



Application for Licence Amendment

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

Licence Number	L7774/2000/6
Licence Holder	Robe River Mining Co. Pty Ltd
ACN	008 694 246
File Number	DER2014/000873-1
Premises	West Angelas Iron Ore Mine AML70/248 sections 71, 72 and 79, L47/50, L47/52, L47/53, L47/60, L47/409, E47/2963, G47/1236 and G47/1235 NEWMAN WA 6753 As defined by the Premises map attached to the Revised Licence
Date of Report	13 April 2023
Decision	Revised licence granted

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

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1. Decision summary

Licence L7774/2000/6 is held by Robe River Mining Co. Pty Ltd (Licence Holder) for the West Angelas Iron Ore Mine (the Premises), located approximately 90 km north-west of Newman.

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 L7774/2000/6 has been granted.

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

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Amendment summary

On 18 January 2023, the Licence Holder submitted an application (Rio Tinto 2023a) to the department to amend Licence L7774/2000/6 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Allow the category 6 total mine dewatering discharge volume of 12 gegalitres (GL) to be discharged across the authorised mine dewatering discharge point location/s (refer to section 2.2.1) including the reinjection bores;
- Authorise mine dewatering discharge through reinjection bores (refer to section 2.2.2);
- Allow landfills to be located anywhere within the prescribed premises boundary provided certain conditions are met (refer to section 2.2.3); and
- Expand the premises boundary (refer to section 2.2.4).

The Licence Holder has not requested any changes to the design capacity or activities relating to category 5, 6, 12, 52, 54 and 73 under the existing licence.

2.2.1 Category 6 – Mine dewatering discharge

Combined mine dewatering discharge limit

Due to operational requirements the Licence Holder requests that a single combined discharge limit is imposed to capture all discharge points.

The Licence Holder has stated the following (Rio Tinto 2023a):

“A single combined limit is requested based on two factors/influences:

- 1) *Stream reaches; and*
- 2) *The existing dewatering transfer network.*

Stream Reaches

As the discharge points near Turee Creek / Deposit A and Deposit B are in two different stream reaches with the confluence adjacent to the airstrip. The stream length from discharge to confluence is >5km for Turee Creek / Deposit A and >8km for Deposit B.

These stream reaches are an important part of the site discharge mechanism and maximising both reaches therefore maximises the use of the stream capacity to accept discharge. In addition, the below information is also of relevance:

- *The Deposit C and D discharge point is in the same stream reach as Deposit A at approximately 300m apart.*
- *Peak Surplus for Deposit C is modelled at 6.7 GL/yr and Deposit D is modelled at 5.3 GL/yr so the entire discharge limit may have to be used by Deposit C and D discharge point and will result in the exceedance of current Licence conditions.*
- *Future site deposits for development (i.e. Deposit H, E, F, J, G, Mt Ella and Deposit A West) have surplus dewater, which will need to be considered into the future.*
- *The current licence condition reduces Mine Operations flexibility to manage dewatering.*

The Existing Dewatering Transfer Network

The existing dewatering and water transfer network is designed to move water around the site from deposit to deposit in response to water balance surplus/supply deficit and to utilise all management options including reuse, discharge and pit void storage. Having to delineate and separate abstraction volumes from individual deposits to comply with a split discharge limit will be difficult to achieve and may require re-design and significant reconstruction of the transfer system.

It is also important to note that changes in mine schedule and relative timings will dictate the abstraction rates and volumes and it is not likely to be a 50/50 split between Deposit C and D and Turee Creek / Deposit A and B.”

The department has made the requested change. Refer to section 3 for the risk assessment of the mine dewatering discharge including reinjection.

2.2.2 Category 6 – Aquifer reinjection

Dewatering of Deposits C and D at the Premises allows below water table mining of these deposits. The cone of water table depression caused by dewatering in Deposits C and D is predicted to reach the boundary of Karijini National Park. The Licence Holder proposes to mitigate this impact using a Managed Aquifer Recharge (MAR) scheme installed between the mine pits and the Karijini National Park boundary.

To note: *Policy: Managed aquifer recharge in Western Australia* (DWER 2021) defines MAR as “*the intentional recharge of an aquifer under controlled conditions for subsequent recovery, demonstrable environmental benefit or mitigation of the impacts of abstraction. MAR recharge must be an additional contribution to an aquifer, not a return of abstracted water.*”

As the Licence Holder is proposing to abstract groundwater from Deposit D (to allow mining of ore) and reinject water back into the same aquifer (to mitigate impacts at Karijini National Park), this is not considered MAR. For the purposes of this Amendment Report, the department will continue to use the Licence Holder’s reference to the MAR scheme.

From December 2019 to February 2020 the Licence Holder initiated Phase 1 (mitigate drawdowns from active dewatering in Deposit D) of the MAR drilling programme and injection trial. Custom built injection bores and discretely screened monitoring networks were installed to enable capture of detailed information during pumping and injection trials.

The Phase 1 MAR scheme (as shown in Figure 1) includes re-injection of dewatered groundwater from Deposit D into MAR injection bores. The annual reinjection volume is estimated at between 3-5 GL per year but is dependent on dewatering activities at Deposit D and the associated drawdown effect created in the region between the dewatering location and Karijini National Park.

Groundwater abstracted from Deposit D dewatering activities is piped directly to the eight injection bore/s via an overland pipeline. The chlorination treatment system is via a trickle-feeder mechanism and is required only to ensure biological activity in the injection bores is kept to a minimum to prevent biological clogging. Injection rates are expected to vary depending on aquifer drawdown propagation, aquifer responsiveness, clogging and infrastructure capacity.

Each injection bore is equipped with a backflush pump to enable the active management of clogging and ensure capacity of injection assets. Backflush water is piped to a central sedimentation pond where it is collected and transferred to active mining areas for re-use. Injection bores are flushed using submersible pumps and water diverted to a sedimentation pond.

Water from the sedimentation pond overflows to a clarified water pond and is pumped to Deposit D Turkey's Nest. The sedimentation pond also receives injection water, which doesn't meet the quality criteria (for injection).

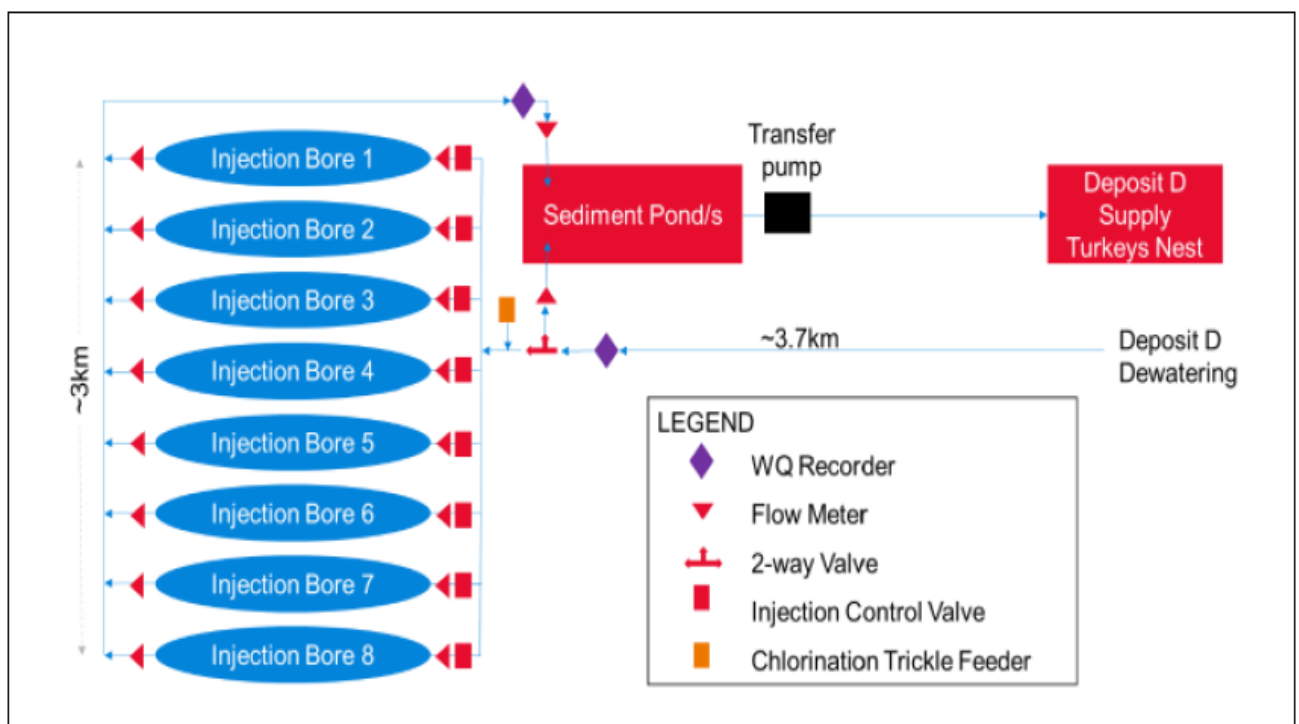


Figure 1: Phase 1 MAR scheme layout

Refer to section 3 for the risk assessment of the reinjection of mine dewater.

2.2.3 Category 64 – Landfills

The Licence Holder requests that landfill facilities be allowed to be constructed and operated within the prescribed premises boundary. Stating that this would assist with ongoing premises waste management and provide the premises with increased flexibility for waste disposal.

Refer to section 3 for the departments risk assessment for the construction and operation of landfills within the prescribed premises boundary.

2.2.4 Expansion of premises boundary

The Licence Holder seeks to amend the existing prescribed premises boundary. This is to provide consistency and alignment with the existing Part IV Ministerial Statement (MS) 1113 boundary and to capture the MAR reinjection bores.

The department has made the requested change.

2.3 Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act) (Cth)

Under the EPBC Act, the Licence Holder was given approval (Decision Notice (DN) 2018/8299) to develop iron ore deposits C, D and G, and associated works and infrastructure at the existing West Angelas Iron Ore.

Condition 3 states: *To minimise impacts to **EPBC Act listed threatened species** or their habitat the **approval holder** must ensure that there is:*

- (a) *no drawdown of groundwater associated with the action at the boundary of, or within Karijini National Park and*
- (b) *no change in groundwater quality associated with the action at the boundary of, or within, Karijini National Park.*

2.4 Part IV of the EP Act

The West Angelas Iron Ore Project - Revised Proposal was assessed by the Environmental Protection Authority (EPA) and approved under MS 1113.

- Condition 5-1 requires the proponent implement the proposal to meet the following objectives:
 - (1) The proponent shall ensure there is no irreversible impact, as a result of the discharge of surplus water from the proposal, to the health of riparian vegetation of Turee Creek East;
 - (2) The proponent shall ensure that there is no direct or indirect disturbance to the West Angelas Cracking-Clays Priority Ecological Community (PEC), due to the proposal that results in an irreversible impact;
 - (3) The proponent shall ensure no more than 20 ha of direct or indirect disturbance due to the proposal to other representations of the West Angelas Cracking-Clays PEC;
 - (4) The proponent shall ensure that there is no disturbance due to the proposal to the potential maternity Ghost Bat roosts;
 - (5) The proponent shall minimise disturbance due to the proposal to other Ghost Bat roosts; and
 - (6) The proponent shall avoid where possible, or otherwise minimise the introduction to and spread of weeds due to the proposal within the West Angelas rail corridor.
- Condition 6-1 relates to ensuring that there is no drawdown of groundwater associated with the proposal at the boundary of, or within Karijini National Park.
- Attachment 3 of MS 1113 (Table 2) authorises the physical and operation elements of the revised proposal, and requires, for surplus water management, that *“dewatering water will be used onsite in the first instance to supply water for operational purposes. Surplus dewatering water, exceeding the operational requirement is discharged to a local ephemeral tributary of Turee Creek East. The surface discharge extent will not extend within 2 km of the boundary of Karijini National Park under natural no-flow conditions.”*

Rehabilitation and decommissioning are also regulated by Condition 7 (7-1 to 7-5) of MS 1113.

Aboriginal Heritage is regulated by Condition 10 (10-1 and 10-2) of MS 1113. The Licence Holder has stated (Rio Tinto 2023b) that *“Consultation with Yinhawangka Aboriginal Corporation (YAC) in relation to the MAR was documented in the approved Section 45C application.”* *“A letter from YAC in relation to the S45C, which acknowledges consultation and*

MAR activities (no objection) was received on 10 November 2020”.

On 07 February 2022 the EPA approved the West Angelas Revised Proposal Groundwater Environmental Management Plan (Groundwater EMP) (Rio Tinto 2022) to satisfy condition 6 of MS 1113 and condition 3, 4, 5 and 6 of DN 2018/8299 in relation to groundwater drawdown associated with dewatering activities at Deposit C and D and use of a MAR scheme to mitigate potential impacts to Karijini National Park.

The *Groundwater EMP* states the following:

- **MS 1113 Reporting:** *Any exceedance of threshold criteria specified in this Groundwater EMP will be reported to the CEO in writing within seven (7) days of the exceedance being identified (Condition 6-4(1)). For each calendar year, during the operational phase, monitoring results will be reported against associated trigger and threshold criteria and objectives in the Annual Compliance Assessment Report (ACAR) for the Project.*
- **DN 2018/8299 Reporting:** *Compliance against the conditions of DN 2018/8299 will be reported annually in the Annual Compliance Report as required by Condition 19 of DN 2018/8299. Monitoring data recorded through implementation of provisions will be provided in graph format along with a written assessment of:*
 - *Function and adequacy of Grey Box modelling and any updates to the model throughout the monitoring period.*
 - *Groundwater levels and quality in relation to Grey Box modelling and triggers and thresholds.*
 - *Groundwater level and quality trends over the reporting period and historically.*
 - *Assessment of any potential future trends or issues and amendments to modelling, triggers and thresholds, or monitoring.*
 - *Summary of groundwater impacts and compliance.*

In the event that trigger and threshold criteria are exceeded, the Proponent will notify the Department of Agriculture, Water and the Environment (Cwth) (DAWE) within five (5) business days of becoming aware of the exceedance and any further reporting will be provided as per response actions for triggers and thresholds.

In the event of an incident, non-compliance against the conditions of DN 2018/8299, or non-compliance with the commitments made in plans, the DAWE will be notified in writing as soon as practicable, and no later than two (2) business days of the non-compliance being known. The Commonwealth Department will also be provided with details of the non-compliance as required by Condition 20 of DN 2018/8299 as soon as practicable, and no later than ten (10) business days of the non-compliance being known.

The Licence Holder has stated (Rio Tinto 2023) that “The MAR scheme was captured under a Section 45C application. Therefore, this Part V Licence Amendment is considered consistent with MS 1113.”

2.5 Department of Biodiversity, Conservation and Attractions (DBCA)

The Licence Holder has stated that they undertook extensive consultation with DBCA regarding the Groundwater EMP, which outlines operation of the MAR. As well as briefing sessions (May 2020, August 2020 and November 2020) all prior to approval of the S45C.

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 operation which have been considered in this Amendment Report are detailed in Table 1 below.

Table 1 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 1: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction of landfills			
Dust	Earthmoving, works associated with construction of landfill trenches	Air/windborne pathway	<ul style="list-style-type: none"> Dust suppression implemented (including use of water trucks, control of vehicle movements / restricted speeds).
Operation			
Category 6 – Mine dewatering and MAR			
Mine dewater	Increase in mine dewater via discharge points (Turee Creek Deposit A, Deposit B and Deposit C/D)	Discharges to Turee Creek East	<ul style="list-style-type: none"> Dewatering water in the first instance utilised on site to supply water for operational purposes (processing and dust suppression). Discharge points include a concrete stilling well and weir system leading to a rip rap apron at the outlet, in addition to rip rap protection within the portion of the creek bed deemed susceptible to erosion. Inspection of discharge points, creekline and stream reaches undertaken to identify visual erosion and sedimentation issues as well as discharge impacts. Flow meters used to record the discharge volumes.
	Spills from rupture or leaks of dewatering pipelines	Discharges to land	<ul style="list-style-type: none"> Pipeline is fitted with leak detection systems and operates within standard design pressures, reducing the risk of pipeline failure.
	Reinjection	Direct injection to groundwater	<ul style="list-style-type: none"> Groundwater abstracted via dewatering activities is piped directly to the injection bore/s via an overland

Emission	Sources	Potential pathways	Proposed controls
			<p>pipeline.</p> <ul style="list-style-type: none"> The system is groundwater to groundwater, reducing any potential for cross contamination from surface water. Chlorination treatment system is used to reduce biological activity in injection bores and prevent biological clogging when automated sampling requires it. Each injection bore is fitted with a backflush pump. MAR system fitted with automated turbidity sampling to detect unsuitable levels in groundwater for reinjection. Telemetered control and observation systems installed to enable automated operation and remote access to avoid uncontrolled discharge or injection of water. Operation of the Phase 1 MAR scheme dependent upon measured and modelled aquifer responses within a purpose-built monitoring network of Vibrating Wire Piezometers (VWPs) and nested monitoring bores, comprising 24 VWPs and approximately 23 monitoring wells distributed over three (3) Zones.
Category 64 – Landfills			
Dust	Earthmoving	Air	<ul style="list-style-type: none"> Dust suppression implemented (including use of water trucks, control of vehicle movements / restricted speeds).
Odour associated with putrescible landfill	Operation of putrescible and waste dump landfills located within the prescribed premises boundary	Air	Putrescible landfill will be fenced to an appropriate height, gated and locked and the fencing will be regularly inspected for damage and cleared of waste.
Windblown waste		Air	<p>Waste in the landfill facilities will be covered:</p> <ul style="list-style-type: none"> Weekly (putrescible landfill) so that no waste is left exposed (including at final landform design). On an ad-hoc basis (waste dump landfill) when required, to at least 200 mm at final landform design.
Leachate from		Surface water runoff,	Landfill facilities will: <ul style="list-style-type: none"> Not be located within an

Emission	Sources	Potential pathways	Proposed controls
putrescible landfills		seepage to soils and groundwater	<p>Environmentally Sensitive Area.</p> <ul style="list-style-type: none"> Only accept approved types of waste as authorised under the Existing Licence. Be located more than 100 m from any permanent or perennial watercourse. Be located so that vertical distance between the waste and the highest seasonal and expected post mining ground water level is no less than 3 m (waste dump landfill) or 10 m (putrescible landfill).
Contaminated stormwater		Surface water runoff	<p>Putrescible landfill facilities will:</p> <ul style="list-style-type: none"> Be located more than 100 m from any permanent or perennial watercourse. Include construction of surface water management structures (i.e. bunding) to divert surface water flows away from the landfill. A sump or bunding to collect any surface water that has come into contact with waste.

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.

The West Angelas camp is located within the premises boundary and north-west of mining operations. As this camp is operated by the Licence Holder it will not be considered a sensitive receptor under this amendment.

Table 2 and Figure 2 below provides a summary of potential environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

Table 2: Environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
DBCA Legislated Tenure - Karijini National Park	<p>The proposed premises boundary is adjacent to the boundary of Karijini National Park.</p> <p>The proposed location of the MAR reinjection bores is approximately 1.4 km east of the boundary of Karijini National Park.</p>
Aboriginal heritage sites	<p>The Licence Holder has stated (Rio Tinto 2023b) that Aboriginal heritage sites within or nearby premises have been sufficiently identified and surveyed to the</p>

Environmental receptors	Distance from prescribed activity
	<p>appropriate level as required by the <i>Aboriginal Heritage Act 1972</i>.</p> <p>Heritage sites within the proposed MAR development envelope include: WA04-05, WAD11-02, WAD11-01, WA11-26, WA12-09.</p> <p><i>“The MAR infrastructure has been designed to avoid identified heritage sites. No identified sites within the additional area of the approved S45C amendment will be impacted by the MAR infrastructure and operation.”</i></p>
Priority Ecological Community (PEC)	<p>Priority 1 West Angelas Cracking-Clays PEC are located within the premises boundary and approximately 150 m from the bank of Turee Creek East.</p> <p>Priority 1 PEC - Brockman Iron cracking clay communities of the Hamersley Range are located approximately 3 km north-west of the premises boundary.</p>
Priority Flora	<p><i>L7774/2000/6 Amendment Report</i> states that no flora listed under the EPBC Act, or gazetted as Threatened (formerly Declared Rare Flora (DRF)) under the Western Australian Wildlife Conservation Act 1950 (WC Act) were recorded.</p> <p>Two Priority 2 flora species, seven Priority 3 flora species and one Priority 4 flora species are located within the Premises.</p>
Threatened/Priority Fauna	<p><i>L7774/2000/6 Amendment Report</i> states that recent biological surveys have recorded evidence of several Threatened fauna species listed under the EPBC Act, including the following:</p> <ul style="list-style-type: none"> • Pilbara Leaf-nosed Bat (<i>Rhinonictoris aurantia</i>) – EPBC Vulnerable; • Ghost Bat (<i>Macroderma gigas</i>); and • Fork-tailed Swift (<i>Apus pacificus</i>). <p>In addition, the following two threatened species have been assessed as having a moderate to high likelihood of occurrence in the region:</p> <ul style="list-style-type: none"> • Northern Quoll (<i>Dasyurus hallucatus</i>) – EPBC Endangered, and; • Pilbara Olive Python (<i>Liasis olivaceus barroni</i>).
Proclaimed Groundwater and Surface Water Areas	The Premises is located within the Proclaimed Pilbara Groundwater and Surface Water Areas.
Turee Creek East	<p>Turee Creek East is located within the premises boundary.</p> <p>Surplus dewatering water exceeding operational water demand is discharged via discharge outlets (Deposit B; Turee Creek/ Deposit A; and Deposit C &D) to the Turee Creek East and its tributaries.</p>

Environmental receptors	Distance from prescribed activity
	Turee Creek East is an ephemeral watercourse which flows depending on the occurrence of high intensity rainfall events, typical of Pilbara watercourses.
Groundwater	<p>Generally, site mining facilities are located in areas where depth to groundwater is expected to be more than 40 m below ground level (mbgl).</p> <p>The reinjection bores will inject mine dewater direct from Deposit C and D into the same groundwater aquifer.</p> <p>Groundwater salinity (total dissolved solids (TDS)) is 500 – 1,000 mg/L, which is considered marginal (Salinity status classification).</p> <p>Groundwater depths range from 48 mbgl to 63 m.</p>

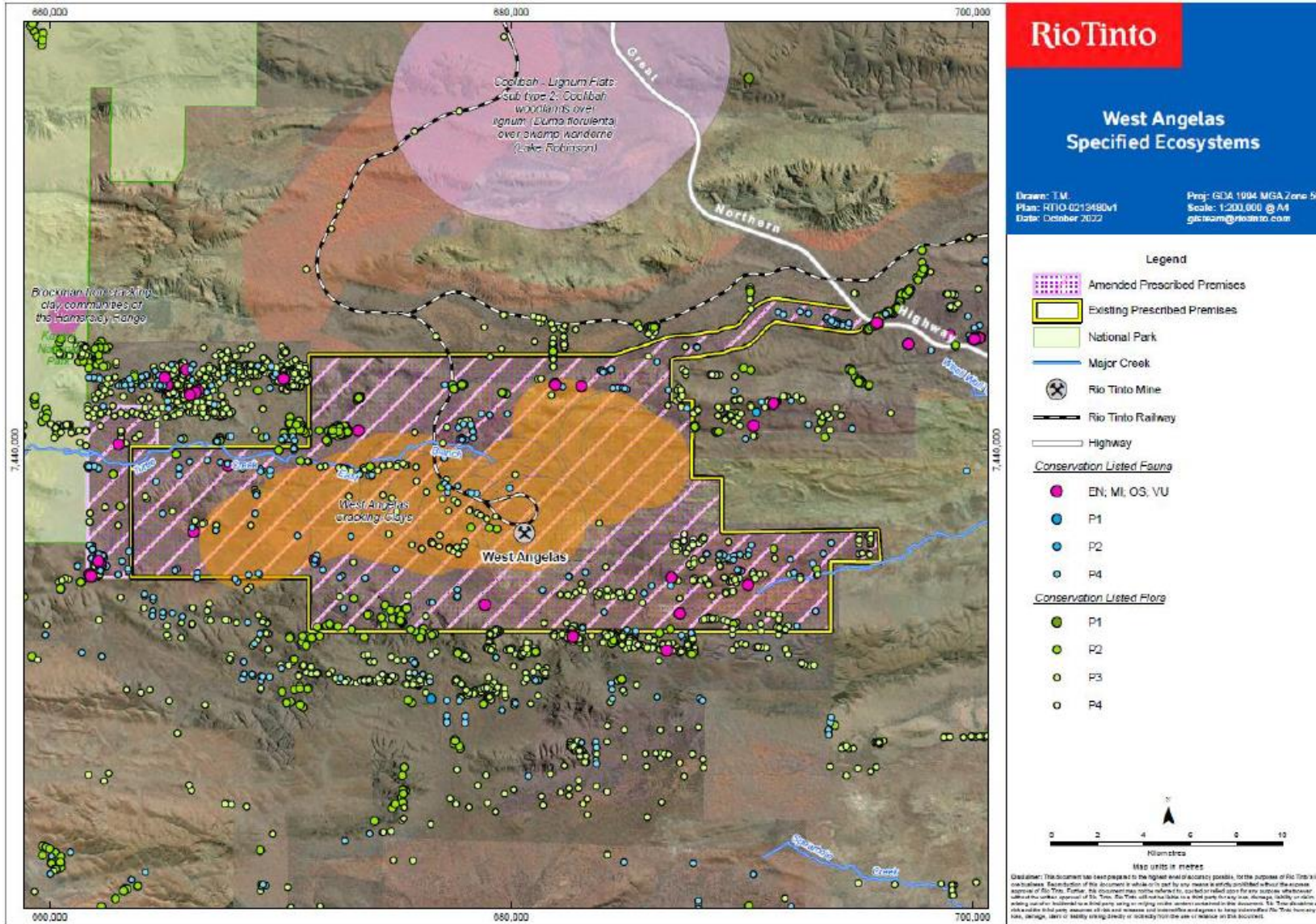


Figure 2: Distance to specified ecosystems

Licence: L7774/2000/6

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 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 3.

The Revised Licence L7774/2000/6 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises. The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 3. 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								
Construction of putrescible and waste dump landfills located within the prescribed premises boundary	Dust	Air pathway: Particulate matter (fugitive dust) causing impacts to health and amenity	PECs Priority Flora	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 8 The general provisions of the EP Act with respect to the causing of pollution and environmental harm also apply MS 1113 requires no direct or indirect disturbance to the West Angelas Cracking-Clays PEC (refer to section 2.4)	N/A
Operation								
Mine dewatering of 12 GL via discharge points (Turee Creek Deposit A, Deposit B and Deposit C/D)	Dewatering water discharge	Direct discharge impacting the hydrological regime of Turee Creek East Direct discharge and path of flow causing a decline in vegetation and disruption of normal ecosystem function	Turee Creek East PECs Riparian and terrestrial vegetation	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Existing licence has conditions relating to: <ul style="list-style-type: none"> Condition 6 – Authorised discharge points Condition 7 – Emission and discharge limits Condition 10 - Emissions and discharge monitoring MS 1113 conditions require (refer to section 2.4): <ul style="list-style-type: none"> There is no irreversible impact as a result of the discharge of surplus water to the health of riparian vegetation of Turee Creek East The Groundwater EMP includes monitoring, threshold criteria, trigger 	N/A

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				
							<p>criteria and actions</p> <ul style="list-style-type: none"> No direct or indirect disturbance to the West Angelas Cracking-Clays PEC The surplus water surface discharge extent will not extend within 2 km of the boundary of Karijini National Park under natural no-flow conditions 	
		Erosion of creek beds, with scouring, sedimentation, altered flow and decline and change of vegetation		Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 4 on existing licence relating to ensuring all mine dewatering infrastructure is maintained in good working order	N/A
Transportation of dewatering water by pipeline	Spills of dewatering water from rupture or leaks of dewatering pipelines	Direct discharge and path of flow causing reduced viability of vegetation from inundation	PECs Riparian and terrestrial vegetation	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 4 on existing licence relating to ensuring all mine dewatering infrastructure is maintained in good working order	N/A
Reinjection of mine dewatering water	Direct injection to groundwater	<p>Direct discharge of potentially contaminated groundwater resulting in deterioration and/or changes to groundwater quality</p> <p>Increase in salinity of reinjected groundwater as mine dewatering increases</p> <p>Changes in groundwater levels</p>	<p>Groundwater quality and levels</p> <p>Vegetation</p> <p>Water dependent ecosystems</p>	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	<p>Condition 14</p> <p>During this amendment, conditions 4, 6, 7 and 10 have been updated to include the reinjection bores</p> <p>MS 1113 condition 6-1 (refer to section 2.4) ensures there is no drawdown of groundwater associated with the proposal at the boundary of, or within Karijini National Park</p> <p>DN 2018/8299 Condition 3</p>	During this amendment condition 14 (Annual Environmental Report) has been updated requiring the Licence Holder to provide a summary of the reporting requirements which are to be provided under DN 2018/8299 (refer to section 2.4 - <i>Groundwater EMP</i> reporting)

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				
		and characteristics resulting in impacts on water dependent ecosystems and species Aquifer capacity exceedance resulting in flooding of the area potentially impacting on native vegetation					(refer to section 2.3) ensuring that there is: (a) no drawdown of groundwater associated with the action at the boundary of, or within Karijini National Park (b) no change in groundwater quality associated with the action at the boundary of, or within, Karijini National Park	Allowing Part V an overview of the water quality and water levels potentially associated with the reinjection of mine dewater without including monitoring requirements under this Licence.
Operation of putrescible and waste dump landfills located within the prescribed premises boundary	Dust	Air pathway: Particulate matter (fugitive dust) causing impacts to health and amenity	PECs Priority Flora	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 8 The general provisions of the EP Act with respect to the causing of pollution and environmental harm also apply MS 1113 requires no direct or indirect disturbance to the West Angelas Cracking-Clays PEC (refer to section 2.4)	N/A
	Noise	Air/ground pathway: Noise and/or vibration causing impacts to amenity	Threatened Fauna	Refer to Section 3.1	N/A	N/A	Managed under Part IV of the EP Act by MS 1113 to ensure no disturbance to the potential maternity and other Ghost Bat roosts (refer to section 2.4)	N/A
	Odour associated with putrescible waste	Air/windborne pathway causing impacts to amenity	Scavengers and indirect receptors – vegetation and fauna	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Condition 8	Licence Holder's controls have been conditioned
	Windblown waste	Increase in scavengers/ vermin			C = Slight L = Unlikely	Y	Condition 8	

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				
					Low Risk			
	Fire	Air/windborne pathway causing impacts to health, amenity and environmental receptors	Vegetation and fauna	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	N	<u>Condition 8</u>	A regulatory control has been imposed to ensure a firebreak of at least 3 m in width is around the perimeter of the putrescible landfill
	Leachate from putrescible landfill	Seepage to soils and groundwater with potential impact to groundwater and alterations to surface water ecosystems.	Premises located within the Pilbara Groundwater and Surface3 Water Area Groundwater Turee Creek East and its tributaries	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	N	<u>Condition 8</u>	Licence Holder's controls have been conditioned, which has lowered the risk rating An additional regulatory control has been included to ensure that the putrescible landfill is located at a minimum of 500 m from Turee Creek East
	Contaminated stormwater	Surface water runoff with potential contamination of soils and alteration to surface water ecosystems	Turee Creek East and its tributaries	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 8	Licence Holder's controls have been conditioned

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

Table 4: Consultation

Consultation method	Comments received	Department response
Department of Water and Environmental Regulation, Regulatory Services (Water) advised of proposal (02/02/2023)	<p>North West Planning Advice comments were provided on 08/02/2023 stating:</p> <ul style="list-style-type: none"> West Angelas is licenced to take 14 GL under GWL98740(12) The Groundwater Operating Strategy which will be approved this week includes the list of current existing injection and monitoring bores for the MAR scheme. It also includes MAR scheme 1 triggers, which aligns to the Groundwater EMP (revision 3, dated 07/02/2022) 	Noted
Department of Jobs, Tourism, Science and Innovation (JTSI) advised of proposal (02/02/2023)	No comments received	N/A
Licence Holder was provided with draft amendment on (16/03/2023)	<p>The Licence Holder responded on the 11/04/2023</p> <p>Refer to Appendix 1</p>	Refer to Appendix 1

5. Conclusion

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

5.1 Summary of amendments

Table 5 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 5: Summary of licence amendments

Condition no.	Proposed amendments
Premises details	Updated as per Licence Holder's request under this Licence amendment
6	Updated to include the reinjection bores WB19WAC0001, WB20WAC0001, WB20WAD0003, WB20WAD0004, WB20WAD0002, WB20WAD0005, WB21WAD0001 and WB20WAD0001 as authorised discharge points

Condition no.	Proposed amendments
7	Updated to allow the total mine dewatering discharge volume of 12 GL to be discharged across the authorised mine dewatering discharge point location/s
8	Updated as per the risk assessment and controls assessed within this Amendment Report and associated with this Licence amendment
10	Monitoring of the volume of mine dewater to the reinjection bores added under this Licence amendment
14 for Condition 8 – Landfill	Inclusion of a requirement for the Licence Holder to include a map and GIS coordinates for any landfill facility within the premises
14 for Condition 10 – Reinjection bores	Inclusion of the requirement for the Licence Holder to provide a summary of the reporting requirements which are required under DN 2018/8299 (refer to section 2.4 for the <i>Groundwater EMP</i>).
Definitions	Inclusion of definition for EPBC Act
Schedule 1	Premises map updated as per the Licence Holder's request under this Licence amendment (premises boundary expansion) Figures included and deleted as required
Schedule 2	Updated to include the reinjection bores and update Figure numbers as applicable

References

1. EPBC Decision Notice 2018/8299 available at: [Referrals list · Basic Portal \(environment.gov.au\)](#).
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. DWER 2021, *Policy: Managed aquifer recharge in Western Australia*, Joondalup , Western Australia.
6. L7774/2000/6 Amendment Report (granted 22 August 2022) available at: [Search - Department of Water and Environmental Regulation \(der.wa.gov.au\)](#).
7. Rio Tinto 2023a, *Application for a Licence Amendment under the Environmental Protection Act 1986 (WA) – L7774/2000/6 (RTIO-0211687)*, dated 17 January 2023.
8. Rio Tinto 2022, *Groundwater Environmental Management Plan, West Angelas Revised Proposal (RTIO-HSE-0349522)*, 7 February 2022 (DWER records A2155145).
9. Rio Tinto 2023b, *West Angelas Iron Ore Mine – Licensee Response to Draft Licence and Draft Amendment Report (L7774/2000/6) Request for Further Information*, dated 6 April 2023.

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

Condition	Summary of Licence Holder's comment	Department's response
Condition 7, Table 4 for volume of mine dewater	<p>The Licence Holder has advised that the licence amendment granted 22/08/2022 was to increase category 6 (from 6 GL/a to 12 GL/a) to align with MS 1113, which captures the additional discharge required for Deposit C & D and hence the MAR discharge component.</p> <p>Therefore, no change to category 6 is required in relation to this licence amendment.</p> <p>The MAR is expected to discharge between 3-5 GL/a, within the current 12 GL/a approved under category 6.</p>	<p>The department has updated Table 4 so that the combined volume of mine dewater discharged to Turee Creek / Deposit A, Deposit B, Deposit C & D and to the reinjection bores and is not more than 12 GL/a.</p>
Condition 8, Table 5 for the waste processing at the Waste Dump landfills	<p>The Licence Holder has requested the following in strikethrough below be deleted.</p> <p>Waste Dump landfills</p> <p>Constructed to the following requirements:</p> <ul style="list-style-type: none"> • Located within the prescribed premises boundary (as depicted in Schedule 1, Figure 1) • Not located within an Environmentally Sensitive Area • Located no less than 100 m from any perennial or permanent watercourse • Located so that the vertical distance between the waste and the highest seasonal and expected post mining ground water level is no less than 3 m • Earthen bunding installed around the facility to divert 	<p>The department has made the requested changes.</p>

Condition	Summary of Licence Holder's comment	Department's response
	<p>stormwater away from the landfill-</p> <ul style="list-style-type: none"> • A sump or bunding constructed within the landfill to collect any surface water that has come into contact with waste- • A sign at the entrance which clearly defines what waste is accepted onto the landfill • Location recorded on internal GIS mapping system <p>Managed and operated to the following requirements:</p> <ul style="list-style-type: none"> • No waste within 100 m of any surface water body at the site and 3 m of the highest level of the water table • Manage stormwater so that water that has come into contact with waste is retained on the site- <p>The Licence Holder has stated (Rio Tinto 2023b) that this is based on:</p> <ul style="list-style-type: none"> - <i>“Waste dump landfill sites will only receive inert materials such as rubber tyres, other rubber materials and wooden pellets etc.</i> - <i>For any waste dumps under construction, the management of inert landfilling is factored into the overall landform design and therefore there is no need for the construction of specific bunding and a sump.</i> - <i>All waste dump landforms are designed by Mine Engineering and built to manage surface water runoff, including completion of a surface water management (hydrological and hydrogeological) assessments and modelling.</i> - <i>The construction of earthen bunding may result in water pooling on the waste dump landform and therefore may impact the landforms stability or integrity.”</i> 	

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY				
Application type				
Amendment to licence	<input checked="" type="checkbox"/>	Current licence number:	L7774/2000/6	
		Relevant works approval number:	N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:	None	<input type="checkbox"/>
Date application received	18/01/2023			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Robe River Mining Co Pty Ltd (ACN: 008 694 246)			
Premises name	West Angelas Iron Ore Mine			
Premises location	AML70/248 sections 71, 72 and 79, L47/50, L47/52, L47/53, L47/60, L47/409, E47/2963, G47/1236 and G47/1235 NEWMAN WA 6753			
Local Government Authority	Shire of East Pilbara			
Application documents				
HPCM file reference number:	DER2014/000873-1			
Key application documents (additional to application form):	<ul style="list-style-type: none"> Attachment 1 – Mining tenement summary, ASIC Company extract and Agents Authority Attachment 2 and 7 – Maps (page 89 of 135) Attachment 8 – Licence amendment supporting documentation (page 94 of 135) 			
Scope of application/assessment				
Summary of proposed activities or changes to existing operations.	Licence amendment to: <ul style="list-style-type: none"> Allow the category 6 total mine dewatering discharge volume of 12 GL to be discharged across all 3 x discharge point/s; Allow landfills to be located anywhere within the prescribed premises boundary provided certain conditions are met; Expand the premises boundary; and Authorise the reinjection bores associated with the Managed Aquifer Recharge (MAR) system. 			

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

Table 1: Prescribed premises categories

Prescribed premises category and description	Assessed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 5: Processing or beneficiation of metallic or non-metallic ore	35,000,000 tonnes per annual period	No change
Category 6: Mine dewatering	12,000,000 tonnes per annual period	No change
Category 12: Screening etc. of material	10,000,000 tonnes per annual period	No change
Category 52: Electric power generation	90 megawatts	No change
Category 54: Sewage facility	830.7 cubic metres per day	No change
Category 64: Class II putrescible landfill site	11,500 tonnes per annual period	No change
Category 73: Bulk storage of chemicals etc.	21,228 cubic metres in aggregate	No change

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: MS 1113 EPA Report No: 1636
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Reference No: EPBC 2018/8299
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? <i>Iron Ore (Robe River Agreement Act 1963)</i>

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: <ul style="list-style-type: none"> • GWL98740 for abstraction of 14,000,000 kL from the mine for dewatering, reinjection and water supply purposes; • GWL158810 for abstraction of 95,000 kL for water supply purposes; and • GWL103136 for abstraction of 3,102,500 kL from the Turee B borefield for water supply purposes.
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: Pilbara Type: Proclaimed Groundwater Area and Surface Water Area Has Regulatory Services (Water) been consulted? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Regional office: North West
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, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxx</i>)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>Iron Ore (Robe River) Agreement Act 1963</i> <i>Mining Act 1978</i> Dangerous Goods Site licence DGS016356 <i>Dangerous Goods Safety Act 2004</i> <i>Environmental Protection (Unauthorised Discharges) Regulations 2004.</i>

Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
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