



Application for Licence Amendment

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

Licence Number	L8667/2012/1
Licence Holder	Yilgarn Iron Pty Ltd
ACN	626 035 078
File Number	2012/005038-2~5
Premises	Windarling Range Mine Operations Part Mining Lease M77/1001, M77/999, M77/1038, M77/1039, M77/1000, M77/1257, M77/1258, M77/1259 and L77/235 MOUNT JACKSON, 6426 As depicted in Schedule 1.
Date of Report	20 June 2023
Decision	Revised licence granted

SENIOR ENVIRONMENTAL OFFICER, INDUSTRY REGULATION
REGULATORY SERVICES

Officer delegated under section 20 of the Environmental Protection Act 1986

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1. Decision summary

Licence L8667/2012/1 is held by Yilgarn Iron Pty Ltd (YIPL, the Licence Holder) for the Windarling Range Mine Operations (the Premises), located within multiple mining tenements with the Mount Jackson area.

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 L8667/2012/1 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 Amendment Summary

On 30 January 2023 the Licence Holder submitted an application to the department to amend Licence L8667/2012/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Approval to transfer excess dewater from Deception into Claw¹ and/or Altair pits (see section 2.2.1), alleviating the current discharge method from Deception into the W2 pit; and
- Construction of an additional HDPE pipeline in the existing pipeline corridor from Deception to Altair pit.

Altair and Claw pits are currently listed on the Licence as dewatering source (i.e., extraction) points. YIPL requests they be listed as emission (i.e., discharge) points, as well as source points.

The Altair, Claw and Deception pits are located in the northern end of the Windarling Operations (Figure 1) The Deception pit is currently the only pit with active dewatering and is planned to be active until Q4 2023. Claw will cease mining operations in August 2023 and Altair is in its post mining phase and is currently being backfilled.

L8667/2012/1 currently authorises “mine dewater” to transfer from Deception into the W2 pit approximately 25km south.

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 12, 54 and 64 have been requested by the Licence Holder.

¹ An existing 165 mm HDPE pipeline is already in place for dewatering of Claw pit. This pipeline would be used discharge of dewater back into Claw once mining at Claw is complete.

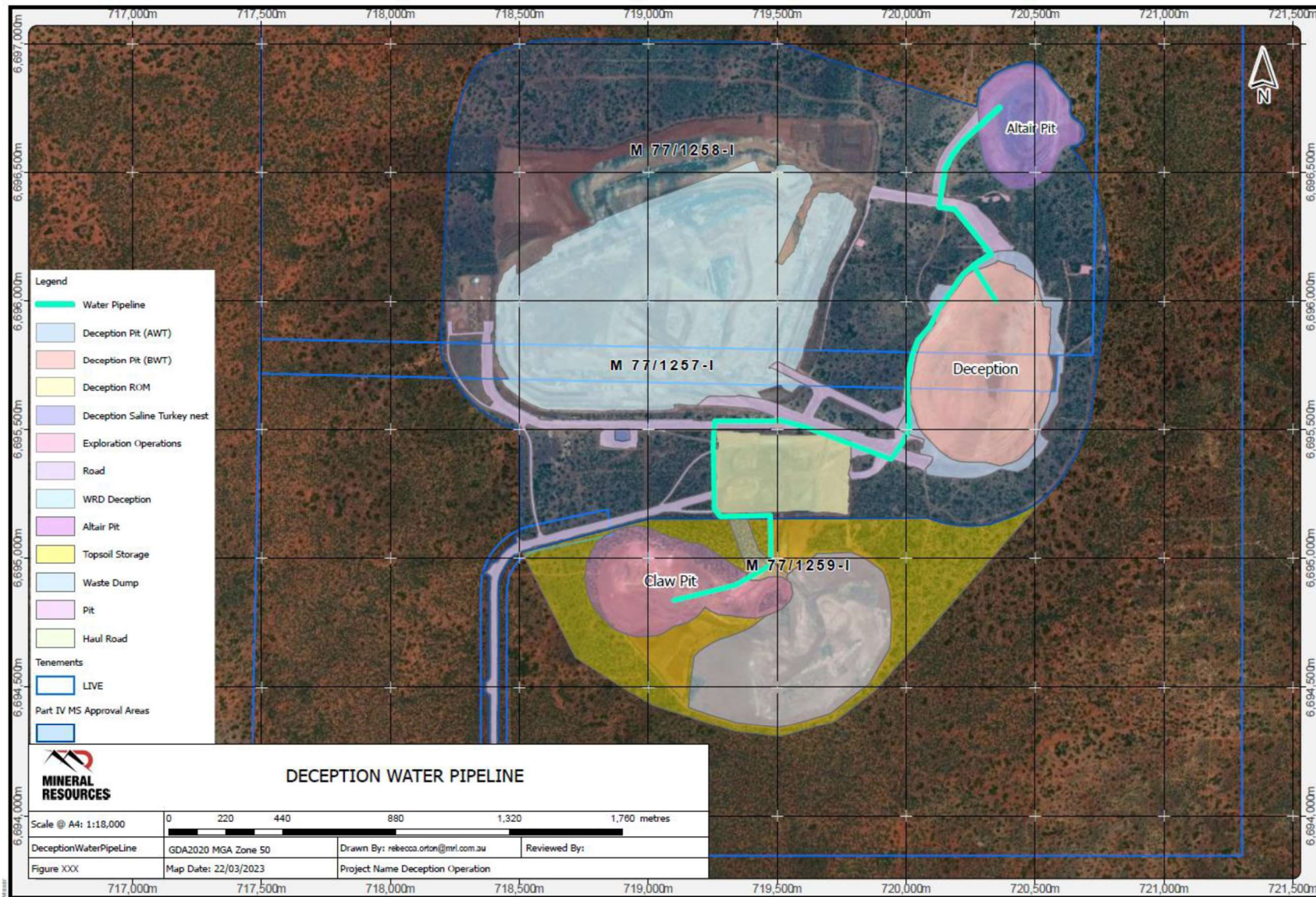


Figure 1: Location of Deception, Claw and Altair pits and associated pipelines

2.2.1 Pit volumes and capacity

Dewater from Deception pit is currently transferred to the W2 pit, 25 km south. The Licence Holder requests Deception pit dewater emission points be amended to also include discharge to Claw and Altair pits. The remaining life of mine at Deception is 18-24 months, thus additional water transfer will be short term.

The total volume of water required to be removed over the remaining life of mine (18-24 months) to allow mining is approximately 2,420,000 m³. This accounts for a constant water inflow of 40 L/s at Deception pit. The total capacity of Altair is 1,918,477 m³ and Claw 3,524,653 m³ (Table 1) (Mineral Resources 2023b). The volumes include a 5 m freeboard to the lowest point of the Pit crest.

Seepage into Claw pit is currently estimated at 10 L/s, being 605,000 m³ of water over the 18-24 months of the Deception mine life. Deception dewater (2,420,000 m³) combined with incoming seepage (605,000 m³) mean that Claw pit is expected to receive 3,024,000 m³ in total over the remaining mine life at Deception (Mineral Resources 2023b). Altair is currently the backup dewatering option whilst Yilgarn Iron Pty Ltd work towards completing operations at Claw. Once complete, Claw will receive expected volumes.

Mining activities at Altair have stopped and currently no seepage is observed according to the applicant. With a constant mine inflow of 40 L/s from Deception dewatering, Altair can accommodate over one year's worth of water from Deception (Mineral Resources 2022c).

Mineral Resources (2023) indicates there is consequently sufficient storage capacity in the Claw and Altair pits to accommodate dewater from Deception pit over the remaining life of mine.

Table 1 Dewatering volumes and receiving pit capacity

Pit	Source / receiving	Volume
Deception pit (source)	Volume to be dewatered over remaining life of mine	2,420,000m ³
Seepage into Claw pit from Deception pit (10 L/s)	Volume seeping into Claw pit over remaining life of mine	605,000 m ³
Total volume of dewater and incoming seepage		3,024,000 m³
Claw pit	Receiving capacity	3,524,653 m ³
Altair pit	Receiving capacity	1,918,477 m ³
Total capacity available		5,443,130 m³

2.3 Part IV of the EP Act

Ministerial Statement No. 982 (MS982) was granted in 2014. Environmental Protection Authority (EPA) assessment no. 2011, under Section 46 (Part IV) of the EP Act stated that Yilgarn Operations may be implemented at the Windarling Range, Mt Jackson Range and Deception Deposits located in the shires of Menzies and Yilgarn.

The EPA assessment and Ministerial Statement focused on biodiversity issues, particularly the conservation of significant fauna species including *Leipoa ocellata* (Maleefowl) and flora species *Calytrix viscida* (Myrtle) and *Tetratheca paynterae* (Paynter's Tetratheca). The ministerial statement requirements minimisation of direct/indirect impacts via a fauna and vegetation management plans.

2.4 Other approvals

The premises is covered by Native Title claim Marlinyu Ghoorlie (Tribunal file no. WC2017/007). There are also several lodged aboriginal heritage sites across the premises. A heritage site (place ID 27431 - scattered artefacts) is located in close proximity (~ 25 m) to the pipeline along the western edge of Deception pit.

DWER notes that the applicant is responsible for ensuring appropriate approvals and stakeholder engagement has taken place under the *Aboriginal Heritage Act 1972* and subsequently the *Aboriginal Cultural Heritage Act 2021* (following completion of the transitional period from the 1972 Act²).

3. Risk assessment

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

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

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

² Before the *Aboriginal Heritage Act 2021* is implemented there will be a transitional period during which the regulations, statutory guidelines and operational policies will be developed to ensure the ACH Act will its intended effects. During the transitional period the *Aboriginal Heritage Act 1972* will remain in force.

Table 2: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Pipeline Construction	Air/windborne pathway	<p><u>Existing Licence controls:</u></p> <ul style="list-style-type: none"> 1.2.12 (renumbered to 13) requires dust suppression methods be used when dust is likely to be deposited on vegetation. <p><u>No additional controls proposed.</u></p>
Hydrocarbon spills	Machinery spills during construction of pipeline	Directly to soil	<p><u>No controls proposed</u></p> <p>Construction short term</p>
Operation			
Mine dewater (~21,000 mg/L)	Transfer of dewater along pipeline	Pipeline leak/rupture resulting in direct discharge to environment	<p><u>Existing Licence controls:</u></p> <ul style="list-style-type: none"> 1.2.7 and 1.2.11 (renumbered to 9 and 12)– pipeline requirements 1.2.9 (renumbered to 11) – daily visual inspections for dewatering pipelines <p><u>Pipeline construction controls proposed:</u></p> <ul style="list-style-type: none"> Pipeline installed in a v-drain to capture and contain potential leaks Pipeline fitted with leak detected system driven by telemetry Daily inspection of pipeline and pump Flow meter readings (volume of water transferred)
	Deposition and storage of mine dewater in Altair and Claw	Overtopping of pit	<p><u>Existing Licence controls:</u></p> <ul style="list-style-type: none"> All existing conditions relate to W2 and W3 only (freeboard 4 m below crest level) <p><u>Controls proposed.</u></p> <ul style="list-style-type: none"> Updating condition 3.2.1 (renumbered to 20) to include a freeboard limit and monitoring for Altair and Claw pits

Emission	Sources	Potential pathways	Proposed controls
		Seepage through base and pit walls resulting in water table mounding	<ul style="list-style-type: none"> Proposed freeboard limit of 5 meters from the lowest point of the pit crest <p><u>Existing Licence controls:</u></p> <ul style="list-style-type: none"> All existing conditions relate to W2 and W3 (freeboard 4 m below crest level) <p><u>Controls proposed.</u></p> <ul style="list-style-type: none"> Updating condition 3.2.1 (renumbered to 20) to include a freeboard limit and monitoring for Altair and Claw pits
Hydrocarbon spills/leaks	Spills from equipment / pumps	Directly to soil	<u>No proposed conditions</u>

3.1.2 Receptors

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

Table 3 below provides a summary of potential environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)). The closest residential town of Menzies is located approximately 160 km east of the site. Given the large distance to the nearest human receptors, impacts to these receptors have not been considered in this risk assessment.

Table 3: Sensitive environmental receptors and distance from prescribed activity

Environmental receptors	Distance from activity / prescribed premises
<u>Threatened and/or priority fauna</u> <ul style="list-style-type: none"> <i>Leipoa ocellata</i> – Malleefowl <i>Aganippe castellum</i> - Tree-stem Trapdoor Spider 	Located within prescribed premises Managed under MS982
<u>Threatened and/of priority flora</u> <ul style="list-style-type: none"> <i>Calytrix viscada</i> – Threatened <i>Ricinocarpos brevis</i> – Threatened <i>Tetratheca paynterae</i> ssp. <i>Paynterae</i> – Threatened 	Located within prescribed premises Managed under MS982
<u>Threatened Ecological Community</u> Die Hardy Range/Diemels vegetation complex (banded ironstone formation) – Priority 1	~760 m southeast of premises ~2.3 km southeast of Claw pit (see Figure 2)
<u>Groundwater</u> Goldfields Groundwater Area – <i>Rights in Water Irrigation Act 1914</i>	<u>Depth:</u> Water level differences from Q1 2021 to Q4 2022 from bores surrounding the pits: <ul style="list-style-type: none"> Altair: 115 mbtoc to 136 mbtoc (meters below top of casing) Claw: 83 mbtoc to 89 mbtoc Deception: 95 mbtoc to 105 mbtoc Monitoring bore water levels shown in Figure 2 of Section 2.3 <u>Quality</u> The water quality data suggests the groundwater is near neutral, with elevated levels (7000 – 14,000 mg/L) of TDS and EC (salinity). <u>Users</u> There are no other groundwater users in the immediate vicinity of the Proposal, or any water reserves, water supply catchment areas or groundwater protection areas identified for future groundwater use.

Avon River Hydrographic catchment	Windarling Range and deception deposit are located in the Avon River Catchment.
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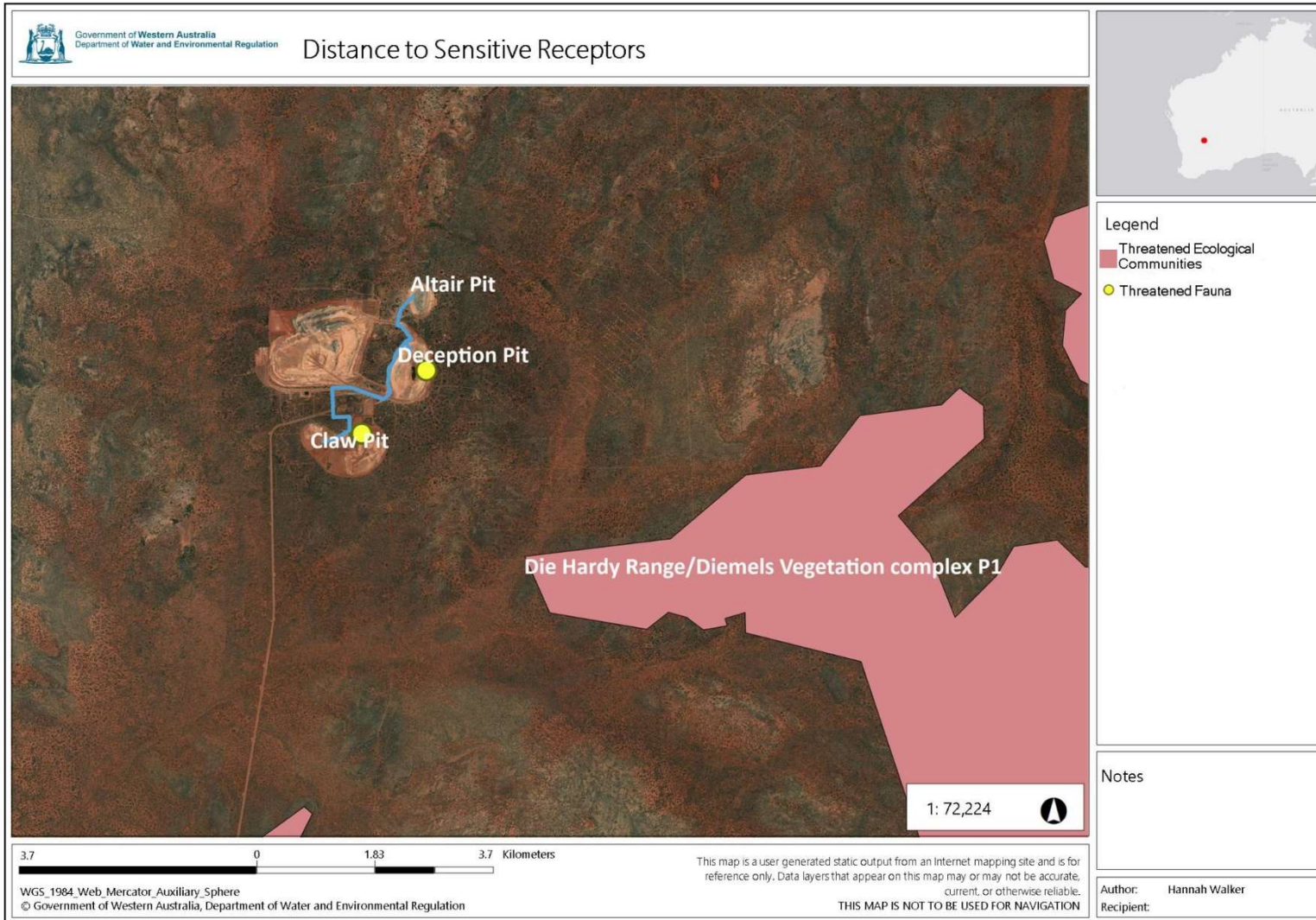


Figure 2: Distance to Sensitive Receptors

L8667/2012/1

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

3.2 Risk ratings

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

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

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

The Revised Licence L8667/2012/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Dewatering activities.

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

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

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Construction								
Pipeline construction: Dust generated during installation of pumps and pipework	Dust	Air/windborne pathway causing dust impact to vegetation	Adjacent native vegetation (habitat for threatened fauna species)	Refer to Section 3.1	C = Slight L = Unlikely Medium	Y	Current condition 13 includes dust suppression to prevent dust deposition on vegetation.	Existing conditions for dust management are considered sufficient to mitigate the risk.
	Hydrocarbon spills	Seepage to ground impacting soils and vegetation.			C = Minor L = Possible Medium Risk	N	<u>Condition 1 and 2 Recovery and removal of Hazardous material</u>	<u>DWER control</u> As there are no proposed or existing controls to mitigate the risk associated hydrocarbon spills, DWER has added hydrocarbon recovery and removal conditions to the licence.
Operation								
Operation of dewatering pipeline	Hypersaline mine dewater	Pathway: Pipeline leak or rupture, resulting in overland runoff (discharge to land) Impact: Disturbance to fauna or nearby vegetation resulting in increased erosion and contamination of soil and waterbodies.	Native vegetation, including priority and threatened flora (habitat for threatened fauna species)	Refer to Section 3.1	C = Minor L = Possible Medium Risk	N	<u>Condition 12 – design and construction requirements for dewatering pipelines</u> <u>Condition 33 and 34 require audit compliance and reporting for construction under condition 12</u>	Applicant proposed controls have been placed on the Licence as regulatory controls. <u>DWER control:</u> DWER has additionally placed a requirement that pipelines are constructed according to the relevant Australian standards and requires associated compliance reporting.
Deposition of mine dewater into Claw and Altair pits	Hypersaline mine dewater	Pathway: Overtopping, resulting in overland runoff	Native vegetation, including priority and threatened	Refer to Section 3.1	C= Moderate L = Unlikely	N	<u>Modifications to existing Licence to include Altair and Claw</u>	As per the detail provided in section 2.2.1, Claw and Altair pit are likely to have sufficient capacity to accommodate the

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
		(discharge to land) Impact: Disturbance to fauna, nearby vegetation and contamination of water bodies	flora dependent on the vegetation		Medium Risk		Condition 15 – Emission point to groundwater Condition 20 – 5 m freeboard <u>Condition 21 – amended to include Altair and Claw Pits</u>	dewater from Deception pit. Applicant proposed controls have been placed on the Licence as regulatory controls. <u>DWER control</u> Additionally, to mitigate residual risk associated with overtopping, DWER has amended existing condition 21 to include Altair and Claw Pits. This condition requires that upon becoming aware that groundwater levels are shallower than 10 metres below crest level, the Licence holder must design and implement a groundwater recovery plan.
	Hypersaline mine dewater	Pathway: Seepage through base and pit walls Impact: water table mounding and potential impacts to groundwater quality	Native vegetation, including priority and threatened flora dependent on the vegetation	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	N	Refer to section 3.3	Refer to section 3.3

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Hydrocarbon spills from equipment / pumps	Hydrocarbons	Seepage to ground impacting soils and vegetation.	Adjacent native vegetation (habitat for threatened fauna species)	Refer to Section 3.1	C = Minor L = Possible Medium Risk	N	<u>Condition 1 and 2</u> <u>Recovery and removal of Hazardous material</u>	<u>DWER control</u> As there are no proposed or existing controls to mitigate the risk associated hydrocarbon spills, DWER has added hydrocarbon recovery and removal conditions to the licence.

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.

3.3 Detailed risk assessment for seepage from Claw and Altair pits

3.3.1 Overview of risk event

Hypersaline seepage from Claw and Altair pits may potentially result in groundwater mounding (and increased salinity) impacting the rootzones of adjacent vegetation, including threatened/priority flora, habitat for priority fauna, or TEC vegetation complex. This risk event will be assessed in the sections below.

3.3.2 Source

Pit water chemistry

Total dissolved solids (TDS) and pH for Deception pit dewater quality during the period 2020 to 2022 is summarised in Table 5 below.

Table 5 Deception pit dewater quality (TDS and pH)

	2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
pH (pH units)	7.68	8	7.95	8.06	8.1	8.6	8.07	Not sampled	8.81	Not	Not sampled	8.05
TDS (mg/L)	24,180	23,980	25,150	24,690	24,130	25,440	24,210	Not sampled	25,360	Not	Not sampled	25,051

Water chemistry within Deception pit is similar to that within the Claw pit. Water chemistry (December 2022) for Claw and Altair pits assumed from nearby production bores are given in Appendix 1. Water quality from production bores surrounding Claw (CPB01) and Deception pits (Nth Bore) showed:

- Water quality from both areas is similar ($\leq 5\%$ of one another) in the key cation and anion values calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), chlorine (Cl), bicarbonate (HCO_3) and sulphate (SO_4); and
- Slightly elevated values are seen in Manganese (Mn) and Boron (B) in Claw pit, according to Mineral Resources (2023b) are consistent with other saline water values within the local area.

There is currently no data for Altair pit.

2021 groundwater monitoring data is summarised in Table 6 below. Although water quality data is not available from Altair, the water quality is deemed by the applicant to be similar to Deception given the strong hydraulic connection within the Banded Iron Formation (BIF) that both pits reside within.

Table 6 Groundwater quality (2021) at Claw, Deception and Altair pits

Pit	TDS	pH
Claw	12,000-19,000mg/L	7.1 - 7.4
Deception	21,000mg/L	7.6
Altair	no recent data, pit back filled above water table	

3.3.3 Pathway

Hydrogeology and drainage

The area surrounding the three pits is underlain by weathered and fractured Archean bedrock covered by paleo-drain and lake deposits.

Recharge to groundwater occurs via infiltration of direct rainfall with small amounts entering groundwater systems. Most recharge is likely to occur during heavy rainfall where surface flow and flooding occurs.

The three pits are located at the top of a water catchment divide. Groundwater flows from north to south across the BIF with Deception and Altair being along strike of each other and Claw being geologically displaced. Altair is located approximately 400 m north of Deception and Claw approximately 1 km southwest.

Figure 2 shows evidence of a hydraulic connection between Altair (BH 29) and Deception (BH 24), where BH 29 mimics the behaviour of BH 24 which is influenced by dewatering of the Deception Pit.

3.3.4 Groundwater quality and depth

Groundwater quality

Groundwater in the area is brackish to hypersaline, with total dissolved solids measurements ranging from 900 mg/L to 240,000 mg/L measured as part of a 2018 groundwater survey (Mineral Resources 2022a).

Groundwater depth

Locally, the water table varies between 70 m and 80 m below ground level for pre-mining levels. A water level assessment between was conducted by the Licence holder between January 2021 and November 2022. Monitoring of the three pits is presented as a hydrograph in Figure 2 below and bore locations in Figure 3.

The key observations are as follows:

- Water levels at the northern extent of Deception and further north to Altair exhibit a decreasing trend (BH 24 and BH 29);
- Water levels at the southern extent of Deception and through to Claw exhibit a gentle decreasing trend; and
- Claw and Altair are being passively dewatered via the active dewatering at Deception (Mineral Resources 2022a).

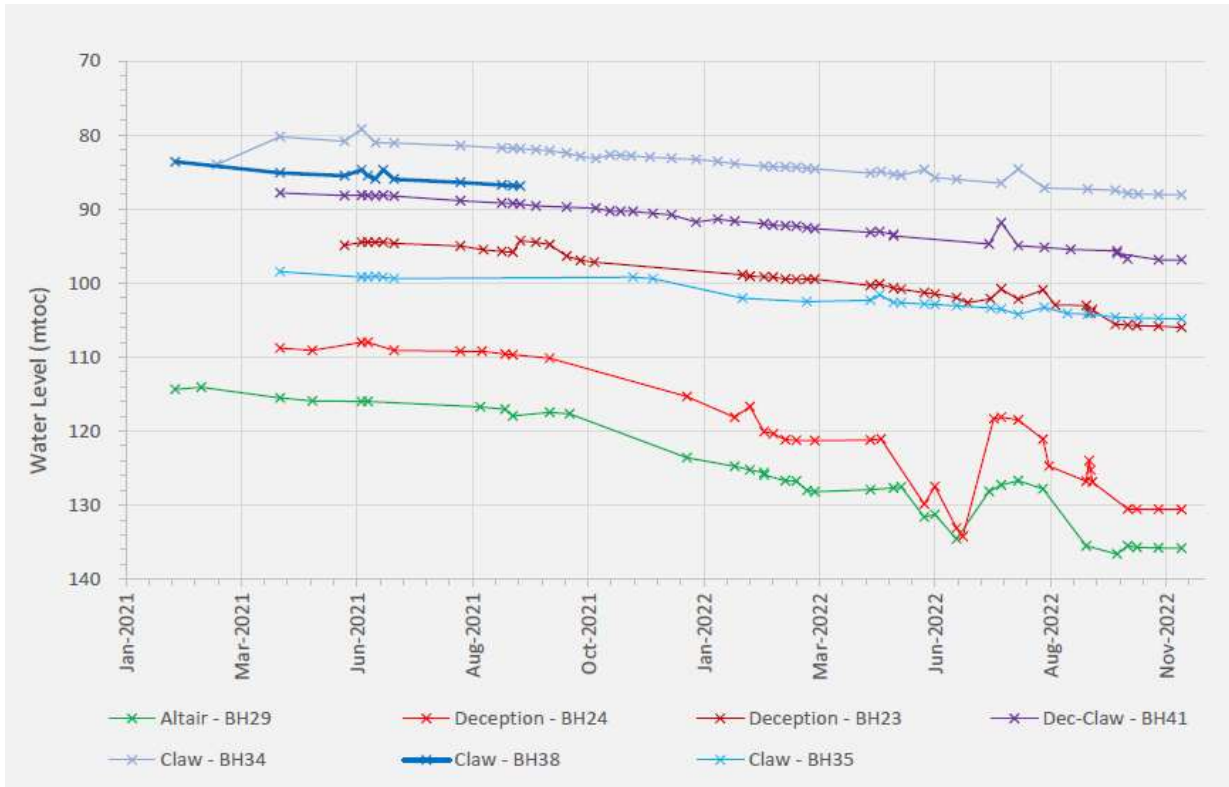


Figure 2: Hydrographs from Deception, Altaire and Claw

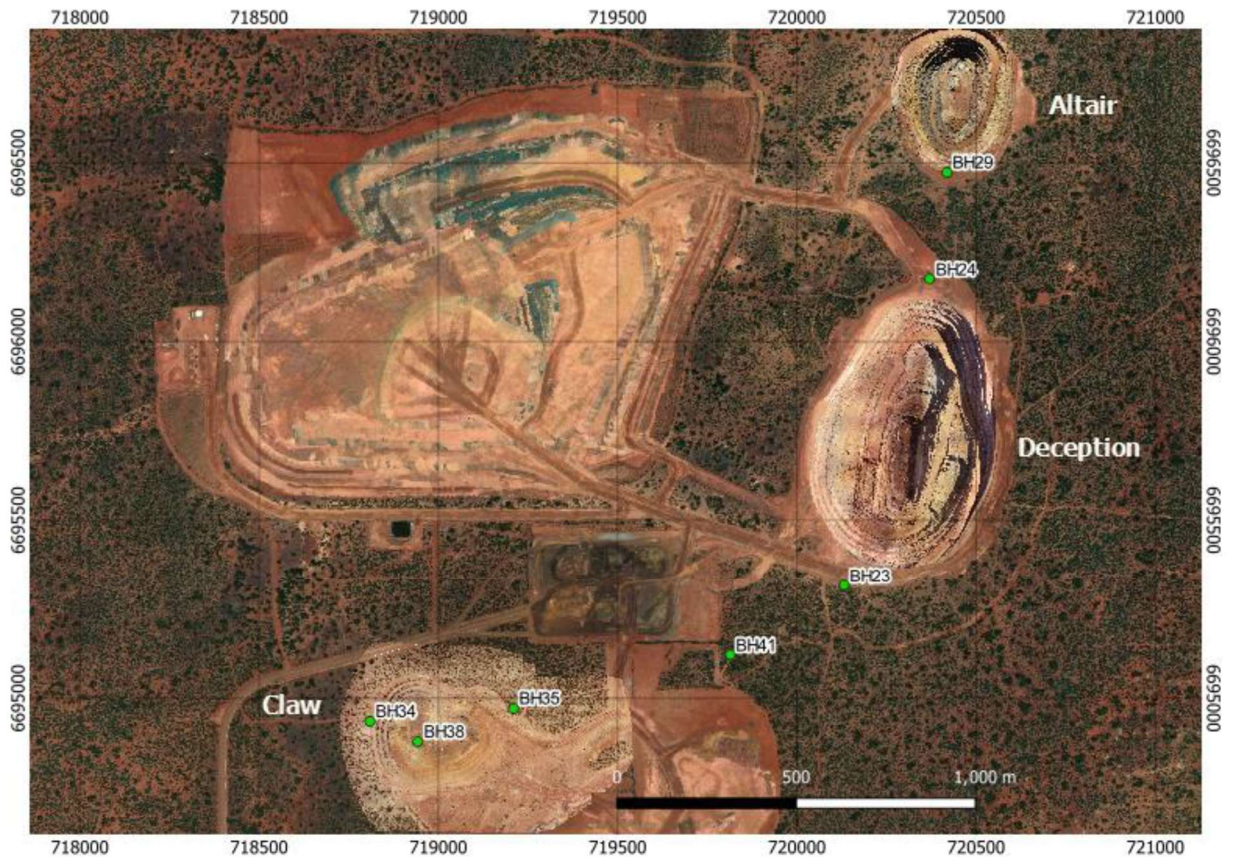


Figure 3: Bore locations

3.3.5 Applicant proposed controls

The applicant has proposed a 5 m freeboard limit for Altair and Claw pits, which would assist in mitigating potential impacts which groundwater mounding (associated with seepage) might have on the rootzones of adjacent native vegetation including threatened/priority flora, habitat for priority fauna, or TEC vegetation complex.

3.3.6 DWER assessment

The consequence rating for mounding of hypersaline groundwater and damage to rootzones of adjacent native vegetation is considered to be **moderate**. Given the dropping water levels presented in Figure 2 and capacity of the pits given in section 2.2.1, the likelihood of groundwater mounding impacting the root zones of adjacent native vegetation is considered to be **unlikely**. The overall risk rating for this risk event has therefore been determined to be **'medium risk'**.

To mitigate residual risk associated with seepage from Claw and Altair pits, DWER will place the following additional controls on the licence:

- Condition 20 – existing condition amended to include monitoring requirements for volumetric flow, pH and total dissolved solids (in addition applicant proposed monthly freeboard monitoring and freeboard limit); and
- Condition 21 – existing condition modified to include Altair and Claw pits. The condition requires the Licence holder to design and implement a Groundwater Recovery Plan when groundwater levels are shallower than 10 m below crest level. This will be consistent with the requirements for dewatering into W2 and W3 pits.

Consultation

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

Table 7: Consultation

Consultation method	Comments received	Department response
Blackshield Lawyers (representing the Marlinyu Ghoorlie Traditional Owners) – request for comment on 21/04/2023	No response received	N/A
Marlinyu Ghoorlie Group – request for comment on 21/04/2023	No response received	N/A
Licence Holder provided draft for comment on 13 June 2023	DWER requested a number of clarifications for the Licence and Amendment report. Confirmed by Licence Holder	Accepted

4. 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.

4.1 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: Summary of Licence amendments

Condition no.	Proposed amendments
All Conditions	Numbering updated
Introduction	Removed
Interpretation	Removed and added to the end of the Licence as Definitions
1 and 2	Addition of conditions to remove spills of environmentally hazardous material
1.2.10 and Table 1.2.6	Removal of outdated condition
1.2.11 and Table 1.2.7	Removal of condition to be updated in new condition 12
15 and Table 7	Addition of Altair and Claw as emission points to groundwater
20 and Table 10	Updated to include monitoring of Altair and Claw
21	Include Altair and Claw in freeboard requirements
29	Updated Note 1 with new website
Maps	Figure number updated
Schedule 1 Figure 7	Addition of new pipeline layout

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.
4. Mineral Resources 2022a, *Yilgarn Iron Pty Ltd: 2021 Groundwater Monitoring Summary*. Osbourne Park, Western Australia.
5. Mineral Resources 2022b. *Hydraulic Connection Assessment for Water Transfer Options Between Open Pits*. Osbourne Park, Western Australia.
6. Mineral Resources 2022c. *Memorandum*. Osborne Park, Western Australia.
7. Mineral Resources 2023a, *Windarling Range Mine Operations: 2022 Annual Environmental Report*, Osbourne Park, Western Australia.
8. Mineral Resources 2023b. *Memorandum*. Osbourne Park, Western Australia.

Appendix 1: Dewater Chemistry Analysis

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PDL0833-01	CPB01	Water	10/12/2022	13/12/2022
PDL0833-02	Nth Bore	Water	10/12/2022	13/12/2022
PDL0833-03	W1EPB01	Water	11/12/2022	13/12/2022
PDL0833-04	W1EPB02	Water	11/12/2022	13/12/2022

Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PDL0833-01	PDL0833-02	PDL0833-03	PDL0833-04
Your Reference			CPB01	Nth Bore	W1EPB01	W1EPB02
Date Sampled			10/12/2022	10/12/2022	11/12/2022	11/12/2022
Phosphorus	mg/L	0.050	<0.050	0.050	<0.25	<0.25
Sulfur	mg/L	0.50	830	860	970	920
Silicon	mg/L	0.10	6.0	12	5.3	5.3

Acid Extractable Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PDL0833-01 CPB01 10/12/2022	PDL0833-02 Nth Bore 10/12/2022	PDL0833-03 W1EPB01 11/12/2022	PDL0833-04 W1EPB02 11/12/2022
Aluminium	µg/L	10	<20 [3]	<20 [3]	<20 [3]	<20 [3]
Arsenic	µg/L	1.0	<2.0 [3]	<2.0 [3]	30	35
Boron	µg/L	20	12000	14000	14000	14000
Barium	µg/L	1.0	5.6	2.7	23	22
Beryllium	µg/L	0.50	<1.0 [3]	<1.0 [3]	<1.0 [3]	<1.0 [3]
Cadmium	µg/L	0.10	0.44	0.40	<0.20 [3]	<0.20 [3]
Cobalt	µg/L	1.0	24	2.3	5.1	4.9
Chromium	µg/L	1.0	3.0	34	3.3	2.7
Copper	µg/L	1.0	27	6.6	23	<2.0 [3]
Iron	µg/L	10	2200	920	4200	5200
Mercury	µg/L	0.050	<0.050	<0.050	<0.050	<0.050
Manganese	µg/L	1.0	730	13	1500	1200
Molybdenum	µg/L	1.0	<2.0 [3]	<2.0 [3]	<2.0 [3]	<2.0 [3]
Nickel	µg/L	1.0	25	29	8.0	7.5
Lead	µg/L	1.0	<2.0 [3]	<2.0 [3]	<2.0 [3]	<2.0 [3]
Selenium	µg/L	1.0	2.5	6.0	3.1	2.1
Strontium	µg/L	1.0	1900	2300	6900	6000
Thorium	µg/L	0.50	<1.0 [3]	<1.0 [3]	<1.0 [3]	<1.0 [3]
Titanium	µg/L	1.0	<2.0 [3]	<2.0 [3]	<2.0 [3]	<2.0 [3]
Uranium	µg/L	1.0	<2.0 [3]	<2.0 [3]	<2.0 [3]	<2.0 [3]
Vanadium	µg/L	1.0	<2.0 [3]	<2.0 [3]	<2.0 [3]	<2.0 [3]
Zinc	µg/L	1.0	27	54	5.5	<2.0 [3]

Dissolved Metals (Water)

Envirolab ID	Units	PQL	PDL0833-01	PDL0833-02	PDL0833-03	PDL0833-04
Your Reference			CPB01	Nth Bore	W1EPB01	W1EPB02
Date Sampled			10/12/2022	10/12/2022	11/12/2022	11/12/2022
Silicon	mg/L	0.10	5.1	11	5.2	5.0
Calcium	mg/L	0.50	250	270	500	440
Magnesium	mg/L	0.50	810	900	1300	1200
Potassium	mg/L	0.50	130	130	150	140
Sodium	mg/L	0.50	5500	6000	8500	7900
Hardness as CaCO ₃	mg/L	3.0	4000	4400	6600	6100

Dissolved Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PDL0833-01 CPB01 10/12/2022	PDL0833-02 Nth Bore 10/12/2022	PDL0833-03 W1EPB01 11/12/2022	PDL0833-04 W1EPB02 11/12/2022
Aluminium	µg/L	10	12	12	17	12
Arsenic	µg/L	1.0	<1.0	<1.0	27	11
Boron	µg/L	20	8600	8800	9000	9500
Barium	µg/L	1.0	6.0	2.6	26	23
Beryllium	µg/L	0.50	<0.50	<0.50	<0.50	<0.50
Cadmium	µg/L	0.10	<0.10	0.14	<0.10	<0.10
Cobalt	µg/L	1.0	26	2.4	5.5	5.4
Chromium	µg/L	1.0	3.5	3.9	2.9	1.9
Copper	µg/L	1.0	23	<1.0	2.6	<1.0
Iron	µg/L	10	140	110	4300	570
Mercury	µg/L	0.050	<0.050	<0.050	<0.050	<0.050
Lithium	µg/L	1.0	54	63	110	130
Manganese	µg/L	1.0	850	15	1600	1400
Molybdenum	µg/L	1.0	2.2	1.2	<1.0	1.2
Nickel	µg/L	1.0	26	31	8.2	8.1
Lead	µg/L	1.0	<1.0	<1.0	<1.0	<1.0
Rubidium*	µg/L	1.0	34	42	58	59
Selenium	µg/L	1.0	3.4	2.2	3.2	3.4
Strontium	µg/L	1.0	2100	2700	8500	7100
Thorium	µg/L	0.50	<0.50	<0.50	<0.50	<0.50
Titanium	µg/L	1.0	<1.0	<1.0	<1.0	<1.0
Uranium	µg/L	1.0	<1.0	<1.0	<1.0	<1.0
Vanadium	µg/L	1.0	<1.0	<1.0	<1.0	<1.0
Zinc	µg/L	1.0	34	17	6.2	2.3

Inorganics (Water)

EnviroLab ID Your Reference Date Sampled	Units	PQL	PDL0833-01 CPB01 10/12/2022	PDL0833-02 Nth Bore 10/12/2022	PDL0833-03 W1EPB01 11/12/2022	PDL0833-04 W1EPB02 11/12/2022
Ammonia as N	mg/L	0.0050	0.13	0.037	0.012	0.0081
Chloride	mg/L	1.0	11000	12000	17000	16000
Electrical Conductivity	µS/cm	2.0	29000	32000	43000	41000
Fluoride	mg/L	0.10	0.23	0.17	0.45	0.57
Nitrate as N	mg/L	0.0050	0.11	0.63	<0.0050	<0.0050
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Nitrogen	mg/L	0.10	0.32	0.75	<0.10	<0.10
pH	pH units		6.9	6.8	6.7	7.2
Phosphate as P	mg/L	0.0050	<0.0050	0.0086	<0.0050	<0.0050
Sulfate	mg/L	1.0	2500	2700	3000	2900
Total Dissolved Solids	mg/L	5.0	20000	22000	32000	30000
Total Suspended Solids	mg/L	5.0	15	110	130	130
Turbidity	NTU	0.10	12	3.6	48	49
Nitrate as NO3 by calculation	mg/L	0.020	0.50	2.8	<0.020	<0.020
Nitrite as NO2 by calculation	mg/L	0.020	<0.020	<0.020	<0.020	<0.020
Ionic Balance	%		-7.3	-7.1	-4.7	-5.6
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	620	600	320	310
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	620	600	320	310

Appendix 2: Location of Heritage Sites

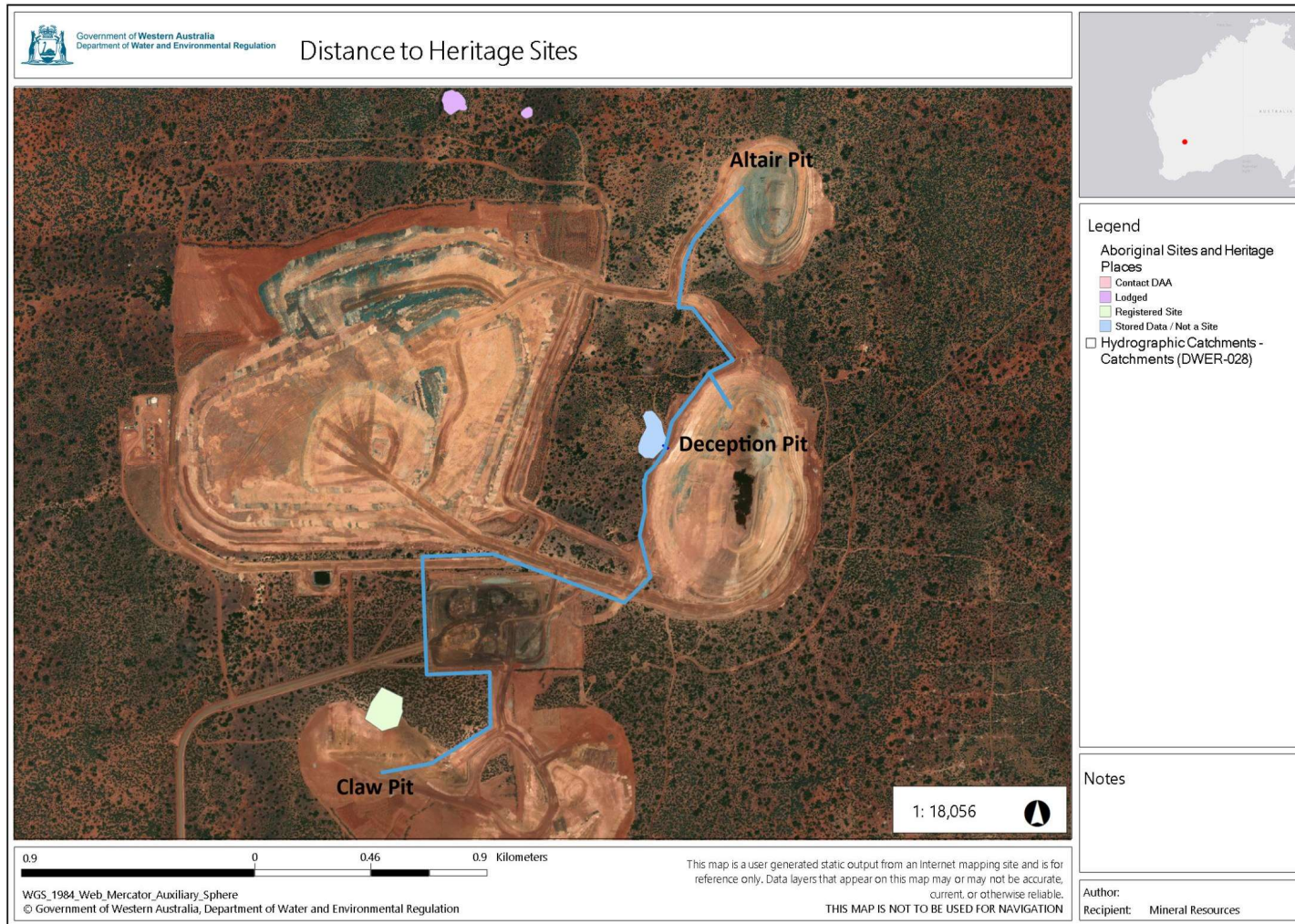


Figure 4: Distance to Heritage Sites

L8667/2012/1

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

Appendix 3: Application summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	<input type="checkbox"/>				
Licence	<input type="checkbox"/>	Relevant works approval number:		None	<input type="checkbox"/>
		Has the works approval been complied with?	Yes <input type="checkbox"/> No <input type="checkbox"/>		
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>		
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?	Yes <input type="checkbox"/> No <input type="checkbox"/>		
		Date Report received:			
Renewal	<input type="checkbox"/>	Current Licence number:			
Amendment to works approval	<input type="checkbox"/>	Current works approval number:			
Amendment to licence	<input checked="" type="checkbox"/>	Current Licence number:	L8667/2012/1		
		Relevant works approval number:		N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:		None	<input type="checkbox"/>
Date application received	30 January 2023				
Applicant and Premises details					
Applicant name/s (full legal name/s)	Yilgarn Iron Pty Ltd (MRL)				
Premises name	Windarling Range and Deception Mine Operations				
Premises location	Part of mining leases M77/1001, M77/999, M77/1038, M77/1039, M77/1000, M77/1257, M77/1258 and M77/1259 and L77/235 M77/1001, M77/999, M77/1038, M77/1039, M77/1000, M77/1257, M77/1258 and M77/1259 and L77/235				
Local Government Authority	Shire of Yilgarn and Shire of Menzies				
Application documents					
HPCM file reference number:	2012/005038-2~5				
Key application documents (additional to application form):	Deception Mine Dewatering Memorandum Hydraulic Connection Assessment Slide Package				

		Deception Deposit Geochemical Characterisation Report
Scope of application/assessment		
Summary of proposed activities or changes to existing operations.	<p>Category 6: Currently the operation involves a ~20km pipeline from Deception to Windarling to dispose of abstracted ground water from the Deception operations (Claw, Altair, and Deception mine voids), into emission points of either W2 or W3 mine void.</p> <p>It is proposed that dewatering from Deception mine void can also be disposed to Altair mine void (0.4 km away) and Claw mine void (1.0 km away) via a bi-directional pumping system and pipeline. The disposal into Altair mine void and Claw mine void will remain as extraction points currently approved within the license, but will also be identified as emission points.</p> <p>10-40 L/s will be transferred into Altair and/or Claw at various stages during the remaining LOM at Deception.</p>	
Category number/s (activities that cause the premises to become prescribed premises)		
Table 1: Prescribed premises categories		
Prescribed premises category and description	Assessed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 6 – Mine dewatering: premises on which water is extracted and discharged into the environmental to allow mining of ore.	3,420,000	No changes to production or design capacity proposed (dewatering location and infrastructure amendments proposed)
Legislative context and other approvals		
Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Ministerial statement No: MS982 EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input checked="" type="checkbox"/> Expiry:

		Other evidence <input type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Approval: Expiry date: If N/A explain why?
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	CPS No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing Licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Application reference No: Licence/permit No: GWL 154459
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Name: Goldfields groundwater area Type: Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Regional office: Goldfields groundwater area
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Priority: N/A Are the proposed activities/landuse compatible with the PDWSA (refer to WQPN 25)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i> , <i>Environmental Protection (Controlled Waste) Regulations 2004</i> , <i>State Agreement Act xxxx</i>)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Mining Act 1978 Aboriginal Heritage Act 1972

Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Classification: N/A Date of classification: N/A