Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

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	APP-0026883
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	09 April 2025 **(FINAL)**
Decision	Revised licence granted

Table of Contents

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 100 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 construction and operation of the Premises. As a result of this assessment, Revised Licence L7774/2000/6 has been granted.

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 17 December 2024, the Licence Holder submitted an application (Rio Tinto 2024) 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:

- To allow for the discharge of mine dewater from Deposit G to a new discharge point at Turee Creek (referred to as Deposit G) – see section 2.2.1; and
- To allow for the discharge and storage of mine dewater into the Centre Pit South (CEPS) – refer to section 2.2.2.

Figure 1 shows the location of the Deposit G discharge point and CEPS within the Premises.

This amendment is limited to changes associated with Category 6 activities. However, there is no change to the existing Licence approved design capacities for Category 5, 6, 12, 52, 54, 64 and 73 as a result of this amendment.

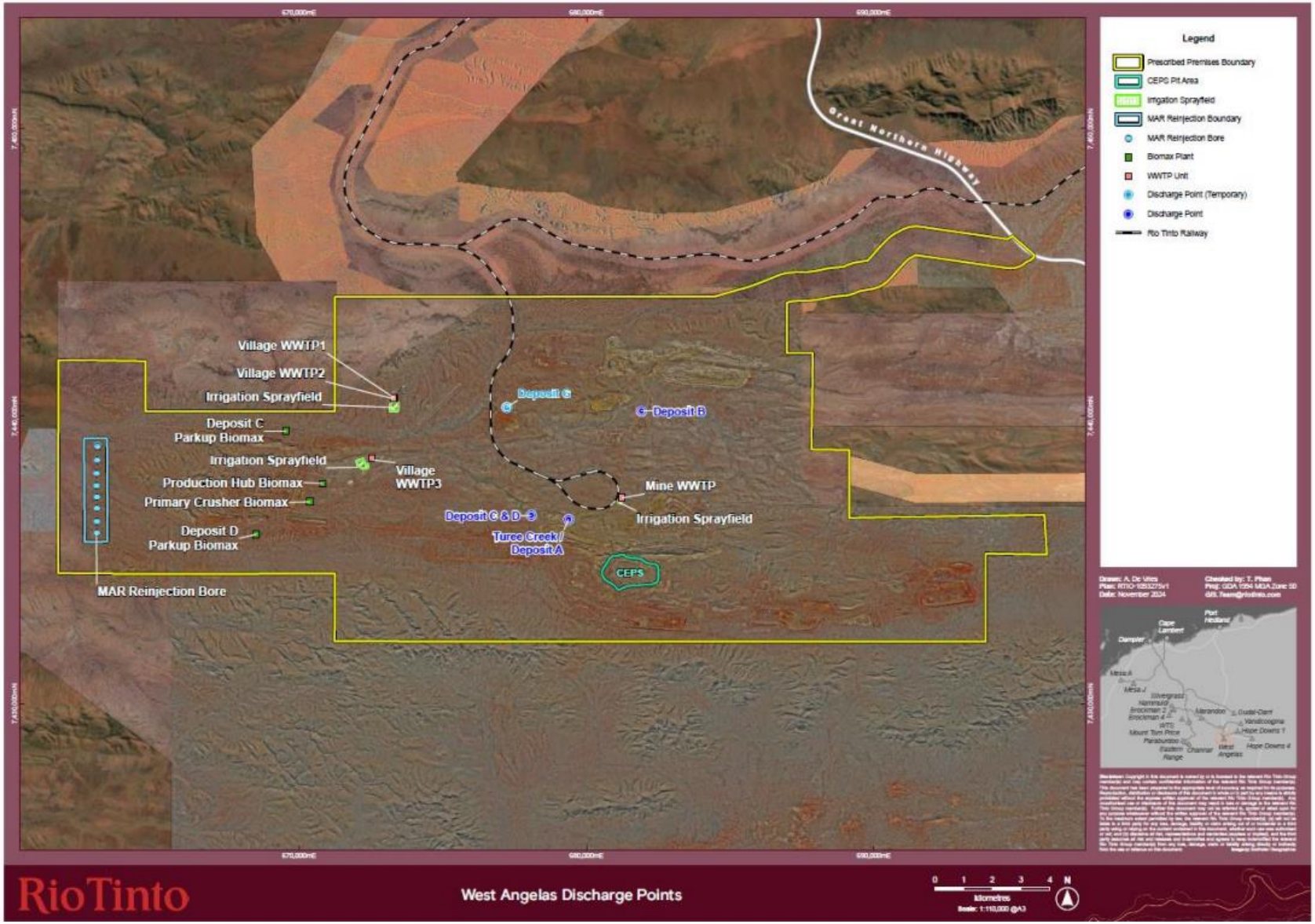

Figure 1: Location of Deposit G discharge point and CEPS

2.2.1 Deposit G discharge point

The Licence Holder is proposing a new dewatering discharge location for Deposit G to manage surplus water from the Deposit G production bore(s). Currently, water abstracted from the production bore(s) is discharged to the Deposit G turkeys nest where it is used for dust suppression. As mining progresses surplus water not required for operations will be produced.

The Deposit G discharge point will allow surplus mine water from Deposit G to be discharged at a maximum flow rate of 30 litres per second (L/s) (equivalent to two production bores) or 2.6 million litres per day (during continuous operation with no demand from the Deposit G turkeys nest), which equates to approximately 946,080 tonnes per annum. The Deposit G discharge location is anticipated to be operational only until the end of 2027.

On 04 April 2025 the Licence Holder advised DWER (Rio Tinto 2025) that due to a minor engineering design change and to gain water transfer efficiencies, the Deposit G discharge pipeline (as shown in Figure 2) will now tee-off from the existing Deposit G to Turkeys Nest pipeline, rather than a separate pipeline running from the turkeys nest to the creek discharge point.

An automatic control system will be installed at the tee-off point enabling for efficient water control and water diversion, switching abstracted dewater between either the turkeys nest or the discharge point. Water will be discharged into an adjacent drainage line (man-made) before discharging into Turee Creek East hydrological regime.

The Deposit G discharge point will incorporate a concrete stilling well and a weir system, complemented by rip rap at the overflow area and extending into the eastern branch of Turee B Creek.

Water quality characterisation

Groundwater from Deposit G is slightly alkaline (8.1 pH units) and slightly saline (3,030 micosiemens per centimetre (µS/cm), 2,260 mg/L Total Dissolved Solids (TDS)), with minimal suspended solids. Metals analysed were reported as less than the 95% Level of Species Protection *ANZG 2018*, with most analytes below the limit of reporting except Barium, Boron, Manganese, Silicon and Strontium.

No water quality sampling is undertaken for Turee Creek; however, sampling of Deposit B discharge is undertaken and considered representative of the water quality flowing downstream to the proposed Deposit G discharge point. As shown in Figure 1, the Deposit B discharge point is upstream of the proposed Deposit G discharge point.

The mean water quality of Turee Creek (2018 to 2024) is relatively consistent with the water quality of Deposit G, being slightly alkaline (8.2 pH units) and slightly saline (1,385 µS/cm, 933 mg/L TDS), with minimal suspended solids.

Refer to Table 1 for a comparison of results. Concentrations of cations (Calcium, Magnesium and Sodium) and anions (Chloride and Sulphate) are typically two to three times higher in water from Deposit G as opposed to that discharged from Deposit B, resulting in an Electrical Conductivity and TDS three times greater.

The Licence Holder has stated (Rio Tinto 2025) that West Angelas Hydrogeologists have indicated the difference between discharge water chemistry is considered a result of Deposit G discharge representing water from a different aquifers and sources combining at this location.

Figure 2: Deposit G discharge pipeline and discharge point

Table 1: Water quality comparison between Deposit G groundwater and Turee Creek (Deposit B discharge)

Parameter	Unit	Deposit G (3/10/24)	Deposit B Discharge Mean (2018 – 2024)	Deposit B Discharge (21/08/2024
Aluminium	mg/L	< 0.01	0.007	<0.005
Arsenic	mg/L	< 0.001	0.0004	<0.0002
Bicarbonate	mg/L	209	289.7	311
Boron	mg/L	0.38	0.25	0.375
Cadmium	mg/L	< 0.0001	0.00029	< 0.00005
Calcium	mg/L	145	82.83	89
Carbonate	mg/L	< 1	6	< 1
Chloride	mg/L	367	126.67	134
Chromium	mg/L	< 0.001	0.0007	0.0007
Copper	mg/L	< 0.001	0.001	< 0.0005
Electrical conductivity	µS/cm	3,030	1,385.83	-
Iron	mg/L	< 0.05	0.0267	0.013
Lead	mg/L	< 0.001	0.0267	<0.0001
Magnesium	mg/L	206	92.267	93.5
Manganese	mg/L	0.24	0.03	0.0037
Mercury	mg/L	< 0.0001	< 0.00004	< 0.00004
Nickel	mg/L	< 0.001	0.0025	< 0.0005
Nitrate	mg/L	4.74	9.01	3.28
pH	pH units	8.1	8.22	-
Potassium	mg/L	6	4.36	6.4
Selenium	mg/L	< 0.01	0.002	0.002
Sodium	mg/L	226	92.53	92.8
Sulphate	mg/L	1,000	295.22	339
Suspended Solids	mg/L	5	10.5	6
Total Dissolved Solids	mg/L	2,260	932.5	-
Zinc	mg/L	< 0.005	0.025	0.002

Refer to section 3 for the department's risk assessment for Deposit G discharge point.

2.2.2 CEPS

CEPS is part of Deposit A and was one of the earliest mined deposits at the Premises having only recently concluded mining after 15 years of operation.

The Licence Holder is proposing to utilise CEPS to provide water storage for surplus groundwater abstracted through dewatering activities.

On 04 April 2025 the Licence Holder advised DWER (Rio Tinto 2025) that the pipeline arrangement regarding CEPS was not clear in the licence amendment application.

The Licence Holder has clarified that the existing water pipelines referred to as West Angelas Deposit C & D (WADCD) to West Angelas Deposit A (WADA) transfer pipeline, connect the

Contractors Turkeys Nest and the Yards Turkeys Nest for existing site water management purposes. The WADCD to WADA transfer pipeline will be modified to include a (tee off point) connection to enable the discharge of surplus water, to CEPS for in-pit storage as shown in Figure 3.

The pipeline will predominately be constructed from high density polyethylene (HDPE), with a section of steel piping at the valve station and flow meters to support automated control and flow measurement.

CEPS has been identified as the preferred temporary pit void water storage option to address the following objectives:

- To increase the Premises' surplus water management capacity, to not constrain dewatering rates and reduce risk of access to future below water table ore;
- To provide a strategic, accessible and safe location for the storage of surplus water from mine dewatering prior to reuse in process and operational water use; and
- To reduce pressure on the existing surface discharge to Turee Creek and mitigate risk of exceeding the Turee Creek wetting front (regulated under Ministerial Statement (MS) 1113 – refer to section 2.4).

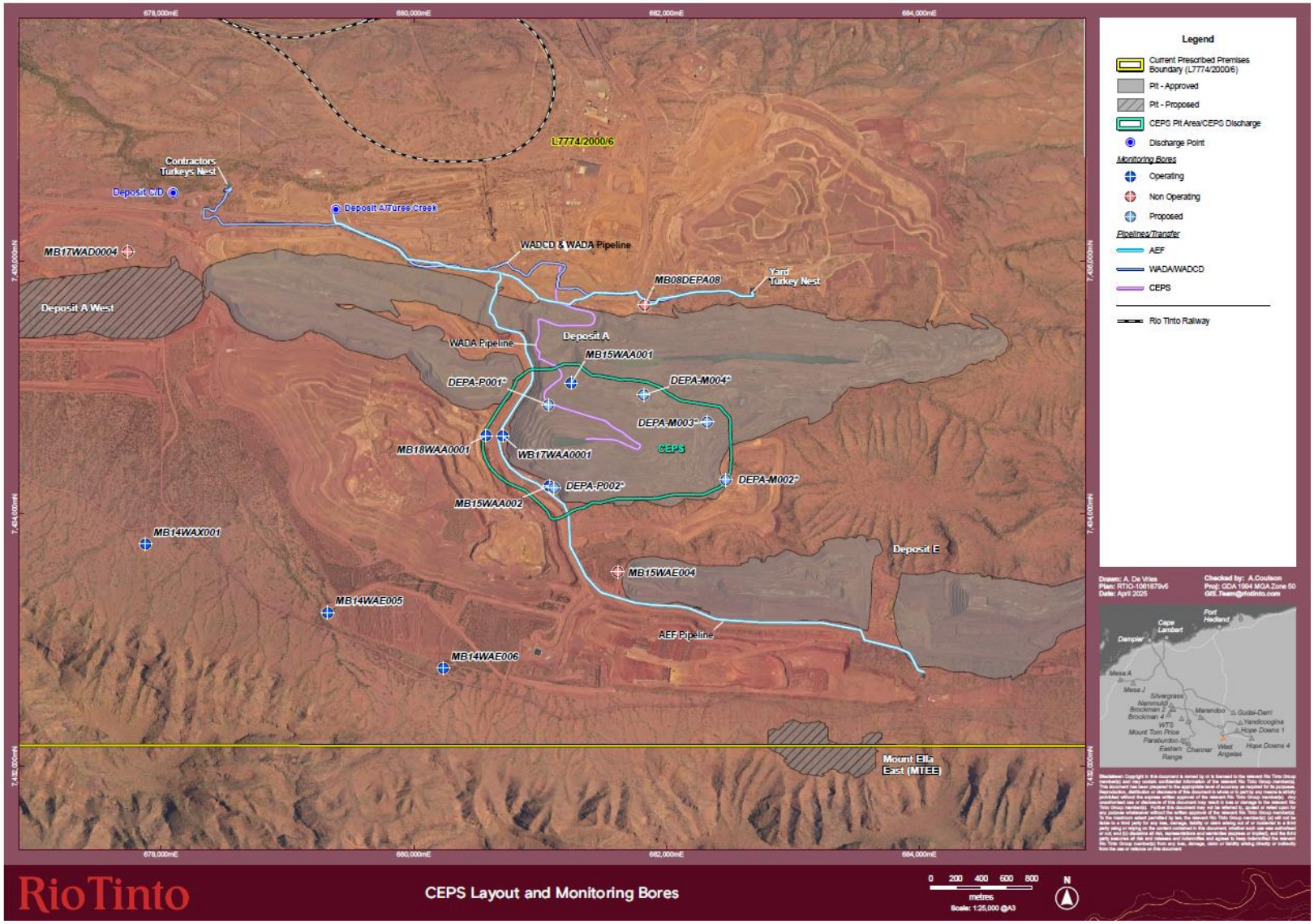

Figure 3: CEPS pipelines/transfers

Surplus mine dewatering is expected to be discharged to CEPS at an average rate of 100 L/s (range 80-120 L/s; however, peak rates of 280 L/s may be exhibited), which equates to approximately 3,53,600 tonnes per annum. The period for storage is expected to range from 10 to 15 years.

CEPS has a footprint of approximately 169.42 hectares and extends to a maximum depth of 525 m Australian Height Datum (AHD). The Licence Holder has considered water storage to a maximum height of 605 mAHD, with a maximum emergency storage allowance to 614 mAHD, which provides an estimated operational storage capacity of 8.8 gigalitres (GL) and an additional emergency storage allowance of 2.4 GL (112 GL total).

The water balance for the CEPS taking into consideration the remaining life of mine is shown in Table 2.

Table 2: Water balance for CEPS

Operational phase	Indicative timeframe
1. Fill phase - discharge of surplus water to the pit void storage, filling to a level of 605 mRL (approximately 32 m below pre-mining groundwater level) or approximately 8.8 GL. Based on the approximate 10 years of operation and no connection to groundwater systems assume an evaporation loss of approximately 34% and storage yield of approximately 76%.	2 – 3 years
2. Storage phase – ongoing monitoring of the facility with opportunistic topping up of the storage and/or minor abstractions for operational usage. Effort will be made to minimise the duration of this phase.	1 – 3 years
3. Drawdown phase – will consist of a longer period of water abstraction for operation mine water use (dust suppression). The objective of this phase is to drawdown the water level to enable access to the pit for closure. Water will be abstracted from CEPS during this phase at a rate of 30 to 80 L/s to support operations as required. Evaporation is estimated at 266 mm per month with negligible seepage rates considered. It is estimated from preliminary pit lake water balance modelling assessments that approximately 10.5 GL of water will need to be removed from CEPS over the storage and reuse duration, of which, approximately 3.4 GL will be lost to evaporation and the remaining used in operations.	5 – 6 years

Hydrogeological characterisation

Within Deposit A, groundwater occurs within two disconnected orebody aquifers (CEPS and Centre Pit North (CEPN)), both located within the mineralised portions of the Mt Newman member of the Marra Mamba Iron Formation and the mineralised portion of the West Angelas Member of the Wittenoom Formation.

Rio Tinto 2024 states the following:

- The Wittenoom Formation is generally overlain by a detrital sequence of variable thickness, which when saturated, forms part of the regional aquifer. The Mt Newman Member is underlain and bounded by low permeability, non-mineralised units including the Macleod and Nammuldi Members, which extend to above pre-mining groundwater levels in the Central Anticline (located between CEPS and CEPN) as shown in Figure 4. This indicates that two separate orebody aquifers exist in Deposit A and that CEPS

can be considered in isolation.

- Large differences were recorded in groundwater levels and dewatering responses between Deposit A and proximal deposits (Deposit A-West and Deposit E), which confirm that CEPS and the wider Deposit A are disconnected from the regional system. These orebody aquifers are referred to as “bathtub” aquifers.
- Groundwater levels in CEPS are estimated to recover to 630 mRL approximately 65 years post suspension of dewatering and completion of closure criteria.

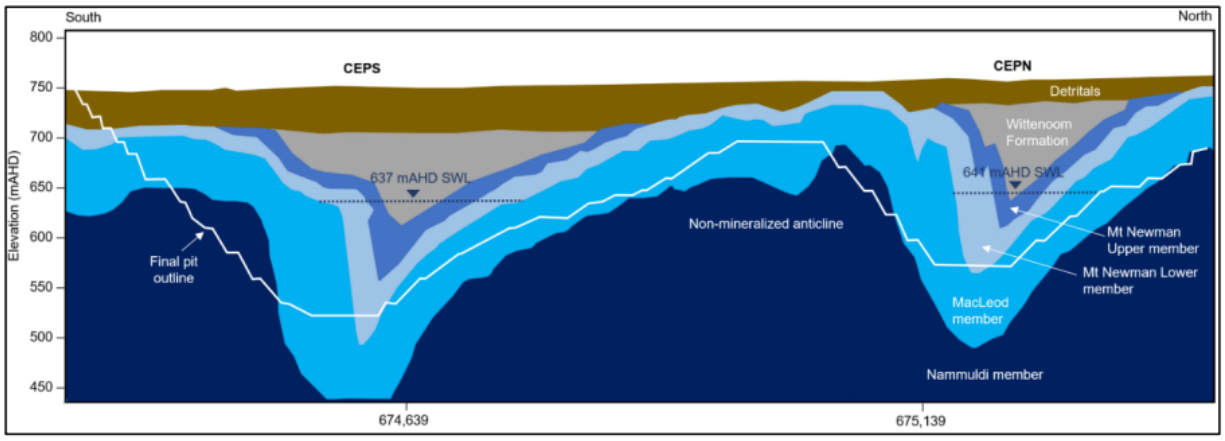

Figure 4: CEPS to CEPN pre-mining cross-sections looking west

Seepage

Due to the low groundwater recharge rate and disconnection to external groundwater systems (including CEPN to the north), the local aquifer is predicted to be mainly recharged by the temporary pit lake that will form as part of the pit void storage at CEPS. As shown in Figure 5 the local aquifer, in connection to CEPS, extends to the west and north-west of the pit. Groundwater seepage and subsequent groundwater responses to the pit lake filling are expected to propagate over time through this local aquifer system. The extent of the response in the disconnected (“bathtub”) orebody aquifer is predicted to be limited to the maximum area bounded by the no flow boundaries to the north, west, south and east-southeast shown in Figure 5.

Seepage from the temporary pit lake to the local aquifer is predicted to occur when the local aquifer’s groundwater level is lower than the pit lake level. During this period, the pit lake will recharge the surrounding aquifer until equilibrium is reached, i.e. the local aquifer’s water table level is equal (or close) to the pit lake level, if sufficient time is achievable to reach this steady state. Due to the confirmed hydraulic barriers around CEPS, the water used to fill the pit void is not expected to propagate outside of the CEPS aquifer.

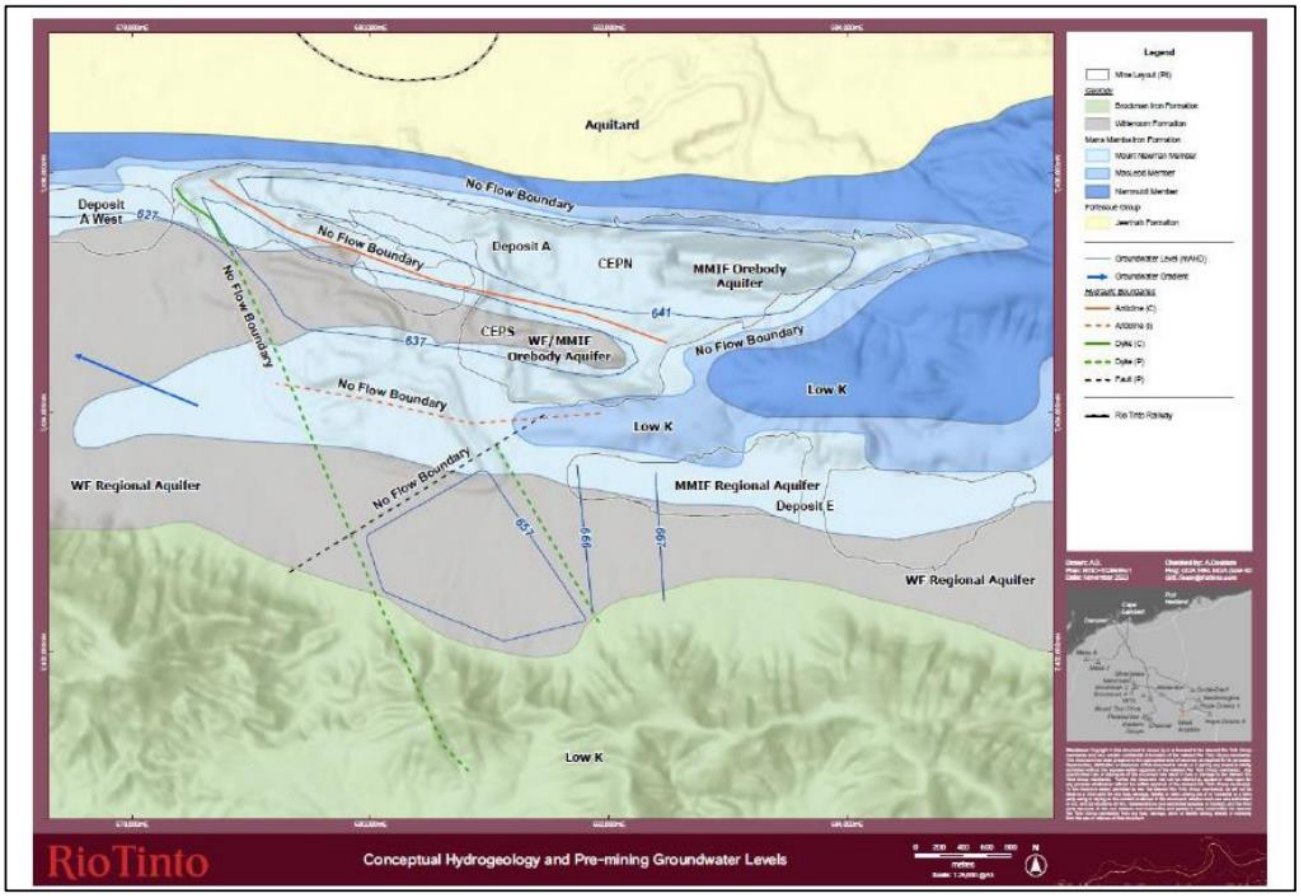

Figure 5: Conceptual hydrogeology and pre-mining groundwater levels

Water quality characterisation

Groundwater within the Marra Mamba Formation in the Greater West Angelas area is generally circum-neutral (field pH between 6.5 pH units and 8.1 pH units) and fresh (median TDS of 584 mg/L). Dissolved metal concentrations are variable and generally low. Nitrate concentrations vary and are generally less than 35 mg/L.

Groundwater quality in CEPS is overall comparable to that of the greater West Angelas area, with pH ranging between 6.7 and 8.3 pH units, Electrical Conductivity ranging between 250 and 1,790 µS/cm, nitrate concentrations ranging up to 59 mg/L and generally low dissolved metal concentrations. The median concentration of dissolved Zinc at CEPS (0.02 mg/L) was detected above the default guideline value of 0.008 mg/L. However, the minimum and maximum concentrations of Zinc at CEPS (Minimum: 0.001 mg/L, Maximum: 1.6 mg/L) suggest there is some inherent geochemical variability within the aquifer. CEPS is characterised by a Calcium-Magnesium-Sulphate water type.

Water quality modelling (produced using GoldSim, 'PitChem', an Egi inhouse Excel-PHREEQC package) indicates that from the start of the water storage operation through to the end of abstraction, water quality is predicted to remain comparable to the discharged groundwater quality from Deposits C and D. Evaporative loss rates are predicted to result in minor increases in the concentration of dissolved constituents.

Modelling results for the base case indicated water quality of the proposed CEPS in-pit water storage, will have the following characteristics:

- pH remains circum-neutral to slightly alkaline.
- TDS remains fresh, with a slight increase over the model duration.

- Concentrations of soluble salts and nutrients remain relatively low.
- Concentrations of metal(loid)s and nutrients (Total Nitrogen and Total Phosphorus) remain negligible to low.

Modelling results also indicated that temporary storage of surplus groundwater from Deposits C and D should not be adversely affected by discharge, storage and exposure to the atmosphere within the CEPS void. Water quality results show stored water is likely to be suitable for operational mine water use for the entire abstraction period.

Refer to section 3 for the department's risk assessment for the CEPS.

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

Under the *Environmental Protection and Biodiversity Conservation Act* (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 Mine.

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.

MS 1113 conditions relevant to this Amendment Report include:

- Condition 5-1 which 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 which relates to ensuring that there is no drawdown of groundwater associated with the proposal at the boundary of, or within Karijini National Park.
- Condition 7 which relates to Rehabilitation and Decommissioning.
- Condition 9 which relates to Greenhouse Gas Reporting.
- Condition 10 which relates to Aboriginal Heritage.
- 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."

Requirements of MS 113 are not re-assessed in this Amendment Report and are not duplicated as conditions in the existing Licence.

Rio Tinto 2024 states advice has been received that "*the amendments proposed to the licence remain consistent with the activities assessed and conditions imposed by MS 1113. Temporary storage of surplus dewatering to pit voids is considered authorised under MS 1113 as long as the storage of water does not have the potential to lead to significant detrimental environmental impacts and the water is being stored temporarily in pits for later use in operations. Discharge to Turee Creek is already undertaken and considered under approved management plans*."

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 3: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction activities associated with the Deposit G discharge point	Air/windborne pathway	• Dust suppression will be implemented (including use of water trucks, control of vehicle movements / restricted speeds). • Daily inspections of construction areas to ensure dust control measures are being implemented and are effective.
Sedimentation	Vehicle/machinery movement	Erosion of creek bed during construction of weir system	• During weir installation this work will be managed to prevent sediment build up. • Rip rap or similar will be installed to strengthen embankment and creek bed.

Emission	Sources	Potential pathways	Proposed controls
Operation			
Mine dewater	Mine dewatering discharge to Deposit G discharge point	Direct discharge and path of flow Erosion/scouring of creek/creek bed	• Discharge point to incorporate a concrete stilling well and a 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. • Visual inspections of discharge points, creekline and stream reaches. • Flows contained within the low flow channel. • Quarterly water quality sampling to be undertaken. • Flow meter installed on the discharge line to monitor discharge volumes.
	Transportation of mine dewater by pipelines	Discharges to land from rupture or leaks of pipelines/transfer lines	<u>Deposit G:</u> • HDPE PN20 pipeline connecting (tee off point) into the existing Deposit G to Turkeys Nest pipeline to the Deposit G discharge point. • Pipeline equipped with an actuating valve to regulate discharge flow. • Regular inspections along the pipeline route. <u>CEPS:</u> • HDPE and steel pipeline connecting into existing WADCD to WADA water pipeline/transfer line. • Pipe fitted with shut-off valves. • Majority of the CEPS discharge pipeline is below the lowest point of the CEPS pit crest. Potential leakage and runoff will be captured by gravity into CEPS. • Regular inspections along the pipeline route.
	Discharge and storage of mine dewater within CEPS	Overtopping of CEPS	• The Licence Holder has allowed for a maximum emergency storage allowance to 614 mAHD, representing an additional 9 m of emergency storage above the proposed maximum operational water level of

Emission	Sources	Potential pathways	Proposed controls
			605 mAHD. • The maximum emergency storage allowance is 66 m below the lowest point of the pit crest and 23 m below the pre-mining groundwater level. It is to be noted that the minimum CEPS pit crest at 680 mAHD represents an internal CEPS overflow/spill elevation with potential discharge to the adjacent CEPN pit void rather than discharging to the environment. • Based on local hydrological data, the available freeboard can accommodate in excess of the maximum precipitation events and inflow surges as defined by the 72-hour probable maximum precipitation (PMP) event scenario (a 1,668 mm rainfall event). • Pit storage water levels monitored against the design forecasts and operating levels. • Flow meter installed on pipe to monitor discharge volumes.
		Seepage from base of CEPS	• Monitoring of water level and quality of the CEPS storage waterbody undertaken.
		Discharges to land from CEPS wall failure	• Limit drawdown to less than a 10 m difference between the pit lake water level and groundwater level. • Water storage to a maximum deposition height of 605 mAHD. • Slope stability monitoring system.

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 4 and Figure 6 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 4: Environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Department of Biodiversity, Conservation and Attractions Legislated Tenure Karijini National Park	Boundary of Karijini National Park is approximately 15 km west of the proposed Deposit G discharge point and 19 km west of the CEPS **Screened out due to distance** **Also managed under MS 1113 – refer to section 2.4**
Priority Ecological Communities (PEC) *West Angelas Cracking-Clays (Priority 1)* *Rio Tinto 2024* states that the new discharge locations do not intersect this PEC and that the PEC is not influenced by groundwater or surface water regimes	Located within the prescribed premises boundary Distance to PEC is approximately 2 km from the Deposit G discharge point and 1.5 km from the CEPS **Screened out due to distance** **Also managed under MS 1113 – refer to section 2.4**
Threatened and/or Priority Flora CEPS is a historic mining area (Deposit A) so no priority flora species are expected to occur within this pre-disturbed area Only one priority 3 species (*Rhagodia* sp. Hamersley (M. Trudgen 17794)) has been observed at the Deposit G discharge location	*Rio Tinto 2024* states there are 23 priority flora species within the prescribed premises boundary
Threatened and/or Priority Fauna *Rio Tinto 2024* states that five conservation significant fauna species have been recorded within the prescribed premises boundary including: • *Dasyurus hallucatus* – Northern Quoll (Endangered) • *Macroderma gigas* – Ghost Bat (Vulnerable) • *Rhinonicteris aurantia* – Orange leaf-nosed Bat (Vulnerable) • *Apus pacificus* – Pacific Swift (Migratory) • *Pseudomys chapmani* – Western Pebble-mound Mouse (Priority 4)	Of the five conservation significant fauna species, only the Western Pebble-mound Mouse has been recorded along the southern border of the CEPS and to the east
Proclaimed Groundwater and Surface Water Areas	The Premises is located within the Proclaimed Pilbara Groundwater and Surface Water Areas
Turee Creek East Turee Creek East is an ephemeral watercourse that flows depending on the occurrence of high intensity rainfall events, typical of Pilbara watercourses. Turee Creek East generally flows westward across	The Licence Holder discharges into two separate stream reaches of Turee Creek East upstream of the confluence adjacent to the airstrip Existing discharge points for Deposit A, C and D share the same stream reach, with

Environmental receptors	Distance from prescribed activity
the Premises, continuing west south-westerly through the Karijini National Park before merging with Turee Creek (Turee Creek merges with the Hardey River, which flows into the Ashburton River) (Rio Tinto 2024)	Deposit B in another Deposit G will enter the same stream reach as Deposit B approximately 5 km downstream
Groundwater *Rio Tinto 2024* states that due to the confined nature of the CEPS aquifer, and specifically the hydraulic barrier separating CEPS from the regional aquifer system in the west, no potential impact to groundwater in Karijini National Park is anticipated by the proposed pit void storage in CEPS. There is unlikely to be any interaction between the Turee Creek Deposit G discharge and groundwater systems as a result of the depth to groundwater	Groundwater level between 50 – 120 m below ground level with a relatively flat gradient from east to west for most of the area
Riparian vegetation	Within the prescribed premises boundary
Aboriginal Cultural Heritage Register	*Rio Tinto 2024* states that there are a number of Registered Aboriginal Cultural Heritage Sites within the prescribed premises boundary The closest site to Deposit G discharge location is an artefact scatter approximately 1 km north Several artefact scatters are located within 1 km of CEPS amongst existing disturbance Licence Holder has indicated that the new discharge locations and associated infrastructure will not intersect any heritage sites

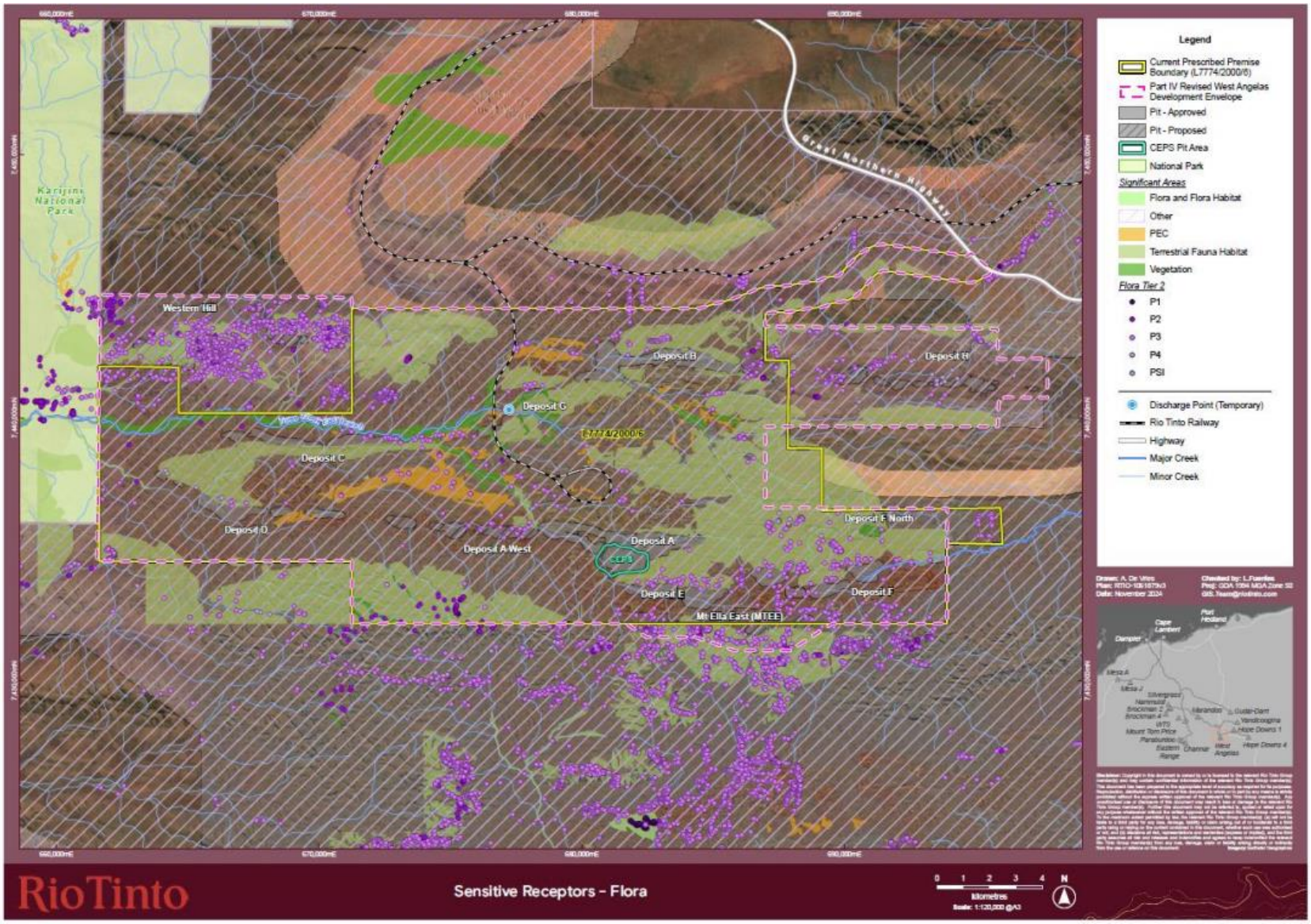

Figure 6: Distance to sensitive receptors

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 5.

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 5. 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 activities associated with the Deposit G discharge point Vehicle/machinery movement	Dust	Air/windborne pathway with potential to impact vegetation and fauna health	Nearby native vegetation Nearby native fauna	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	No conditions imposed The general provisions of the EP Act apply with respect to the causing of pollution and environmental harm	N/A
	Sedimentation	Erosion of creek bed during construction of the weir system causing build-up of sediments within Turee Creek Increased turbidity and suspended solids leading to impacts to surface water quality	Turee Creek Surface water quality	Refer to Section 3.1	C = Slight L = Possible **Low Risk**	Y		N/A
Operation								
Mine dewatering discharge from the Deposit G discharge point	Discharge of mine dewater	Direct discharge to Turee Creek impacting the hydrological regime Direct discharge and path of flow causing a decline of vegetation and disruption of normal ecosystem function Altered vegetation	Turee Creek Surface water quality Riparian vegetation Terrestrial ecosystems	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	During this amendment, the following conditions have been updated/included for Deposit G: • New Condition 6: Construction requirements for the discharge point • Condition 8 (previously Condition 6): Authorised discharge point • Condition 9 (previously	Inclusion of Conditions 7 and 16 to ensure an audit is undertaken of the construction works prior to 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				
		composition causing indirect impacts from increased competition or habitat alteration					Condition 7): Emission and discharge limits • Condition 12 (previously Condition 10): Emissions and discharge monitoring • **New Conditions 7 and 16**: Requirements to undertake an audit; and submit compliance documentation following construction of works authorised under Condition 6 • Condition 18 (previously condition 14): Environmental reporting requirements MS 1113 conditions require (refer also to section 2.4): • 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 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 bed / scouring, sedimentation, altered flow and decline and change of vegetation	Turee Creek Surface water quality Riparian vegetation Terrestrial ecosystems	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y		

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**				
Transportation of mine dewater by pipeline/s	Spills of mine dewater from rupture or leaks of pipelines/transfer lines	Direct discharge and path of flow causing reduced viability of vegetation from inundation Erosion / washout to land and impacts to nearby creek lines / surface water depending on the size of the spill	Nearby native vegetation Soils Surface water Nearby creek lines Nearby fauna habitat	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	During this amendment new conditions have been included: • Condition 6: Construction requirements for the Deposit G and CEPS pipelines • **New Conditions 7 and 16**: Requirements to undertake an audit; and submit compliance documentation following construction of works authorised under Condition 6	Inclusion of Conditions 7 and 16 to ensure an audit is undertaken of the construction works prior to operation
Discharge and storage of mine dewater within CEPS	Mine dewater	Overtopping of CEPS which may lead to erosion / washout to land impacting vegetation health and fauna habitat	Nearby native vegetation Soils Nearby fauna habitat	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	During this amendment, the following conditions have been updated/included for the CEPS: • Condition 8 (previously Condition 6): Authorised discharge point • Condition 9 (previously Condition 7): Emission and discharge limits • Condition 12 (previously Condition 10): Emissions and discharge monitoring • Condition 18 (previously condition 14): Environmental reporting requirements	N/A
		Seepage from the base of CEPS impacting groundwater quality in local aquifer	Groundwater	Refer to Section 3.1	C = Slight L = Possible **Low Risk**	Y		
		Discharges to land from CEPS pit wall failure	Nearby native vegetation	Refer to Section 3.1	C = Moderate L = Rare	Y		

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**				
		impacting on vegetation health, soil contamination and fauna habitats	Soils Nearby fauna habitat		**Medium Risk**			

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

Table 6: Consultation

Consultation method	Comments received	Department response
Department of Jobs, Tourism, Science and Innovation (JTSI) advised of proposal 31 January 2025	JTSI responded on 21 February 2025 stating the following: • JTSI has reviewed the application and the works to be conducted are in accordance with a State Agreement proposal approved by the Minister for State Development • JTSI has no objections to the amendment to L7774/2000/6	Noted
Licence Holder was provided with draft amendment on 28 February 2025	The Licence Holder provided comments on the 04 April 2025 Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

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

5.1 Summary of amendments

Table 7 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 7: Summary of licence amendments

Condition no.	Proposed amendments
All	Condition and table numbering updated throughout as applicable
New Condition 6	Inclusion of Condition 6 for construction requirements for the Deposit G discharge point, including pipeline; and CEPS pipe
New Condition 7	Inclusion of Condition 7 to allow the Licence Holder to operate the works constructed under Condition 6 following submission of a compliance document
Condition 8 (previously Condition 6)	Inclusion of Deposit G and CEPS as authorised discharge points Administrative updates
Condition 9 (previously Condition 7)	Inclusion of Deposit G and CEPS for emission and discharge limits

Condition no.	Proposed amendments
Condition 12 (previously Condition 10)	Inclusion of Deposit G discharge location in the monitoring required for dewatering discharge Inclusion of CEPS monitoring locations and associated monitoring requirements (as per Table 5.3 of Rio Tinto 2024) for dewatering discharge Administrative updates
New Condition 14	Condition 14 included which specifies the number of days / months that should be between each when samples are taken
New Condition 16	Inclusion of Condition 16 to ensure an audit is undertaken and an audit report submitted following the construction of works authorised under Condition 6
Condition 17 (previously Condition 13)	Updated in line with standard conditions
Condition 18 (previously Condition 14)	Updated in line with standard conditions Results for Deposit G and CEPS monitoring to be included in the Environmental Report Administrative updates
Definitions	Updated as required
Figures	Previous Figure 1 deleted and replaced with a new Figure 1 New Figure 6 included Previous Figure 6 deleted and replaced with a new Figure 7 Inclusion of new Figure 8
Schedule 2	Inclusion of Deposit G and CEPS under 'Dewatering discharge points' Administrative updates

References

1. *Australian & New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG) 2018, available at https://www.waterquality.gov.au/anz-guidelines.
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. Rio Tinto 2024, *West Angelas Licence Amendment Application – L7774/2000/6*, dated 17 December 2024.
6. Rio Tinto 2025, *RE: [EXTERNAL] FW: APP-0026883 – NOTICE OF PROPOSED AMENDMENT TO LICENCE L7774/2000/6*, dated 03 April 2025.

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

Condition	Summary of Licence Holder's comment	Department's response
6, Table 3	The Licence Holder has stated the following: Deposit G Pipeline and Discharge Point Due to a minor engineering design change and to gain water transfer efficiencies, the DepG discharge pipeline will now tee-off from the existing *DepG to Turkeys' Nest pipeline*, rather than a separate pipeline running from the Turkeys Nest to the creek discharge point. An automatic control system will be installed at the tee-off point enabling for efficient water control and water diversion, switching abstracted dewater between either the Turkeys Nest or the discharge point. Water will discharge into a small adjacent man-made drainage line before discharging into Turee Creek East hydrological regime. The discharge point remains unchanged, comprising concrete stilling well and weir system, with rip-rap protection. Refer new Figure titled, New Deposit G Discharge Pipework and Discharge Point. CEPS Pipework The pipework arrangement regarding CEPS was not clear in the Licence Amendment Application and Figure 5-8 incorrectly inferred the CEPS discharge pipework. Existing water pipelines referred to as *WADCD* to *WADA transfer pipeline*, connect the *Contractors Turkey's Nest and the Yards Turkey Nest* for existing site water management purposes. This *WADCD to WADA transfer pipeline* will be modified to include a (tee off point) connection to enable the discharge of surplus water, to CEPS for in-pit storage. The pipeline will predominantly be	The department has updated the Amendment Report to align with the changes made by the Licence Holder. The Licence conditions have been updated as requested. New Figures provided have been incorporated into the Amendment Report and Licence.

<table>
<tr><th>Condition</th><th>Summary of Licence Holder’s comment</th><th>Department’s response</th></tr>
<tr><td></td><td>
constructed from HDPE, with a section of steel piping at the valve station and flow meters to support automated control and flow measurement. Please note, this differs from the material stated in the Licence Amendment Application (Section 5.2.9.1), which incorrectly references PVC which is less durable.

Refer to updated Figures titled, CEPS Layout and Monitoring Bores and West Angelas Infrastructure Overview.

The Licence Holder requested the following proposed wording:
<table>
<tr><th>Infrastructure</th><th>Design and construction requirement/installation requirement</th><th>Infrastructure location</th></tr>
<tr><td>Deposit G</td><td><u>Pipeline:</u>
• Pipeline connecting into the existing DepG to Turkeys Nest pipeline to Deposit G discharge point
• Pipeline equipped with an actuating valve to regulate discharge flow
• Pipeline fitted with a flow meter
<u>Discharge point:</u>
• Concrete stilling well and a 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</td><td>At the locations shown in Schedule 1, Figures 1 and 6

Refer new Figure titled, New Deposit G Discharge Pipework and Discharge Point</td></tr>
<tr><td>CEPS pipework</td><td>New HDPE and steel pipeline connecting into the existing Contractors Turkeys Nest to Yards Turkeys Nest pipeline (referred to as WADCD to WADA transfer pipeline)
• Fitted with a flow meter
• Fitted with shut-off valves</td><td>At the location shown in Schedule 1, Figure 7 and West Angelas Site Infrastructure.

Refer to updated Figures titled, CEPS Layout and Monitoring Bores and West Angelas Infrastructure Overview.</td></tr>
</table>
</td><td></td></tr>
</table>

Condition	Summary of Licence Holder's comment	Department's response
12, Table 8	The Licence Holder has proposed the removal of 'volume, kL, Monthly, Continuous, Flow metering device' monitoring in association with the CEPS monitoring bores, as there will be no water removed via these bores outside of the bore development process. Further, the Licence Holder would also like to propose the removal of parameter 'Oxidation Reduction Potential' in association with the CEPS monitoring bores. As per Table 5.3 Proposed Monitoring Schedule in our Application, it was intended that an ORP sample be associated with any CEPS pit void surface water sampling only. No CEPS pit void surface water sampling has been stipulated by DWER in the proposed Licence conditions.	The department has removed these parameters as requested.
16	To meet this Condition, the Licence Holder proposes the following documents be submitted: 1. Environmental Compliance Report.	The department has updated the wording to stipulate an Environmental Compliance Report rather than an audit report.
Decision Report	The Licence Holder provided responses to the department's request for further information within the draft package.	Documents updated accordingly to incorporate the Licence Holder's responses.