings deposition to C pit by 400,000 tpa	Dust	Air/windborne pathway causing impacts to health and amenity	Gnamma Hole PEC Threatened flora	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1, 9	Condition 1: Design and construction requirements to cap C Pit TSF. Tailings dust is often very fine in size. Dust controls will be added to the licence to manage impact upon the surrounding PEC.

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			
Sumps	Contaminated leachate from tailings	Overtopping	PEC Threatened flora Threatened fauna	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1, 10	Condition 1: Sump at Laydown Transfer Pad designed to contain 100-year ARI 24-hour event. Condition 9: requires a 500 mm freeboard.
Transfer pads		Overland runoff potentially causing ecosystem disturbance or impacting vegetation		Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1, 10	Condition 1: Transfer pads designed to contain 100-year ARI 24-hour event. Condition 1: Transfer pads to drain to either C Pit or a sump. Clean stormwater diverted from pad, sump and work area. Condition 9: Construction of sump with 500 mm freeboard at the Laydown Pad.
				Refer to Section 3.1	C = Slight L = Rare Low Risk	Y	Condition 1, 10	Condition 1: Pads to be constructed as hardstands, a compacted soil liner or concrete or asphalt. Condition 9: Sump to be constructed with a minimum permeability.
Increase in dry tailings deposition to C pit by 400,000 tpa (from 13.1 Mtpa to 13.5 Mtpa)		Seepage into groundwater reducing groundwater quality	Groundwater	Refer to Section 3.1	C = Slight L = Rare Low Risk	Y	Condition 1, 4, 5, 10, 13, 33	Condition 1: Deposition of dry tailings. Condition 4: construction of groundwater monitoring wells. Condition 5: reporting requirement for well construction. Condition 12: Increased tailings deposition to 2,100,000 tonnes.

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			
								Condition 33: Increase in monitoring bore network for groundwater downstream of C Pit.
Mine dewatering for up to 600,000 tpa of dewatering from A Pit to the B Pit Turkeys Nest and B Pit mine void	Hypersaline dewater	Overland discharge from pipeline failure causing temporary inundation impacting native vegetation.	PEC Threatened flora Threatened fauna	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1, 8, 34	Condition 1: Pipeline construction to meet condition 8 Condition 8: pipeline to be equipped with telemetry, automatic cuts offs and secondary containment. Condition 34: Monitoring the discharge volume.
		Seepage into groundwater reducing groundwater quality at B Pit	Groundwater	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 4, 22, 24, 33, 34	Condition 4: construction of groundwater monitoring wells. Condition 22: inclusion of mine dewatering throughput. Condition 24: inclusion of B Pit as an emission point for the discharge of A Pit water. Condition 33: Increase in monitoring bore network for groundwater downstream of B Pit. Condition 34: Monitoring the discharge volume.

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 7 provides a summary of the consultation undertaken by the department.

Table 7: Consultation

Consultation method	Comments received	Department response
Shire of Yilgarn advised of proposal 12 January 2024	None received.	N/A
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advised of proposal 12 January 2024	<p>The Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) understands that the amendment includes dewatering, changes to tailings deposition and the installation of new bores (production and monitoring).</p> <p>The proposed activities appear to be generally consistent with existing Mining Proposal approvals for the project, although I note that there are 34 approved Mining Proposals, and it remains the tenement holder's responsibility to ensure mining operations are conducted in accordance with Mining Act approvals and tenement conditions. If the works approval amendments will result in any changes to mining activities outside of the scope of the Mining Act approvals, it is the tenement holder's responsibility to seek further approval or amendments under the Mining Act.</p> <p>DEMIRS has no objections, or formal comments to make on this License Amendment.</p>	Noted.
Marlinyu Ghoorlie Aboriginal Corporation advised of proposal 12 January 2024	None received.	N/A
Licence Holder was provided with draft amendment on 10 April 2024 and on 10 May 2024.	See Appendix 1.	See 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 8 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 8: Consolidation of licence conditions in this amendment

Existing condition	Condition summary	Revised condition	licence	Conversion notes
Cover	Assessed Production capacity	N/A		Updated category 5 capacity to 13,500,000 tpa.
N/A	Contents	N/A		Removed. Revised to current licensing format.
N/A	Introduction	N/A		Removed. Revised to current licensing format.
N/A	Licence History	Licence History		Removed 'and works approvals' for consistency of current licensing format which omits reference to works approvals.
N/A	Severance	N/A		Removed. Revised to current licensing format.
1.1.1 1.1.2	Interpretation and definitions	N/A	Interpretation section, Definitions and Table 17	Redundant condition. Revised to current licensing format.
1.1.3	Australian or other standard	N/A	Interpretation section, Definitions and Table 1	Redundant condition. Revised to current licensing format.
1.1.4	Reference to code of practice	N/A	Interpretation section, Definitions and Table 1	Redundant condition. Revised to current licensing format.
N/A	Headings	N/A		Inclusion and revision of headings and subheadings to current licensing format.
N/A	All conditions and tables	N/A		All condition and table numbering revised to current licensing format.
1.1.5 Table 1.1.1	Design and construction installation requirements	1 Table 1		Removal of repeated word 'requirements' in table 1 title. Inclusion of the following infrastructure: <ul style="list-style-type: none"> • C Pit Crest Transfer Pad • Laydown Transfer Pad • Dewatering pipeline from A pit to B pit • Pipeline from contingency production bore to B Pit Updated Stage 2 C Pit TSF

Existing condition	Condition summary	Revised condition	licence	Conversion notes
				construction requirements to a 'flat top' design.
N/A	Installation of groundwater monitoring wells	3, Table 2		Design and construction requirements for wells.
N/A	Well construction report	4		Reporting requirements for monitoring wells.
1.1.8	LEAF test and characterisation of tailings, including pore water	N/A		Tests were conducted and deemed compliant on 17 May 2023. Condition removed.
1.1.9	Reporting of test results	N/A		Reporting was submitted and the tests were deemed compliant on 17 May 2023. Condition removed.
1.2.3 Table 1.2.1	Containment infrastructure	9 Table 4		Inclusion of Turkey's Nest and laydown pad.
1.2.6	Waste acceptance	12 Table 6		Increase in tonnage of tailings acceptance from 1,700,000 to 2,100,000 tonnes.
1.2.8 Table 1.2.4	Waste processing	13 Table 7		Updated tailings processing requirements.
1.2.15 Table 1.2.6	Production or design capacity limits	20 Table 9		Inclusion of new category 6. Updated category 5 limit to 13,500,000. Inclusion of other categories 12, 54 and 64 found on the cover of the licence.
2.1.1	Record and investigate exceedances of limits or targets	N/A		Redundant condition. Deleted from licence.
2.2.1 Table 2.2.1	Emissions to land	24		Inclusion of B Pit.
3.1.8 Table 3.1.1	Groundwater monitoring of ambient concentrations	30		Updated monitoring bores to be constructed and their labels. Updated frequency and included footnote 1. Updated footnote 1 to footnote 2.
3.2.1 Table 3.2.1	Monitoring of emissions to land	32 Table 13		Included B Pit.
Schedule 1 Schedule 2A	Figures	N/A		Inclusion of figure labels. Revision of figure description to include figure labels. Inclusion of figure 2, 4 and 6 Agglomeration of Schedules 2A, 2B and 2C to Schedule 1 under heading

Existing condition	Condition summary	Revised condition	licence	Conversion notes
				'Train Load Out design options', and labelled these as figures 10, 11 and 12.
Schedule 2	N1 form	N/A		Revised to latest format.

References

1. Cliffs 2011, *Yilgarn Operations Dust Management Plan*, Revision E, April 2011.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
5. EPA 2014, *YILGARN OPERATIONS – WINDARLING RANGE, MT JACKSON RANGE AND DECEPTION DEPOSIT – SHIRE OF YILGARN AND SHIRE OF MENZIES (Statement No. 982)*, Perth, Western Australia, 24 September 2014.
6. Mineral Resources 2020, *ADDENDUM TO MINING PROPOSALS 21823, 32064 AND 56363 (Registration ID: 85627)*, Applecross, Western Australia.
7. Mineral Resources 2020, *Koolyanobbing Range C In-Pit Tailings Storage Facility AMENDMENT TO LICENCE L5850/1993/11 SUPPORTING DOCUMENT – REVISION 1*, Applecross, Western Australia, 31 March 2020.
8. Mineral Resources 2022, *KOOLYANOBING IRON ORE PROJECT - 2021 ANNUAL GROUNDWATER MONITORING REPORT (GWL No.154459)*, Victoria Park, Western Australia.
9. Mineral Resources 2023a, *Memorandum, Osborne Park*, Western Australia, 29 September 2023.
10. Mineral Resources 2023b, *Koolyanobbing C-Pit TSF – CPT Test Work and Preliminary Assessment*, 18 October 2023.
11. Mineral Resources 2023c, *Supporting Document, Osborne Park*, Western Australia, 26 October 2023.
12. Mineral Resources 2023d, *Application form, Osborne Park*, Western Australia, 6 December 2023.
13. WA Salt Group 2024, *Lake Deborah*, North Coogee, Western Australia. [Lake Deborah | A Salt Harvest Sanctuary | WA SALT Group](#)
14. Yilgarn Iron Pty Ltd 2023, *Mining Proposal for Small Mining Operations (Registration ID: 119305)*, Osborne Park, Western Australia.

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

Condition / DWER comment	Summary of Licence Holder's comment	Department's response
Licence		
<p>Prescribed premises category description table</p> <p>DWER comment 1:</p> <p>TO AVOID CONFUSION APPLICANT TO CONFIRM – THE PROPOSED TOTAL, RATE OF ORE BEING PROCESSED ON SITE (IRON ORE PROCESSING ACTIVITIES) AND OFFSITE AND ASSOCIATED TAILINGS VOLUMES BEING PRODUCED/DEPOSITED</p>	<p>Proposed Total = 13,700,000 tonnes per annual period (Iron Ore Processing: 13,100,000 tpa; Tailings Volume Deposited = 600,000 tpa)</p>	<p>Separated processing and deposition.</p> <p>The Delegated Officer notes that there are no changes in volumes of ore being processed at the premises.</p>
<p>Licence history table</p>	<p>Draft text: “Deconstruction of the berm around C Pit to a flat top design”</p> <p>This comment is incorrect. The berm is not proposed or required to be deconstructed.</p> <p>The change of “batter berm” to “flat top design” relates to tailings deposition, within C pit, not around C pit.</p>	<p>Text updated to ‘Tailings deposition changed from batter berm to a ‘flat top design’ within C pit’</p>
<p>Table 1</p> <p>DWER comments 2 and 3:</p> <p>BUNDING DIMENSIONS TO BE CLARIFIED, DETAILED DESIGN/LAYOUT FIGURE TO BE PROVIDED.</p>	<p>It is suggested that the bund heights be removed from Table 1, with the focus being on outcome-based conditions to align to the low level of risk posed by the storage of inert, non-toxic material, to align with DWER’s ‘Guideline Risk Assessments: Environmental Risk Assessment Framework’ (2017). Accordingly, it is suggested that the wording in Table 1 could be amended as follows:</p> <ul style="list-style-type: none"> “Pad hardstand incorporates perimeter bunds designed to contain a 100-year ARI 24-hour event, with a ≥1% fall to exit drain directing leachate to (...)” <p>Details of how the as-constructed designs (including bund heights, etc) meet this condition would be provided in the Environmental Compliance Report.</p> <p>Preliminary design report/figures have been attached to this response for DWER’s consideration during assessment; however, MinRes is seeking flexibility to be able to optimise and/or improve the designs (while still meeting all outcome-based requirements for</p>	<p>Wording updated in the licence.</p>

Condition / DWER comment	Summary of Licence Holder's comment	Department's response
	environmental protection) prior to construction. To avoid the potential for minor licence amendment(s) which represent no change in environmental risk, it is requested that DWER use the preliminary designs for the purposes of its environmental assessment, but do not constrain MinRes to constructing these designs exactly via the Part V licence.	
Table 1	Draft text: "Single finished elevation at 382 mAHD". Single finished elevation with 1 m of waste rock capping should be 383 m AHD.	Inserted both finishing elevations of the tailings and capping for clarity.
Table 1	MinRes requests flexibility with the final elevation because the tailings project may discontinue before reaching 382 m AHD. Accordingly, it is suggested that the wording in Table 1 could be amended as follows: "Single finished tailings elevation no higher than 382 mAHD and elevation with 1 m of waste rock capping no higher than 383 m AHD" (...)"	Updated wording to be "no higher than X m AHD".
Section 5 / Table 2	Section 5 only contains Table 2. This appears to be an admin error. It is assumed that Table 2 belongs within section 4.	Admin error has been resolved. Table 2 remains part of condition 4.
Table 2	Draft text under Timeline: "Must be constructed, developed (purged), and determined to be operational prior to the berms around C-Pit are removed." The berm is not proposed or required to be deconstructed or removed. Suggest timeline be within 12 months following the commencement of dewatering discharge activities.	It is standard to have monitoring bores operational prior to the activity they need to monitor. Two months have been issued to replace non-working bores.
Condition 7	Compliance has been demonstrated with Condition 7 as per letter from DWER on 16 May 2023 (Your Ref FA270131). It is recommended that this condition be removed.	Conditions 6 and 7 have been removed as compliance for those conditions was demonstrated to the department on 16 May 2023.
Table 3: Containment infrastructure DWER comment 4: PROVIDE FREEBOARD [for Turkeys nest]	500 mm freeboard for Turkeys nest	Turkey's Nest freeboard added to table 4.

Condition / DWER comment	Summary of Licence Holder's comment	Department's response
<p>Table 6</p> <p>DWER comments 5 and 6:</p> <p>APPLICANT TO CONFIRM ANNUAL TAILINGS DISPOSAL VOLUME.</p> <p>APPLICANT TO CLARIFY TOTAL VOLUME (IS THIS THE TOTAL CAPACITY OF PIT C)?</p>	<p>The total annual input will be \leq 600,000 tonnes per annual period, as already stated. In reality, the annual volume could be lower (i.e. ~400,000 tonnes) but constraining to this annual volume would not be relevant from an environmental risk perspective.</p> <p>Total revised capacity of C Pit is 2,100,000 tonnes.</p>	<p>Maximum annual tailings disposal volume confirmed.</p> <p>Maximum revised capacity of C Pit confirmed.</p>
<p>Table 6 and Table 14</p>	<p>Tailings</p> <p>Quarterly visual inspection of vegetation condition surrounding the pads must be undertaken.</p> <p>Annual Environmental Report</p> <p>Performance of dust controls within transfer pads and result of visual monitoring of vegetation condition</p> <p>MinRes acknowledges DWER's comment regarding the vegetation monitoring condition, stating:</p> <p>"This condition can be reviewed if it is demonstrated, following the commencement of operations, that controls in place within the pads are sufficient to minimise dust lift-off and impacts to vegetation."</p> <p>However, considering that the transfer pads constitute a minor aspect of a larger, long-term mining operation and are situated within an already extensively disturbed area, including the existing mine void and associated infrastructure, from an environmental risk standpoint the necessity of additional monitoring is unclear.</p> <p>Previous vegetation monitoring¹ conducted around C Pit, where tailings have been deposited, indicates that no priority flora species have been adversely affected by activities in the area. Priority vegetation surveyed as part of the monitoring program was located within 100 m of C Pit. Given that the nearest conservation-significant flora (<i>Banksia arborea</i>) to the transfer pads is approximately 500 m away, the risk to receptors is considered low.</p> <p>Considering the above, MinRes requests a review of this condition based on the evidence presented in the vegetation monitoring report. MinRes asserts that existing dust controls are sufficient to minimise dust lift-off and mitigate impacts to vegetation.</p>	<p>Vegetation monitoring modified to at least one visual survey in the next year while both transfer pads are operational. The department will consider removing vegetation monitoring as part of a future application, pending results of monitoring.</p>
<p>Table 5: Waste Acceptance</p> <p>DWER comment 7:</p>	<p>Capacities for each transfer pad are:</p> <ul style="list-style-type: none"> • Laydown = 35,100 tonnes 	<p>Quantity limits added to the licence. Any changes from the preliminary designs provided</p>

Condition / DWER comment	Summary of Licence Holder's comment	Department's response
VOLUMES FOR EACH PAD TO BE CONFIRMED.	<ul style="list-style-type: none"> • C Crest = 6,100 tonnes <p>Preliminary design report/figures have been attached to this response for DWER's consideration during assessment; however, MinRes is seeking flexibility to be able to optimise this design (while still meeting all outcome-based requirements for environmental protection). To avoid the risk of minor licence amendments being required, it is requested that MinRes are not constrained by the Part V licence to construct these preliminary designs.</p>	should be addressed under condition 3, the construction compliance report, and include an explanation on how the changes do not significantly change the risk to the environment, amenity and human health assessed as part of this application.
Table 10: Emissions to land	C pit Crest Transfer Pad and Laydown Transfer Pad listed as emissions to land. As detailed in the application, these pads will be lined, bunded and have surface water controls to prevent emissions. MinRes does not have any issues with these being authorised as emission points; however, there is no intention for point-source emissions to occur in these locations.	Noted. Removed from the table.
Table 11: Groundwater monitoring of ambient concentrations	<p>Footnote "Exact locations of MB05, MB06 and MB07 to be determined following on-ground investigations and endorsed by a qualified hydrogeologist to be fit-for-purpose prior to drilling".</p> <p>It is recommended that PB01 also be added in this footnote.</p>	PB01 added to the footnote.
Table 13: Monitoring of inputs and outputs	<p>Similar to the comment above, it is not clear how this additional monitoring requirement is necessary from an environmental risk perspective. The data will be onerous to collect (per transfer pad), likely requiring dedicated personnel, and will ultimately combine to be a direct duplication of the existing requirement to monitor tailings being deposited in C pit.</p> <p>The purpose of the transfer pads is to provide a hardstand location for tailings to be unloaded from road transport and transferred into dump trucks so that it can then be safely transported into the bottom of the pit. The transfer pads are not intended to be a storage solution for tailings and will only hold tailings while waiting for the next collection. Short-term tailings storage may be necessary in rare cases of adverse weather affecting trucks accessing the pit safely, and this is the reason for the stormwater management measures being committed to within the transfer pad designs.</p>	Understood. Tonnes of tailings received by C Pit is already collected.
Figure 1 DWER comment 5: UPDATE WITH CATEGORY 6 (MINE DEWATERING INTO B PIT)	A replacement map was provided with the application showing the prescribed premises boundary and all infrastructure relevant to the prescribed premises (including A pit and B pit). This has been further refined in response to other comments from DWER in the draft amendment package (attached).	Figure 1 updated.

Condition / DWER comment	Summary of Licence Holder's comment	Department's response
Figure 3 DWER Comment 6: PROVIDE UPDATED SIDE PROFILE WITH FLAT-TOP DESIGN	Figure 3 of the Licence amendment application shows a cross section of the new design. This figure was specifically generated to replace the existing cross-section and provides more relevant information, such as pre-mining groundwater table and the location of the pit that the cross-section relates to.	Inserted figure 3 from the Licence amendment application.
Figures 1, 2 and 6	The new figure "Prescribed Premise and Category" (attached) consolidates all information previously shown on figures 1, 2 and 6. MinRes proposes that Figures 2 and 6 are removed and all references to Figure 1, 2 and 6 are changed to reference Figure 1.	DWER has reduced the number of figures in Schedule 1 in response to the consolidation of information provided on the new figures.
Amendment Report		
2.2: Application Summary, Category 5 DWER comment 1: APPLICANT TO CONFIRM SOURCE OF TAILINGS DEPOSITED INTO THE PIT (I.E ALL TAILINGS COMING FROM THE ALBEMARLE KEMERTON PLANT, AS PER ORIGINAL APPROVAL), AND THAT THERE IS NO CHANGE IN TAILINGS CHARACTERISTICS, INCLUDING TYPE OF ORE BEING PROCESSED (I.E. ORE LITHOLOGY) OR CHANGES TO PROCESSING METHODOLOGY OR PRODUCED TAILINGS STREAM CHARACTERISTICS.	The source of the tailings deposited into the pit is from the Albemarle Kemerton Plant, as per original approval. It is confirmed that there has been no change in tailings characteristics, including type of ore being processed or changes to processing methodology or produced tailings stream characteristics, since DWER's Part V assessment for this activity in 2020.	Added to the summary for clarification.
DWER comment 2: APPLICANT TO CONFIRM TAILINGS VOLUMES BEING DEPOSITED ARE CONSISTENT WITH ALBEMARLE KEMERTON PLANT ENVIRONMENTAL APPROVALS - INCLUDING PART IV AND PART V APPROVALS (AUTHORISED TAILINGS PRODUCTION AND DISPOSAL). APPLICANT TO CONFIRM MAXIMUM TAILINGS DEPOSITIONS RATE	MinRes is seeking approval to deposit up to 600,000 tonnes of tailings annually from the Albemarle Kemerton plant into C Pit. The volume of tailings that MinRes receives will be determined by Albemarle's production rate and regulatory requirements, which MinRes does not have any control. MinRes understands that the maximum volume remains within Albemarle's authorised tailings production capacity of 1.1 million tonnes per year, as specified in Ministerial Statement 1085. The total annual input will be $\leq 600,000$ tonnes per annual period, as already stated. In reality, the annual volume could be lower (i.e. $\sim 400,000$ tonnes).	Added to the summary for clarification.

Condition / DWER comment	Summary of Licence Holder's comment	Department's response												
(TONNES PER ANNUM) WITHIN PIT C (CURRENT AND PROPOSED).														
<p>DWER comment 3: APPLICANT TO PROVIDE DETAILS OF TAILINGS PHYSICAL CHARACTERISTICS INCLUDING PARTICLES SIZE.</p>	<p>Detailed information about the tailings characteristics was provided to DWER for its assessment in 2020, and there has been no change in ore processed, processing methodology or tailings stream characteristics.</p> <p>Key tailings properties from representative tests and Yilgarn TSF 2023 tests are summarised below.</p> <table border="1" data-bbox="696 523 1541 769"> <thead> <tr> <th data-bbox="696 523 931 600">Measured Parameters</th> <th data-bbox="931 523 1133 600">Representative Sample Results</th> <th data-bbox="1133 523 1335 600">Representative Sample Results</th> <th data-bbox="1335 523 1541 600">Yilgarn TSF 2023 Testing</th> </tr> </thead> <tbody> <tr> <td data-bbox="696 600 931 651">Specific gravity (t/m³)</td> <td data-bbox="931 600 1133 651">2.53 to 2.56</td> <td data-bbox="1133 600 1335 651">2.46 to 2.91</td> <td data-bbox="1335 600 1541 651">2.5 to 2.95</td> </tr> <tr> <td data-bbox="696 651 931 769">Particle size distribution (%)</td> <td data-bbox="931 651 1133 769">Approximately 95% passing through 150 micron sieve with</td> <td data-bbox="1133 651 1335 769">Approximately 95% passing through 150 micron sieve with</td> <td data-bbox="1335 651 1541 769">100% passing through 75 and 150 micron sieve.</td> </tr> </tbody> </table>	Measured Parameters	Representative Sample Results	Representative Sample Results	Yilgarn TSF 2023 Testing	Specific gravity (t/m ³)	2.53 to 2.56	2.46 to 2.91	2.5 to 2.95	Particle size distribution (%)	Approximately 95% passing through 150 micron sieve with	Approximately 95% passing through 150 micron sieve with	100% passing through 75 and 150 micron sieve.	<p>Added to the summary for clarification.</p>
Measured Parameters	Representative Sample Results	Representative Sample Results	Yilgarn TSF 2023 Testing											
Specific gravity (t/m ³)	2.53 to 2.56	2.46 to 2.91	2.5 to 2.95											
Particle size distribution (%)	Approximately 95% passing through 150 micron sieve with	Approximately 95% passing through 150 micron sieve with	100% passing through 75 and 150 micron sieve.											

Condition / DWER comment	Summary of Licence Holder's comment				Department's response		
		70 to 80% passing a 75 micron sieve	42 to 87% passing a 75 micron sieve				
	Liquid limit (%)	35 to 36	37.5 to 44	26.6 to 26.8			
	Plastic limit (%)	29 to 30	28 to 36 ⁽¹⁾	21 to 32			
	Plasticity index (%)	5 to 7	8 to 9*	6.7 to 15.3			
	Linear shrinkage (%)	1 to 2	24 to 31	4 to 6			
	Hydraulic conductivity by falling head (m/s)	8.2 x 10 ⁻⁸ to 1.0 x 10 ⁻⁷	1.4 x 10 ⁻⁶ to 4.2 x 10 ⁻⁶	4.41 x 10 ⁻⁸ to 11.94 x 10 ⁻⁸			
	Permeability by constant head (m/s)	3.6 x 10 ⁻⁹ to 1.0 x 10 ⁻⁷	-	-			
	Mean resistivity (Ω.m)	16 to 18	4 to 5 ⁽²⁾				
	pH	7.7 to 7.8	7.6 to 7.7	2-13			
	Emerson Class number (qualitative scale)	4	2 to 4	-			
	CBR (%)	-	1.5 to 3	-			
	(1) 1 test non-plastic (2) Converted from conductivity tests		(3)				
<p>DWER comment 4: APPLICANT TO INFORM RADIATION RISK FROM LITHIUM TAILINGS (IF ANY, INCLUDING DETAILS/RESULTS OF ANY INVESTIGATION UNDERTAKEN).</p>	<p>Information related to radiation risk was provided to DWER with its original assessment of this activity. Samples of tailings showed very low levels of naturally occurring radiation; generally below laboratory reporting limits and below exposure guidelines. As stated earlier, there has been no change in tailings characteristics, including type of ore being processed or changes to processing methodology or produced tailings stream characteristics since DWER's Part V assessment for this activity in 2020.</p>				<p>Added to the summary for clarification.</p>		
<p>Application Summary; "Category 5" heading</p>	<p>As mentioned in the licence feedback above, the berm is not proposed or required to be deconstructed or removed.</p>				<p>Updated to Tailings deposition changed from batter berm to a 'flat top design' within C pit</p>		

Condition / DWER comment	Summary of Licence Holder's comment	Department's response									
2.2.1	Tailings will not be re-arranged or rehandled within the pit, but rather the deposition of tailings will transition from constructing the current batter-berm design to filling in the remaining areas of the pit to achieve one final surface level. It is recommended that this be amended to read "The Licence holder proposes to build two transfer pads, four monitoring bores, and implement a flat surface design for tailings within C Pit" or equivalent.	Reworded first sentence to reflect a change in construction design from deposition.									
2.2.1: C Pit Transfer Pad heading	This reads as though the area is designed for storage for up to five days. It is recommended that this be revised as follows: "It is designed to provide a location for temporary transfer of inert dry lithium by- products between equipment, and has a capacity for up to five days temporary storage as a contingency, such as for cases of extreme weather conditions or mobile equipment breakdown."	Added suggested wording to text.									
2.2.1: Laydown Transfer Pad heading	This reads as though the area is intended for storage for up to five days. It is recommended that this be revised as follows: "The laydown transfer pad will be a bunded hardstand designed for the transfer of tailings between equipment, but will have a temporary stockpiling capacity of up to 27 days as a contingency, such as for cases of extreme weather conditions or mobile equipment breakdown".	Added suggested wording to text.									
2.2.1: Transfer Pads at C Pit DWER comment 4 (2): DETAILED FIGURE WITH LAYOUT OF TRANSFER PAD NEEDS TO BE PROVIDED. WILL THE PAD BE STORING FINE DRY TAILINGS AT ALL TIMES, OR IS THE PAD FOR TEMPORARY USE ONLY? PLEASE PROVIDE DETAILS AND TIMEFRAMES. WHAT IS THE MAXIMUM STOCKPILE HEIGHT? THERE IS INSUFFICIENT INFORMATION ON HOW DUST WILL BE MANAGED. DETAILED DUST ASSESSMENT AND MANAGEMENT STRATEGIES NEED TO BE PROVIDED. APPLICANT TO DESCRIBE POTENTIAL DUST RECEPTORS AND INCLUDE DETAILS OF ANY CONSERVATION SIGNIFICANT VEGETATION/ INCLUDING	Preliminary design report/figures have been attached to this response for DWER's consideration during assessment; however, MinRes is seeking flexibility to be able to optimise this design (while still meeting all outcome-based requirements for environmental protection). To avoid the risk of minor licence amendments being required, it is requested that MinRes are not constrained by the Part V licence to these preliminary designs. The pad is not for the purpose of storage of dry tailings, it is for the transfer of tailings safely between equipment. The preliminary design details are as follows: <table border="1" data-bbox="696 1106 1247 1230"> <thead> <tr> <th>Pad Location</th> <th>Capacity (tonnes)</th> <th>Maximum height (m)</th> </tr> </thead> <tbody> <tr> <td>Laydown</td> <td>35,100</td> <td>3</td> </tr> <tr> <td>C Crest</td> <td>6,100</td> <td>3</td> </tr> </tbody> </table> Significant detail on dust controls for C pit were provided to DWER for its assessment of this activity in 2020. This included a C pit-specific Dust Control Procedure (attached for convenience). Tailings characteristics or dust management measures are not changing as part of the current proposal and dust management measures applying to C pit will apply to the transfer pads as well.	Pad Location	Capacity (tonnes)	Maximum height (m)	Laydown	35,100	3	C Crest	6,100	3	Conceptual designs added to the licence, schedule 1. Any changes from the preliminary designs provided should be addressed in condition 3 the construction compliance report and include an explanation on how the changes do not significantly change the risk to the environment, amenity and human health assessed as part of this application. Included capacity and stockpile height to the respective C pit and laydown transfer pads paragraphs.
Pad Location	Capacity (tonnes)	Maximum height (m)									
Laydown	35,100	3									
C Crest	6,100	3									

Condition / DWER comment	Summary of Licence Holder's comment	Department's response
<p>DISTANCE FROM PEC FROM PROPOSED PAD.</p>	<p>Dust management at the site also falls under the umbrella of the wider Yilgarn Dust Management Plan. Dust mitigation includes:</p> <ul style="list-style-type: none"> • Dust suppression activities (e.g. use of water trucks and/or water sprays) to be conducted during operational activities to minimise the potential for dust to be deposited on native vegetation • Targeted dust suppression activities in direct response to visible dust reports by site staff during inspections • Visual monitoring of dust emissions during Proposal activities, with activities to be modified or suspended if unacceptable dust emissions are observed. • Appropriate speed limits on unsealed roads • Use of defined haul routes for mobile equipment travelling on unsealed surfaces or unformed roads • Any complaints relating to dust emissions will be recorded and investigated. <p>Three conservation significant flora species have previously been recorded within 1 km of the C Pit transfer pad: <i>Beyeria rostellata</i> (P1), <i>Lepidosperma ferricola</i> (P3) and <i>Banksia arborea</i> – (P4). The nearest conservation significant flora (<i>B. rostellata</i>) is located approximately 500 m from the transfer pad.</p> <p>The transfer pad is within the banded ironstone formation Priority Ecological Community; however it is within an already cleared footprint and will not be increasing the existing area of impact by the mine and associated infrastructure.</p> <p>Voluntary monitoring of vegetation health of flora in this area has not identified impacts from dust. In fact, the most recent consultant recommendation following 2023 monitoring is to consider ceasing the monitoring program, as “monitoring results to date indicate that C Pit activities have not negatively impacted the adjacent Priority flora”.</p> <p>Considering the inert/non-toxic nature of the tailings material, its sufficient moisture content, the dust management measures already in place from DWER's approval in 2020 and the absence of any evidence of previous dust impacts on vegetation, the risk of environmental impacts from dust from this proposal is considered to be low.</p>	<p>Dust controls added to the transfer pads and sumps.</p> <p>Receptors updated in the receptors table.</p>

Condition / DWER comment	Summary of Licence Holder's comment	Department's response
<p>DWER comment 5:</p> <p>APPLICANT TO JUSTIFY BUNDING DIMENSIONS (I.E. DEMONSTRATION OF CALCULATIONS BASED IN DIVERSION/CONTAINMENT OF A 100 YEAR AVERAGE RETURN INTERVAL 24 HOUR RAINFALL) AND CLARIFY MAXIMUM PAD STORAGE VOLUME CAPACITY.</p>	<p>Refer above for storage capacity.</p> <p>MinRes requests that the specific bund heights be removed from Table 1, with the focus being on outcome-based conditions to align to the low level of risk posed by the storage of inert, non-toxic material, to align with DWER's 'Guideline Risk Assessments: Environmental Risk Assessment Framework' (2017). Accordingly, it is suggested that the wording in Table 1 could be amended as follows:</p> <ul style="list-style-type: none"> • "Pad hardstand incorporates perimeter bunds designed to contain a 100-year ARI 24-hour event, with a ≥1% fall to exit drain directing leachate to (...)" <p>Details of how the as-constructed designs (including bund heights, etc) meets this condition would be provided in the Environmental Compliance Report.</p> <p>As detailed above, preliminary design report/figures have been attached to this response for DWER's consideration during assessment; however MinRes is seeking flexibility to be able to optimise this design (while still meeting all outcome-based requirements for environmental protection).</p>	<p>Wording updated in the licence.</p>
<p>2.2.1: Laydown Transfer Pad</p> <p>DWER comment 6:</p> <p>DETAILED FIGURE WITH LAYOUT OF LAYDOWN PAD NEEDS TO BE PROVIDED. WILL THE PAD BE STORING TAILINGS AT ALL TIMES OR IS THE PAD FOR TEMPORARY USE ONLY? PLEASE PROVIDE DETAILS AND TIMEFRAMES. WHAT IS THE MAXIMUM STOCKPILE HEIGHTS? THERE IS INSUFFICIENT INFORMATION ON HOW DUST WILL BE MANAGED. WILL THE STOCKPILES BE COVERED? WILL TAILINGS BE MAINTAINED WITH DETERMINED % OF MOISTURE? DETAILED DUST ASSESSMENT AND MANAGEMENT STRATEGIES NEED TO BE PROVIDED. APPLICANT TO DESCRIBE POTENTIAL DUST RECEPTORS AND INCLUDE DETAILS OF ANY CONSERVATION SIGNIFICANT VEGETATION/ INCLUDING DISTANCE FROM PEC FROM</p>	<p>Refer to response under DWER Comment 4(2) above. No conservation significant flora species have previously been recorded within 1 km of the laydown transfer pad. The nearest conservation significant flora (Banksia arborea) is located approximately 1.4 km from the transfer pad. The transfer pad is within the banded ironstone formation Priority Ecological Community; however it is within an already disturbed footprint and will not be increasing the existing area of impact by the mine and associated infrastructure.</p> <p>Voluntary monitoring of vegetation health of flora in this area has not identified impacts from dust. In fact, the most recent consultant recommendation following 2023 monitoring is to consider ceasing the monitoring program, as "monitoring results to date indicate that C Pit activities have not negatively impacted the adjacent Priority flora".</p> <p>Considering the inert/non-toxic nature of the tailings material, its high moisture content, the dust management measures already in place from DWER's approval in 2020 and the absence of any evidence of previous dust impacts on vegetation, the risk of environmental impacts from dust from this proposal is considered to be low.</p>	<p>As above.</p>

Condition / DWER comment	Summary of Licence Holder's comment	Department's response
PROPOSED PAD.		
<p>DWER comment 7:</p> <p>AS ABOVE APPLICANT TO JUSTIFY BUNDING DIMENSIONS (10CM?) (I.E. DEMONSTRATION OF CALCULATIONS MADE BASED IN DIVERSION/CONTAINMENT OF A 100 YEAR AVERAGE RETURN INTERVAL 24 HOUR RAINFALL) AND CLARIFY MAXIMUM PAD STORAGE VOLUME CAPACITY.</p>	<p>Refer to response to DWER comment 5 above.</p>	<p>As above</p>
<p>2.2.1: Heading "C Pit TSF tailings storage".</p>	<p>This paragraph suggests there might have some potential misinterpretation of the technical information provided within the application, namely:</p> <ul style="list-style-type: none"> • This is a change to design, rather than a planned staging. • Tailings will not be re-arranged or rehandled within the pit, but rather the deposition of tailings will transition from constructing the current batter- berm design to filling in the remaining areas of the pit to achieve one final surface level. • The currently proposed flat-surface design offers significantly more geotechnical stability than the stacked batter-berm design. <p>It is recommended that this be amended to read:</p> <p>"Under this amendment, the Licence Holder proposes a transition from the initial stacked batter berm design to a flat surface design; however compaction of placed tailings will continue. The revised design will remove the potential risks to personnel and plant working within C Pit if tailings slope failures (from the batter-berm design) were to occur. A review of the liquefaction potential of the tailings was also completed. The outcomes of this review, together with the design change, is that liquefaction risks and potential impacts of tailings deformation on personnel and plant are low. The associated infiltration basin which currently provides drainage and erosion control associated with the batter-berm design will also be removed as it is not needed to support the flat top design."</p>	<p>Updated with suggested paragraph.</p>
<p>DWER comment 8:</p>	<p>As described above, this licence amendment application represents a material reduction in risk from the batter-berm design and methodology which was approved by then-DMIRS. Rather than continuing with the approved batter-berm design of stacking tailings in one end of the pit, this proposal is to backfill dry tailings material across the base of the pit resulting in a stable, flat surface, with no change in height to what was originally proposed.</p>	<p>The Delegated Officer acknowledge that due to the tailings being dry and deposition occurring below natural ground level,</p>

Condition / DWER comment	Summary of Licence Holder's comment	Department's response
	<p>It is acknowledged that the DWER Part V team have a standard check for endorsement of geotechnical aspects of a proposal from DEMIRS, as this is appropriate where geotechnical aspects may compromise a landform's ability to contain contaminants, emissions or discharges; however this design involves tailings being dry-stacked in the base of the pit and remaining well-below natural ground level. As such, the geotechnical aspects of this design change have no relevance to the environmental risk and would only relate to the safety of personnel working in or operating equipment in the base of C pit.</p> <p>MinRes takes the position that DEMIRS review of safety aspects of this TSF design change is not an appropriate hold point for this approval under the provisions of the Environmental Protection Act 1986. The progress against this amendment application is disrupting the overarching mine plan and sequencing for the entire Yilgarn operations due to the delays it poses to being able to mine A pit, which is already approved by DEMIRS.</p>	<p>geotechnical related risks which can result in tailings discharge into the environment or environmental harm are limited.</p> <p>It is the Licence Holder responsibility to ensure appropriate approvals are obtained under other legislation prior to conducting proposed activities.</p>
<p>2.3.1: Mining Proposal</p> <p>DWER comment:</p> <p>THE SUPPORTING DOCUMENT MAKE REFERENCE TO THE FOLLOWING APPROVALS UNDER PART IV. PLEASE CLARIFY THEIR RELATION TO THE CURRENT APPLICATION (IF ANY).</p>	<p>Ministerial Statements MS 982 and MS 1133 have no direct relation to the current application and are provided for approval context only. Some of the environmental management plans pertaining to MS 982 are implemented voluntarily across the entire Yilgarn Operations, including Koolyanobbing.</p>	<p>Added section 2.3.2 Part IV of the EP Act to discuss the voluntary implementation of the Dust Management Plan and monitoring of vegetation. See comment two rows below.</p>
<p>2.3.2: Figure 1</p> <p>DWER comment 9:</p> <p>FIGURE TO BE UPDATED OR ADDITIONAL FIGURE TO BE PROVIDED TO INCLUDE ENVIRONMENTAL RECEPTORS: E.G. PEC, CONSERVATION PRIORITY FLORA, GNAMMA HOLE, AND CONSERVATION PRIORITY FAUNA.</p>	<p>New Figure "Receptors" provided.</p>	<p>Updated Figure 1.</p>
<p>Table 3</p> <p>DWER comment 9(2):</p> <p>APPLICANT TO PROVIDE RESULTS OF CURRENT VEGETATION MONITORING UNDERTAKEN SURROUNDING PIT C AND DEMONSTRATE THAT CURRENT/ DUST CONTROLS ARE SUFFICIENT TO</p>	<p>Transfer pads are not intended to be tailings storage locations.</p> <p>Once deposited in C pit, the final surface of the tailings is ~13 m below the lowest natural ground surface level, limiting any realistic dust generation potential beyond the inner confines of the pit.</p> <p>Comprehensive dust management information was provided to DWER for its original assessment of this activity and will apply to the transfer pads, as well C pit.</p>	<p>The Department acknowledge that proposed transfer pads are for transfer of tailings between equipment and for contingency only. However, ongoing transfer of fine tailings material between equipment has the potential for dust emissions and considering that proposed</p>

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Condition / DWER comment	Summary of Licence Holder's comment	Department's response
MANAGE RISKS TO RECEPTORS.	Voluntary monitoring of vegetation health west of C pit has not identified impacts from dust. In fact, the most recent consultant recommendation following 2023 monitoring is to consider ceasing the monitoring program, as "monitoring results to date indicate that C Pit activities have not negatively impacted the adjacent Priority flora".	pads are within a PEC area, dust controls must be in place to ensure impacts to vegetation is minimised. Visual monitoring of vegetation should occur surrounding the proposed pads. This requirement has been added to the Licence. This condition can be reviewed if demonstrated following commencement of operations that controls in place within the pads are sufficient to minimize dust lift off and impacts to vegetation.
Section F: Consultation DWER comment 10: APPLICANT TO CONFIRM/DEMONSTRATE ENGAGEMENT WITH THE ABORIGINAL CORPORATION REGARDING PROPOSED ACTIVITIES AND PROVIDE OUTCOMES OF ANY DISCUSSIONS.	Representatives from MinRes met with Marlinyu Ghoorlie on 27 March 2024 to provide an update on the Koolyanobbing Project, including an overview of the Koolyanobbing C Pit and Transfer Pads project. No issues were raised. The draft Part V application was provided to Marlinyu Ghoorlie on 7 Nov 2023, no issues were raised. As part of due process, MinRes will also provide Marlinyu Ghoorlie with a briefing note summarising the C Pit Mining Proposal ahead of submission to DEMIRS, as well as a copy of the full Mining Proposal.	Noted, no issues were raised.