



## Application for Licence Amendment

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

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<b>Licence Number</b>	L8234/2008/2
<b>Licence Holder</b>	Robe River Mining Co. Pty Ltd
<b>ACN</b>	008 694 246
<b>File Number</b>	DER2014/000868-1
<b>Premises</b>	Mesa A Warramboe Iron Ore Mine  ML248SA, G08/82, G08/85, G08/90, L08/166, L08/177 and L08/178  FORTESCUE WA 6716  As defined by the coordinates in Schedule 2
<b>Date of Report</b>	4 July 2023
<b>Decision</b>	Revised licence granted

**Alana Kidd**  
**Manager, Resource Industries**

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

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## 1. Decision summary

Licence L8234/2008/2 is held by Robe River Mining Co. Pty Ltd (Licence Holder) for the Mesa A Warramboe Iron Ore Mine (the Premises), located on mining leases ML248SA, G08/82, G08/85, G08/90, L08/166, L08/177 and L08/178, Fortescue, Western Australia.

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 L8234/2088/2 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>.

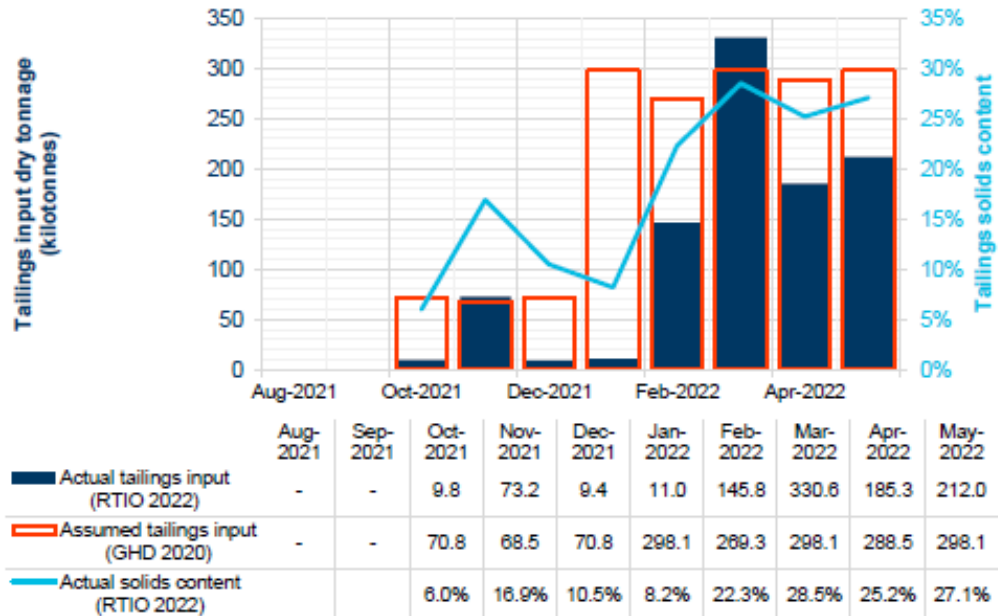
### 2.2 Application summary

On 21 September 2022, the Licence Holder submitted an application to the department to amend Licence L8234/2008/2 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The amendment being sought is to include the operation of the Warramboe Waste Fines Storage Facility (WFSF) constructed under Works Approval W6284/2019/1 (refer to Section 2.2.1).

During the second draft review, the Applicant requested a name change for the Warramboe WFSF Pit 1/2 and Pit 3 to Tailings Storage Facility (TSF)1 and TSF2. The Applicant considered the pit names did not accurately represent the current use, deposition of tailings. The department had no objection to this name change as there was no change to the risk assessment. It should be noted this name change is only reflected in the amended Licence and not the Amendment Report. The request for the name change is detailed in Appendix 2.

#### 2.2.1 WFSF - Operational aspects

Processing below water table ore has created iron ore waste fines (tailings) that are being deposited into the Warramboe WFSF in previously mined Pit 1/2 and Pit 3 of the Warramboe deposit. Warramboe WFSF will store approximately 22 million cubic metres (Mm<sup>3</sup>) of waste fines, 15.5 Mm<sup>3</sup> in Pit 1/2 and 6.5 Mm<sup>3</sup> in Pit 3. The waste fines will be deposited to WFSF Pit 1/2 and Pit 3 at a solids content of approximately 40%. The current tailings input dry tonnage and solids content into Pit 1/2 is recorded monthly and presented in Figure 1.



**Figure 1: Monthly tailings input and solids content in Pit 1/2.**

Tailings deposition from the three installed spigots, Discharge Point (DP) 1, DP3, and DP4 will occur in the south-eastern and eastern end of Pit 1/2. Deposition from these DPs is expected to provide approximately 4.5 years of storage, which may allow deferral of construction of additional DPs.

During tailings deposition, supernatant water will be decanted from Pit 1/2 via pontoon mounted pumps located at the north-western extent of Pit 1/2 and a transfer pipeline. Decant water will be transferred to Pit 3 where it will be water quality tested to ensure that it meets the Applicant’s set limits for chloride content in saleable iron ore. If it meets these limits, it can be reused in the Processing Plant.

Chloride levels within the processing circuit are monitored by chloride meters installed at the decant pumps within Pit 1/2, Warramboe Turkey’s nest outlet, and within the thickener. The Applicant has stated the following:

*“Seepage from the in-pit storage of waste fines at Warramboe is expected to increase the chloride concentration in groundwater. Modelling indicates changes to groundwater chloride concentrations due to seepage from the WFSF will be contained within the cone of depression resulting from groundwater abstraction immediately below the pit and increasing chloride concentrations (due to the presence of the WFSF) are not expected to reach water supply bores located approximately 400 m from the pit boundary.*

*However, given the naturally elevated chloride concentrations to the north-west of Warramboe, groundwater quality is expected to be relatively insensitive to any chloride emanating from the in-pit storage of waste fines. Chloride levels naturally range from 48 mg/L to 3,170 mg/L. Chloride concentrations also vary spatially, increasing from south to north with the highest concentrations to the north-west of the Warramboe pits.”*

Once Pit 1/2 has reached capacity (approximately end of 2026), the waste fines will be deposited into Pit 3, with multiple DPs around the perimeter to maximise capacity. Pit 3 supernatant will be decanted using pumps installed at the northern extent of the Pit 3. The Applicant has stated that *“chloride levels in process water expected to increase over time as a result of the reuse of water in the processing system and may exceed a level that is able to be reused in processing without impacting the limit on chloride concentrations in saleable iron ore.”*

The ambient median groundwater chloride concentration in the TSF is 480 mg/L; however, it’s

expected to increase over time based on modelling suggesting concentration of 1,300 mg/L to 2,900 mg/L. This elevation is still within the natural range of chloride concentration recorded.

If chloride concentrations are an issue for the produce quality, the Applicant will investigate a Reverse Osmosis Plant to be implemented to treat the decant water to the required specification so that it can be reused within the Processing Plant.

The Applicant has stated that *“there are several management strategies available to continue to preferentially reuse decant water in processing (reducing seepage). Ore could be managed (for example, blended with other Robe Valley ore that is lower in chloride content) such that the chloride concentrations in the process water do not impact the chloride content in the iron ore product. There could also be an opportunity to manage water supply. The License holder will investigate alternate water supply sources that are lower in chloride concentrations (for example, an alternate water supply borefield or transfer of water from Mesa J) to dilute the chloride concentrations in the processing system.”*

## 2.2.2 Revised water balance

A revised water balance was undertaken by GHD (2022a), that required calibration of the water balance model and in addition provided WFSF storage forecasts.

The following input characteristic parameters were used for the model calibration, with some inputs unchanged from the detailed design report (GHD 2022b):

- Pit storage relationship and spillway level;
- Catchment area and runoff coefficient;
- Climate data: pan evaporation factor of 0.60 (advised by the Department in August 2021);
- Average tailings settle dry density of 1.2 tonne/m<sup>3</sup>;
- Tailings beach slope of 1%;
- Deposition arrangement consisting of 13 spigots around the pit perimeter edge;
- Solids density of 3.7 tonne/m<sup>3</sup>;
- Slurry solids content of 42% w/w;
- Settled moisture content of 15% w/w;
- Initial water level of RL 44.79 (observed on 12 August 2021);
- Input variables the have monthly measurements assume a constant flow rate between successive months; and
- Pit 3 remained dry during the entire calibration period.

The tailings input dry tonnage and solids content into Pit 1/2 is presented in Figure 1. The associated water content from tailings was assumed to directly add to the water balance, with the cumulative tonnage of tailings deposition adjusted daily for Pit 1/2 storage availability.

It was predicted that the initial 1.55 Mt of tailings deposition will settle in the southern portion of Pit 1/2, then flow towards the pit's northern portion at a cumulative tonnage of 1.55 to 2.87 Mt approximately 0.83 to 1.25 years after the first deposition (GHD 2022b).

It's expected that during the calibration period mainly water will be deposited and minimal to no tailings deposition.

The revised water balance model has indicated the key findings listed below:

- A seepage outflow rate of 180 mm/day over a 10-month period (August 2021 to May 2022);

- Volumetric outflows produced as high as 20 ML/day, compared to the maximum of 8 ML/day in the detailed design report (GHD 2022b);
- Discrepancy in water levels may be due to potential deviations in the operations of tailings deposition from the strategy advised in the detailed design report;
- Seepage outflows from Pit 1/2 may indicate the supernatant pond is receiving more inflows than expected; and
- Seepage rate of 180 mm/day may not be relevant to pit wall areas covered by the tailings beach and further calibration of the seepage rates at more advanced tailings deposition stages is advised.

A further revision and calibration of the water balance model and WFSF storage forecast was undertaken by GHD (GHD 2023).

The same input characteristic parameters were used for the model calibration and seen as an extension of the previous water balance work. and the following conclusion were made:

- Seepage outflow rate was estimated as low as 34 mm/day in mid-August up to an extrapolated peak of 184 mm/day in mid-February;
- Estimated rates are preliminary as calibration was only for a five-month period (April to August 2022) that is too short for a full cover and analysis of seasonal fluctuations; and
- Impacts of tailings settlement on seepage rates could not be confirmed as tailings deposition is low and the settled tailings beach is yet to cover the pit base.

In addition, WFSF storage forecast for Pit 1/2 is mainly determined by the tailings deposition strategy and tailings characteristics (e.g., settled tailings dry density, slurry water content). The supernatant pond volume currently observed is larger than anticipated due to the following factors:

- Low solid content in the tailings slurry inflow;
- Large amount of dewatering inflow volumes up to August 2022, where the assumption was no further inflow from May 2022 onwards in the detailed design report (GHD 2022b); and
- Minimal use of decant to manage pit water levels.

GHD (2023) has indicated that decant operations is a main factor in the management of Pit 1/2 water levels. Where the design capacity exceeds the rate of tailings water input.

### 2.2.3 Groundwater and monitoring

The groundwater resource at the Premises consists of two primary aquifer units; the Channel Iron Deposit aquifer (formed by pisolite infill of the Robe River paleochannel) which overlies the Yarraloola Conglomerate aquifer. These aquifers are overlain by Quaternary alluvium and colluvium and underlain by the basement Ashburton Formation.

Groundwater flow is inferred from east to west with a gradient of 0.01. Recharge to the aquifers is primarily from rainfall and indirectly from stream flow during periods of high flow (GHD 2022b). The Robe River intersects the eastern boundary of the Premises, whilst the Warrambo Creek intersects the western portion of the Premises. The groundwater depth within the Premises is between 15-20 metres below ground level (mbgl).

Baseline groundwater quality data was obtained from six monitoring bores located closed to the proposed Mesa A WFSF area between 2013 and 2019. The Department noted that monitoring bore, MB13WARR013 was located within the waste dump footprint and that MB13WARR016 was considered too deep below the water table and unlikely to detect anything meaningful.

As part of the works approval assessment for W6284/2019/1, the Department conditioned for the installation of additional groundwater monitoring bores in the vicinity of the WFSF. Baseline groundwater quality data from five new monitoring bores was submitted with the Bore Construction Report in 2021, as part of the works approval W6284/2019/1 conditional requirements.

Baseline groundwater quality data for the monitoring bores is presented in Table 1.

The Department also requested the most recent monitoring results during time limited operations for more background information as part of this assessment.

The Department's Principal Hydrogeologist reviewed the groundwater quality monitoring data sampled during time limited operations for Works Approval W6284/2019/1 identifying several concentration exceedances of monitored parameters, in particular manganese, cobalt, nickel, and nitrate. This was most observant in the monitoring bore MB21WAR0003 that is located at the southern extent of Pit 1/2 WFSF as displayed in Schedule 1: Maps, Figure 9 under Licence L8234/2008/2 and the monitoring results are presented in Table 2.

During the monitoring period, manganese groundwater results indicated a substantial decline in 2022, however the more recent measurement in monitoring bore MB21WAR0003 indicates a level that could cause environmental harm if this groundwater were to discharge to nearby drainage lines. The likely source of the manganese is seepage from the WFSF, where investigations in the Pilbara region have shown deposition of iron-ore tailings into mine voids may release this metal into solution (Watson et al. 2016).

In addition, both cobalt and nickel can be released from iron oxide particles under anaerobic conditions by the process that releases manganese in solution. The concentrations for both remained at a level of approximately 1 mg/L during 2022 monitoring, however there is concern with ongoing levels for these metals. Greater concentration can cause environmental harm on discharge to Warrambo Creek. The Department's Principal Hydrogeologist advised on compliance limits for cobalt and nickel at 0.05 mg/L and 0.2 mg/L, respectively. These limit values are based on the ANZECC (2000) water quality guidelines for irrigation areas, in particular the default guideline value (DGV) or the long-term irrigation of vegetation. These values are most applicable, where phreatophytic vegetation is the nearest sensitive receptor from groundwater contamination in the vicinity of the WFSFs.

The Department also reviewed the suitability of the guidance value of 15 mg/L for nitrate, which was set based on a methodology developed by Van Dam et al. (2021) for high-hardness conditions in natural Pilbara waters. However, the suitability may not be applicable to the most sensitive environmental receptor, phreatophytic vegetation, where the DGV 25 mg/L of the ANZECC (2000) water quality guidelines for irrigation areas would be more suitable.

The Department's Principal Hydrogeologist noted that nitrate concentrations from the monitoring results were more than 10 mg/L, with exception to a low nitrate concentration (below the detection limit) measured in monitoring bore MB21WAR0003. It was also observed that the monitoring results for nitrate-ions and other nitrogen species indicated some discrepancies. For instance, Total Nitrogen concentrations for most of the monitoring bores were much lower than the nitrate concentrations. MB21WAR0003 showed the only exception, where Total Nitrogen concentration was greater than the nitrate level, the sum of the nitrate and ammonium concentrations was significantly lower than the Total Nitrogen level. This may indicate that there are missing nitrogen species that were not chemically analysed in groundwater samples.

The Department recommends submitting groundwater samples to two or more independent laboratories for the chemical analysis of a full suite of nitrogen species to confirm the reliability of the analytical results produced.

Based on the monitoring results sampled during time limited operations, the following recommendations have been made by the Department:



- a ground-based geophysical investigation using electrical or electromagnetic methods to determine the spatial extent and depth of elevated groundwater salinity anomaly that is associated with elevated concentrations of manganese, cobalt, and nickel. Investigation undertaken on transects near the southern toe of Pit 1/2 WFSF where elevated concentrations were measured in monitoring bore MB21WAR0003;
- a drilling investigation to install additional monitoring bores on sites that have been identified from the ground-based geophysical data; and
- investigation of the nitrate concentrations in groundwater to determine whether the concentrations in the area exceed 10 mg/L due to natural origin or as a result of groundwater contamination from the widespread use of explosives for the mining in the area.

**Table 1: Baseline groundwater quality data at Mesa A from 14 monitoring bores.**

Monitoring Bore Name		MB13WARR003	MB13WARR012	MB13WARR013	MB13WARR016	MB17WARR0008	MB19WARR0001	WB07WARR001 <sup>2</sup>	MB21WAR0001	MB21WAR0003	MB21WAR0005	MB21WAR0006	MB21WAR0007	MB21WAR0008	MB21WAR0009
Monitoring Date		Sep-13	Sep-13	Dec-15	Oct-17	Sep-17	Jul-21	Dec-11	Oct-21	Oct-21	Oct-21	Oct-21	Oct-21	Oct-21	Oct-21
Parameters <sup>1</sup>	Unit														
<b>Surface Water Level</b>															
Depth to water	m	18.06	14.53	19.18	14.62	15.75 <sup>3</sup>	26.92	20.07 <sup>3</sup>	32.54	26.26	26.27	20.11	22.14	21.21	26.01
Water level (combined)	mAHD	36.47	36.05	36.07	61.691	36.387 <sup>3</sup>	34.69	54.54 <sup>3</sup>	44.966	40.28	40.26	34.207	32.191	31.87	27.065
pH	pH units	6.79	7.22	7.05	6.45	7.32	6.99	8	8.58	9.89	7.5	8.05	7.11	8.53	7.55
Electrical Conductivity	uS/cm	1932	3000	930	1342	1464	4667	1700	5221	5023	2149	1368	1121	768	1602
Dissolved Oxygen		0.17	0.03	5.55	-	7.5	-	-	2.2	0.4	2.9	4.9	6.5	6.6	7.5
Total Hardness (as CaCO3)	mg/L	300	510	247	390	299	913	440	307	303	428	211	343	162	332
Total Dissolved Solids		1100	2000	554	-	866	-	1200	4440	5300	1190	890	629	550	832
<b>Major Ions</b>															
Calcium		68	64	69	87	67	158	72	62	118	74	55	78	32	62
Chloride		400	710	106	264	316	1080	540	912	710	433	248	180	69	296
Fluoride		-	-	0.7	-	0.6	0.4	-	2	2.3	0.5	0.5	0.5	0.4	0.6
Potassium	mg/L	9.9	16	9	7	11	10	12	8	17	10	12	12	14	11
Magnesium		56	62	28	41	54	126	63	37	2	59	18	36	20	43
Sodium		230	430	68	164	164	619	300	1110	1290	292	226	103	105	210
Sulphate		74	160	19	32	75	297	110	238	180	112	68	30	28	67
<b>Nutrients</b>															
Total Phosphorus		-	-	0.07	<0.02	0.04	0.11	-	0.34	1.78	0.03	0.19	0.01	0.05	0.02
Total Nitrogen		-	-	-	-	-	1.2	-	42.9	82.6	2.8	3.4	3.6	4.3	2.5
Nitrite Nitrogen	mg/L	<0.05	<0.05	<0.01	0.12	<0.01	0.01	-	0.01	0.01	0.03	0.13	0.01	0.12	0.02
Nitrate Nitrogen		0.69	<0.05	6.12	5.28	0.52	0.02	8.8	0.01	0.05	0.01	0.11	2.59	1.41	0.76
Ammonium Nitrogen (NH4-N)		-	-	-	-	-	0.19	-	0.07	0.01	0.01	0.03	0.01	0.01	0.02
<b>Metals/Metalloids</b>															
Aluminium		<0.005	0.031	0.01	<0.005	<0.01	0.02	<0.02	0.01	0.06	0.16	3.6	0.05	0.04	0.06
Antimony		<0.001	0.002	<0.001	-	<0.001	0.001	-	0.009	0.036	0.001	0.003	0.001	0.001	0.001
Arsenic		<0.001	0.003	0.002	0.0004	<0.001	0.001	<0.001	0.003	0.142	0.012	0.005	0.002	0.007	0.001
Barium		0.018	0.26	0.072	0.316	0.012	0.179	-	0.091	0.082	0.037	0.08	0.061	0.049	0.048
Boron		0.6	0.75	0.54	0.916	0.54	0.84	-	1.25	0.7	0.6	0.62	0.58	0.25	0.59
Cadmium		<0.0001	0.0005	<0.0001	<0.0005	<0.0001	0.0001	-	0.0006	0.0001	0.0001	0.0001	0.0002	0.0003	0.0006
Chromium		<0.001	<0.001	0.001	0.002	<0.001	0.001	-	0.002	0.001	0.001	0.005	0.001	0.001	0.001
Cobalt		0.002	1.6	<0.001	0.0017	0.004	0.069	-	0.171	0.277	0.013	0.018	0.009	0.022	0.019
Copper		0.002	0.065	<0.001	-	0.002	0.001	<0.005	0.011	0.001	0.001	0.023	0.058	0.024	0.07
Iron		0.055	19	<0.05	0.187	0.06	0.37	<0.02	5.78	7.39	2.61	1.55	0.05	0.05	0.08
Lead		<0.001	0.089	<0.001	<0.0001	<0.001	0.001	<0.001	0.072	0.001	0.007	0.009	0.01	0.009	0.081
Mercury		<0.0005	<0.0005	<0.0001	<0.00004	<0.0001	0.0001	-	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Manganese		0.11	7.5	0.007	1.81	0.055	2.28	<0.005	1.24	9.12	1.07	0.621	0.02	0.198	0.032
Molybdenum		<0.001	0.013	<0.001	0.0005	<0.001	0.001	-	0.028	0.112	0.004	0.009	0.001	0.004	0.002
Nickel		0.002	0.22	0.002	0.0017	0.001	0.091	<0.005	0.055	0.282	0.01	0.022	0.012	0.009	0.011
Selenium		<0.002	0.005	<0.01	0.0007	<0.01	0.01	-	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silicon		6.4	11	32.4	7.7	7.34	9.01	22	9.23	17.7	7.41	19.7	22.9	28.1	9.82
Silver		<0.001	<0.001	<0.001	-	<0.001	0.001	-	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Tin		<0.001	0.001	<0.001	-	<0.001	0.001	-	0.002	0.001	0.001	0.001	0.001	0.001	0.001
Uranium		-	-	-	0.00207	-	0.002	-	0.022	0.021	0.001	0.001	0.001	0.003	0.006
Zinc		0.028	0.23	<0.005	0.018	0.023	0.031	<0.01	1.2	0.872	0.116	0.064	0.093	0.126	0.191
<b>Organic</b>															
Acrylamide	mg/L	-	-	-	-	-	0.0002	-	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

Note 1: Results were extracted from Envirosys. Records of below the limit of reporting will not show '<' instead they just display the limit of recording value so for Silver and Uranium every single record flags as above the 95% species protection DGVs.

Note 2: WB07WARR001 is an approved Proxy Bore for when MB21WAR0001 is dry during a sampling event.

Note 3: Measurements for depth to water and water level for monitoring bore MB17WARR008 were taken on 4/12/2017 and for monitoring bore WB07WARR001 on 11/12/2008.

**Table 2: Monitoring results of monitoring bore, MB21WARR003**

Parameters	Unit	ANZG (2018) 95% Species Protection Guideline Values	May-22	Jun-22	Jul-22	Aug-22	Sept-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23
Depth to Water	m	N/A	26.34	26.21	25.75	-	25.06	24.59	24.44	24.38	24.26	24.1
Water Level	mAHD	N/A	40.2	40.33	40.79	-	41.48	41.95	42.1	42.16	42.28	42.44
Electrical Conductivity	uS/cm	N/A	4613	4674	4550	-	4540	4646	4867	4904	4839	4915
pH	pH units	N/A	9.48	9.17	9.19	-	8.54	8.28	8.24	8.19	8.22	8.21
Dissolved Oxygen	mg/L	N/A	0.2	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.4	0.2
Total Hardness (as CaCO3)	mg/L	N/A	124	121	108	105	104	94	104	119	109	115
Total Dissolved Solids	mg/L	N/A	5310	5090	4780	4910	4670	4950	4840	4800	4530	4890
<b>Major Ions</b>												
Calcium	mg/L	N/A	48	45	40	37	35	26	25	28	24	28
Chloride	mg/L	N/A	644	703	639	630	636	724	607	614	632	612
Fluoride	mg/L	N/A	3.1	3.1	2.9	2.4	2.5	1.8	1.6	1.4	1.4	1.4
Potassium	mg/L	N/A	10	12	11	12	12	12	12	12	12	13
Magnesium	mg/L	N/A	1	2	2	3	4	7	10	12	12	11
Sodium	mg/L	N/A	1170	1120	1180	1180	1270	1230	1140	1150	1180	1180
Sulphate	mg/L	N/A	2	2	3	3	4	8	57	4	6	6
<b>Nutrients</b>												
Total Phosphorus	mg/L	N/A	4.4	1.12	0.98	0.95	0.83	0.47	0.3	0.3	0.22	0.64
Total Nitrogen	mg/L	N/A	81.1	80.2	84	80.8	86.9	70.8	65.6	89.8	65.2	68.9
Nitrite Nitrogen	mg/L	N/A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate Nitrogen	mg/L	N/A	0.18	0.26	<0.01	0.13	0.13	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonium Nitrogen (NH4-N)	mg/L	N/A	0.23	0.13	0.33	0.25	0.32	0.53	0.39	0.61	0.35	0.98
<b>Metals/ Metalloids</b>												
Aluminium	mg/L	0.055	0.07 <sup>1</sup>	0.4	0.19	0.19	0.14	0.08	0.06	0.04	0.05	0.12
Antimony	mg/L	0.009	0.006	0.005	0.004	0.003	0.005	0.003	0.007	0.004	0.006	0.007
Arsenic	mg/L	0.013	0.038	0.026	0.018	0.018	0.02	0.016	0.016	0.022	0.02	0.017

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Parameters	Unit	ANZG (2018) 95% Species Protection Guideline Values	May-22	Jun-22	Jul-22	Aug-22	Sept-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23
Barium	mg/L	N/A	0.175	0.15	0.191	0.213	0.232	0.253	0.214	0.244	0.245	0.214
Boron	mg/L	0.94	0.57	0.47	0.52	0.46	0.57	0.58	0.53	0.48	0.49	0.5
Cadmium	mg/L	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Chromium	mg/L	0.001	0.001	0.001	0.002	0.003	0.002	0.004	0.004	0.005	0.005	0.006
Cobalt	mg/L	0.001	1.16	1.08	1.25	1.31	1.27	1.42	1.42	1.44	1.38	1.31
Copper	mg/L	0.0014	0.001	0.002	0.001	0.001	0.002	0.005	0.002	0.001	0.001	0.001
Iron	mg/L	N/A	50.6	54.3	63.6	66.5	72.7	87.1	94.6	92.9	89.4	88.4
Lead	mg/L	0.0034	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001
Mercury	mg/L	0.0006	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Manganese	mg/L	1.9	67.3	52.5	61.5	60.5	61.5	49.4	39.8	36.9	32.2	36.2
Molybdenum	mg/L	0.034	0.117	0.136	0.115	0.109	0.101	0.064	0.037	0.04	0.029	0.023
Nickel	mg/L	0.011	0.657	0.686	0.752	0.774	0.795	0.88	0.918	0.939	0.972	0.914
Selenium	mg/L	0.011	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silicon	mg/L	N/A	4.22	11.4	7.67	6.69	6.85	8.07	10.3	10.2	10	10.5
Silver	mg/L	0.00005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Tin	mg/L	N/A	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Uranium	mg/L	0.0005	0.007	0.008	0.009	0.008	0.008	0.006	0.006	0.005	0.005	0.004
Zinc	mg/L	0.008	0.072	0.056	0.038	0.042	0.077	0.033	0.036	0.054	0.049	0.021
<b>Organic</b>												
Acrylamide	mg/L		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Note 1: Highlighted values in red text indicates exceedances in comparison to ANZG (2018) 95% Species Protection Guideline Values for livestock drinking water.

## 2.2.4 Tailings characteristics

Samples of tailings fines and tailings supernatant pond from WFSF Pit 1/2 was undertaken on 13 June 2022 during time limited operations that is ongoing during this licence amendment assessment. The results are provided in Table 3 below.

**Table 3: Tailings characterisations**

Parameter	Units	Tailings Fines	Tailings supernatant
pH	pH Unit	8.2	8.02
EC	µS/cm	172	708
Total Soluble Salts		585	1090
Acrylamide		Not analysed <sup>1</sup>	<0.2
Aluminium		5020	<0.01
Arsenic		<5	<0.001
Barium		60	0.07
Boron		<50	0.48
Cadmium		<1	<0.0001
Calcium		990	54
Carbonate		<5	<1
Chloride		130	222
Total Chromium		22	<0.001
Copper		<5	<0.001
Fluoride		60	0.9
Iron	mg/kg	168000	<0.05
Lead		5	<0.001
Magnesium		370	24
Manganese		626	<0.001
Mercury		<0.1	<0.0001
Molybdenum		<2	<0.001
Nickel		11	<0.001
Nitrate		7.5	10.7
Potassium		120	9
Selenium		<5	<0.01
Sodium		190	131
Sulfate		<100	56
Zinc		17	<0.005

Note 1: ALS unable to measure Acrylamide in soil. Q3/Q4 Tailings samples will be sent to MPL who are creating a NATA accredited method of analysis of Acrylamide in soil.

## 2.3 Compliance Reporting

The following compliance reports were received and deemed compliant by the department for the WFSF:

- Critical Containment Infrastructure Report (including the spillway and supernatant pump) received on 18 May 2021 (Rio Tinto 2021a) and 25 August 2021 (Rio Tinto 2021b);
- Environmental Compliance Report (ECR) for the waste fines pipeline received on 27 August 2021 (Rio Tinto 2021c) and 10 December 2021 (Rio Tinto 2021e);

- ECR for the diversion structure was received on 1 October 2021 (Rio Tinto 2021d);
- Bore Construction Report was received on 10 December 2021 (Rio Tinto 2021f) and 4 March 2022 (Rio Tinto 2022b);
- ECR for spigots DP1, DP3, and DP4 was received on 4 January 2022 (Rio Tinto 2022a);
- Commissioning Reports for the WFSF, waste fines pipeline and spigot DP1 were received on 9 May 2022 (Rio Tinto 2022c);
- Commissioning Report for spigot DP3 was received on 7 September 2022 (Rio Tinto 2022d);
- Commissioning Report for spigot DP4 was received on 19 October 2022 (Rio Tinto 2022e); and
- Commissioning Report for the pontoon-mounted pump system and decant water pipeline was received on 18 November 2022 (Rio Tinto 2022f).

Time-limited operations commenced on 6 May 2022 with operations continuing during the assessment and determination of the licence amendment application.

## 2.4 Part IV of the EP Act

The Mesa A Hub – Revised Proposal was assessed by the Environmental Protection Authority (EPA) and approved under Ministerial Statement (MS) 1112.

- Condition 6 relates to implementing the *Mesa A Troglifauna Management Plan*.
- Condition 7 relates to Flora and Vegetation – Sand Sheet Vegetation (Robe Valley) Priority Ecological Community (PEC): ensuring there is no direct impact and/or minimising indirect impacts (as far as practicable) to the Sand Sheet Vegetation (Robe Valley) PEC so that the biological diversity and ecological integrity of the PEC is maintained.
- Condition 8 relates to Flora and Vegetation – Priority Flora: avoiding where possible and minimising direct and indirect impacts to *Abutilon* sp. Onslow (F.Smith s.n. 10/9/61).
- Condition 9 relates to Terrestrial Fauna Habitat – Conservation Significant Fauna Species; Ghost Bat (*Macroderma gigas*) and Northern Quoll (*Dasyurus hallucatus*): ensuring there is no irreversible impact to ‘breakaways and gullies’ habitat retained in the escarpments of Mesa A, Mesa B and Mesa C Mining Exclusion Zones, other than existing and authorised disturbance.
- Condition 10 relates to Subterranean Fauna – Troglifauna.
- Condition 11 relates to Inland Waters:
  - ensuring that groundwater levels are maintained to ensure no impact on riparian vegetation of the Robe River as a result of groundwater abstraction and/or Licence: L8234/2008/2 4 dewatering; and
  - ensuring there is no irreversible impact to the health of riparian vegetation of Warrambo Creek as a result of groundwater abstraction and/or dewatering and/or as a result surplus water discharge.
- Schedule 1 of MS 1112 (Table 2) authorises the physical and operation elements of the revised proposal, and requires, for surplus water management, that “*controlled surface discharge from the proposal to extend along Warrambo Creek no further than 8 km downstream of the discharge point under natural no-flow conditions.*”
- Rehabilitation and decommissioning are also regulated by Condition 13 of MS 1112.

Requirements of MS 1112 are not re-assessed in this amendment report and are not duplicated as conditions in the existing licence.

### 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 2020a).

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 4.

Table 4 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

**Table 4: Licence Holder controls**

Emission	Sources	Potential pathways	Proposed controls
Leaks and spills from the pipelines containing flocculant, elevated chemicals, chlorine, and TDS	Tailings pipelines (tailings delivery and decant return)	Direct discharge to land and surface water  Infiltration to groundwater	<ul style="list-style-type: none"> <li>Maintenance and inspection of pipeline bunding, pressure / flow gauges, and sumps;</li> <li>Inspect the mine dewatering water pipeline daily;</li> <li>Inspect the discharge outlet daily, when discharging, for excessive scouring and make good repairs within 14 days of recording the maintenance request;</li> <li>Only discharge pit water from operational pit, no tailings decant is to be discharged to Warrambo Creek; and</li> <li>Continuous volume of dewatering discharge recorded and to location, and water quality monitoring while discharging.</li> </ul>
Overtopping of tailings	Deposition of tailings into WFSF	Direct discharge to land and surface water  Infiltration to groundwater	<ul style="list-style-type: none"> <li>Freeboard adequate to store the 1:100 year 72-hour rainfall event (freeboard of 1.5 m to the emergency spillway level (54.5mRL));</li> <li>Decant pumping system in pit 1/2;</li> <li>Continuous volume of tailings discharged recorded and to location, and water quality monitoring while discharging; and</li> <li>Revision of the water balance over the WFSF, investigating the potential for decant recovery (and treatment) back to the Mesa A wet plant for re-use, and groundwater monitoring.</li> </ul>
Dust lift-off		Air/windborne dispersion	<ul style="list-style-type: none"> <li>Existing dust controls in the current licence apply.</li> </ul>

Emission	Sources	Potential pathways	Proposed controls
			<ul style="list-style-type: none"> <li>No further assessment is undertaken as this emission is a low risk where the WFSF is an active facility with a wet surface and is below the crest of the embankment that reduced dust lift-off and wind exposure.</li> </ul>
Seepage of tailings through Pit 1/2 and Pit 3 containing elevated metal(loids) concentration, elevated nitrate and chloride concentrations and flocculant residue		Seepage	<ul style="list-style-type: none"> <li>Model to be refined as further monitoring and tailings solids and liquor characterisation information becomes available;</li> <li>Groundwater quality monitoring from the surrounding monitoring bores;</li> <li>Groundwater quality monitoring data to be assessed and compared against ANZECC (2000) (for cobalt and nickel only) water quality guidelines for irrigation areas and ANZG (2018) water quality guidelines for livestock drinking water or site specific guideline values (SSGVs);</li> </ul>
Seepage	Deposition of supernatant into Pit 3	Seepage	<ul style="list-style-type: none"> <li>Some seepage may be captured by process water bores (however, these bores are not purpose-built seepage recovery bores) and recirculated in processing during operations;</li> <li>Prior to water levels in Pit 3 reaching the maximum operating level, additional monitoring of water, seepage rates and evaporation will be undertaken to validate the water balance model and to determine the future decant water management strategy;</li> <li>Regular monitoring and characterisation of tailings solids, tailings density and liquor once the decant pond commences operation;</li> <li>Undertake monthly monitoring of the water balance for WFSF Pit 1/2 and 3, where the water balance is reported and revised annually, including calibration of seepage rates; and</li> <li>Prepare and develop a water quality management plan, where 3 (three) consecutive monitoring events indicate exceedances of <i>contaminants of concern</i> in comparison to ANZECC (2000) (for cobalt and nickel only), ANZG (2018) DGVs or SSGVs. The management plan must include: <ul style="list-style-type: none"> <li>site specific limit values where there are no ANZECC (2000) and ANZG (2018) DGVs;</li> <li>action response plan to address exceedances;</li> <li>management actions including, but limited to seepage recovery measures, geophysical investigations;</li> <li>treatment option(s), where required; and</li> <li>timeframes for implementation.</li> </ul> </li> </ul>



### 3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020a), the Delegated Officer has excluded employees, visitors, and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation. Table 5 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020b)).

**Table 5: Sensitive human and environmental receptors and distance from prescribed activity**

Human receptors	Distance from prescribed activity
No nearby human receptors	-
Environmental receptors	Distance from prescribed activity
Priority Ecological Communities (PECs)	The following PECs are located within the prescribed premises (managed under MS 1112): <ul style="list-style-type: none"> <li>• <i>Subterranean invertebrate communities of mesas in the Robe Valley region</i> P1</li> <li>• <i>Subterranean invertebrate communities of pisolitic hills in the Pilbara</i> P1</li> <li>• <i>Sand sheet vegetation (Robe Valley)</i> P3</li> </ul>
Threatened and Priority Fauna	Within approximately 1 km and within the prescribed premises (managed under MS 1112) are: <ul style="list-style-type: none"> <li>• Northern quoll (<i>Dasyurus hallucatus</i>) - Endangered</li> <li>• Pilbara Leaf-nosed Bat (<i>Rhinonictis aurantia</i> (Pilbara form)) - Vulnerable</li> <li>• Ghost Bat (<i>Macroderma gigas</i>) - Vulnerable</li> <li>• Mesa A Paradraculooides (<i>Paradraculooides anachoretus</i>) - Vulnerable</li> <li>• Mesa A Lagynochthonius pseudoscorpion (<i>Lagynochthonius asema</i>) - Priority 1</li> <li>• Mesa B/C Paradraculooides (<i>Paradraculooides blythius</i>) – Vulnerable</li> <li>• Fortescue grunter (<i>Leiopotherapon aheneus</i>) - Priority 4.</li> </ul>
Vegetation and Flora	The locally significant riparian communities of the Robe River and Warrambo Creek are located within and adjacent to the Premises (Rio Tinto 2022g). <ul style="list-style-type: none"> <li>• <i>Abutilon</i> sp. Onslow (F. Smith s.n. 10/9/61) P3, approximately 4 km west of the prescribed premises boundary (managed under MS 1112)</li> <li>• <i>Triodia pisolitica</i> P3 within the prescribed premises</li> <li>• <i>Rhynchosia bungarensis</i> P4 within the prescribed premises</li> <li>• <i>Goodenia nuda</i> P4 within the prescribed premises</li> </ul>
Surface water	The Robe River passes adjacent to the east and intersects the eastern boundary of the Premises. Warrambo Creek intersects the south-western portion of the Premises. Other minor ephemeral tributaries are located within the Premises.
Proclaimed Groundwater and Surface Water Areas	The Premises is located within the Proclaimed Pilbara Groundwater and Surface Water Areas.

## 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020a) 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 6.

The Revised Licence L8234/2008/2 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 6. Risk assessment of potential emissions and discharges from the Premises during operation**

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
<b>Operation</b>								
Tailings pipelines (tailings delivery and decant return)	Leaks and spills from the pipelines containing flocculant, elevated chemicals, chlorine, and TDS	Direct discharge to land causing contamination of soils and groundwater and decline in vegetation	Soil, vegetation, and groundwater	Refer to section 3.1.1	C = Minor L = Unlikely <b>Medium risk</b>	Y	Conditions 2, 3, <u>11</u> , 16, and 17	Condition 11 was included to undertake daily inspections of the WFSF infrastructure to check for integrity and maintain freeboard capacity from W6284/2019/1.
Deposition of tailings into WFSF	Overtopping of tailings	Direct discharge contaminating surface and groundwater  Decline in vegetation	Soils, vegetation, groundwater  Warrambo Creek	Refer to section 3.1.1	C = Moderate L = Rare <b>Medium risk</b>	Y	Conditions 2, 3, 4, 5, 7, 8, 9, <u>11</u> , 16, and 17	Condition 11 as above.
	Seepage of tailings through Pit 1/2 and Pit 3 containing elevated metal(loids) concentration, elevated nitrate and chloride concentrations and flocculant residue	Seepage causing alteration of current good quality groundwater	Groundwater	Refer to section 3.1.1	C = Moderate L = Possible <b>Medium risk</b>	N	Conditions 2, 3, 4, 7, 8, 9, <u>10, 12, 13</u> , 16, and 17	Condition 10 was included to undertake monthly monitoring of the water balance for WFSF Pit 1/2 and Pit 3.  Condition 12 was included to provide a report on the groundwater environment, the outcomes of several investigations to be undertaken, and the management of observed concentration exceedances of monitored parameters. During time limited operation monitoring period, manganese, cobalt, nickel, and nitrate were identified as parameters with observed exceedances measured in monitoring bore MB21WAR0003 located near the southern toe of Pit 1/2 WFSF.  Condition 13 was included to prepare and develop a water quality management plan, where 3 (three) consecutive monitoring

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Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
								events indicate exceedances of <i>contaminants of concern</i> in comparison to ANZECC (2000) (for cobalt and nickel only) and ANZG (2018) DGVs or SSGVs. The inclusion of this regulatory control is to investigate, manage, and monitor identified exceedances that are likely from seepage of WFSF.
Deposition of supernatant into Pit 3	Seepage	Seepage causing alteration of current good quality groundwater	Groundwater	Refer to section 3.1.1	C = Moderate L = Possible <b>Medium risk</b>	Y	Conditions 2, 3, 4, 7, 8, 9, 16, and 17	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020a).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

## 4. Consultation

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

**Table 7: Consultation**

Consultation method	Comments received	Department response
Department of Jobs, Tourism, Science, and Innovation (JTISI) advised of proposal on 16 December 2022	No comments were received.	-
Licence Holder was provided with draft amendment on 3 February 2023	Comments were received on 10 March 2023 and are provided in Appendix 1.	The Department's response is provided in Appendix 1.
Licence Holder was provided with a second draft amendment on 11 May 2023	Comments were received on 9 June 2023 and are provided in Appendix 2.	The Department's response is provided in Appendix 2.

## 5. Conclusion

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

### 5.1 Summary of amendments

Table 8 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

**Table 8: Summary of licence amendments**

Condition no.	Proposed amendments
N/A	Amended the assessed production / design capacity for category 54 from 337 to 341 cubic metres per day (administrative error).
N/A	Updated Licence History will proposed amendment.
N/A	Administrative amendments throughout the licence.
1, Table 1	Included categories 6 and 54 in the table for production or design capacity limits.
3, Table 2	Updated table to include operational requirements of the WFSF Pit 1/2 and Pit 3 and the dewatering pipeline and discharge point.
4, Table 3	Updated table to include emissions from the WFSF Pit 1/2 and Pit 3 and the corresponding discharge point and location.
6, Table 5	Amended the capacity for WWTP2 to treat sewage from 182 to 186 m <sup>3</sup> /day (administrative error).
10	New condition to undertake monthly water balance monitoring for WFSF Pit 1/2 and Pit 3
11, Table 7	New condition for daily inspections undertaken of the following infrastructure:

Condition no.	Proposed amendments
	<ul style="list-style-type: none"> <li>• Dewatering pipelines</li> <li>• Waste fines delivery pipelines</li> <li>• Waste fines decant water discharge pipelines</li> <li>• WFSF Pit 1/2 freeboard</li> <li>• Pit 3 Process Water Dam</li> <li>• WFSF Pit 1/2 and Pit 3 decant pond location</li> </ul>
12	New condition to provide a report on the groundwater environment and the management of observed concentration exceedances of monitored parameters.
13	New condition to prepare and develop a water quality management plan.
14, Table 8	Inclusion of 'volume of mine dewater discharge' within Table 8 under Summary row.
14 to 19	Updated condition numbering, previously conditions 10 to 15, with the inclusion of 3 new conditions.
Definitions, Table 9	Updated definitions table.
Schedule 1: Maps	<p>Inclusion of the following new and /or updated figures:</p> <ul style="list-style-type: none"> <li>• Figure 5: Warrambo Creek discharge point</li> <li>• Figure 6: Conceptual site plan of the WFSF at Warrambo</li> <li>• Figure 7: WFSF Pit 1/2 spigot locations and supporting infrastructure</li> <li>• Figure 8: WFSF and existing and indicative spigot locations at Warrambo</li> <li>• Figure 9: WFSF groundwater monitoring bores</li> </ul> <p>Figure 10 was previously number as Figure 6 (Dust monitoring locations).</p>
Schedule 3: Monitoring	Moved Table 6 from condition 7 to schedule 3 and included the monitoring requirements for the WFSF Pit 1/2 and Pit 3 monitoring bores and tailings (supernatant and fines) from processing plant.
Schedule 4: infrastructure and equipment	<p>Previously numbered as Scheduled 3. Table 10 updated with the following infrastructure and equipment:</p> <ul style="list-style-type: none"> <li>• Warrambo WFSF Pit 1/2 and Pit 3 including spigots, turkey's nest, and pond pontoon-mounted pump system</li> <li>• Waste fine delivery pipelines and decant water discharge pipelines from Mesa A to Warrambo WFSF</li> </ul> <p>Renumbering of infrastructure from 7 to 12 to the updated numbering of 9 to 14. Amended reference to figure 6 (now figure 7) for item 8.</p>

## References

1. ANZECC 2000, *Australia and New Zealand Environment Conservation Council guidelines for fresh and marine water quality Volume 1 – 3*. Australian and New Zealand Environment Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand, Australia. Available at [www.waterquality.gov.au](http://www.waterquality.gov.au)
2. ANZG 2018, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. Available at [www.waterquality.gov.au/anz-guidelines](http://www.waterquality.gov.au/anz-guidelines)
3. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. Department of Water and Environmental Regulation (DWER) 2020a, *Guideline: Risk Assessments*, Perth, Western Australia.
5. DWER 2020b, *Guideline: Environmental Siting*, Perth, Western Australia.
6. GHD 2022a, *Warramboe In-Pit Tailings Storage Facility – water balance calibration and forecast update (Ref: 12531959)*, July 2022, Perth, Western Australia.
7. GHD 2022b, *Robe Valley Sustaining Project – Warramboe In-Pit Tailings Storage Facility Detailed Design Report, March 2022 (Ref: PN11105-REP-00034)*, Perth, Western Australia.
8. GHD 2023, *Warramboe In-Pit Tailings Storage Facility – water balance calibration and forecast update (Ref: 12531959)*, January 2023, Perth, Western Australia.
9. Rio Tinto 2021a, *Compliance Statement – Works Approval W6284/2019/1 Mesa A / Warramboe Iron Ore Mine – W6284/2019/1 Critical Containment Infrastructure Report (RTIO-HSE-0353017)*, received 18 May 2021 (DWERDT452894 and DWERDT453024).
10. Rio Tinto 2021b, *RTIO Response to CCIR – DWER Request for further information (RTIO-HSE-0355459)*, received 25 August 2021 (A2038385).
11. Rio Tinto 2021c, *Compliance Statement – Works Approval W6284/2019/1 Mesa A / Warramboe Iron Ore Mine – W6284/2019/1 Waste Fines Pipeline, Dewatering Pipeline and Discharge Point (RTIO-HSE-0355565)*, received 27 August 2021 (DWERDT496719).
12. Rio Tinto 2021d, *Works Approval W6284/2019/1: Mesa A / Warramboe Iron Ore Mine – Diversion Structure Construction Timeframe Report (RTIO-HSE-0356080)*, received 1 October 2021 (DWERDT510644).
13. Rio Tinto 2021e, *Mesa A / Warramboe Works Approval W6284/2019/1 – Response to conditions compliance document waste fine pipeline (RTIO-HSE-0357345)*, received 10 December 2021 (DWERDT537226).
14. Rio Tinto 2021f, *Works Approval W6284/2019/1: Mesa A / Warramboe Iron Ore Mine – Bore construction report (RTIO-HSE-0357348)*, received 10 December 2021 (DWERDT537084).
15. Rio Tinto 2022a, *Mesa A / Warramboe Works Approval W6284/2019/1 – Spigot construction compliance (RTIO-HSE-0357505) and Conditions compliance document Tailings Storage Facilities (TFS) 1/2 and 3 response*, received 4 January 2022 (DWERDT545126).
16. Rio Tinto 2022b, *Mesa A / Warramboe Works Approval W6284/2019/1 – Bore construction report response to partial compliance (RTIO-HSE-0358405)*, received 4 March 2022 (DWERDT572304).

17. Rio Tinto 2022c, *Mesa A / Warramboos Works Approval W6284/2019/1 Commissioning Report Ore processing facility, waste fines storage facility, and waste fines pipeline* (RTIO-HSE-0359499), received 9 May 2022 (DWERDT600386). Note: includes DP1 commissioning.
18. Rio Tinto 2022d, *Mesa A / Warramboos Works Approval W6284/2019/1 Commissioning Report Spigot DP3* (RTIO-0209337), received 7 September 2022 (DWERDT655429).
19. Rio Tinto 2022e, *Mesa A / Warramboos Works Approval W6284/2019/1 Commissioning Report Spigot DP4* (RTIO-0953094), received 19 October 2022 (DWERDT674273).
20. Rio Tinto 2022f, *Mesa A / Warramboos Works Approval W6284/2019/1 Commissioning Report Pontoon-mounted pump system and decant water pipeline* (RTIO-0953443), received 18 November 2022 (DWERDT688343).
21. Van Dam, R.A., Bankin, K. and Parry, D., 2021. Derivation of site-specific guideline values for nitrate toxicity in Pilbara receiving waters with high hardness. *Integrated Environmental Assessment and Management*, **18(4)**, 1035-1046.
22. Watson, A., Linklater, C. and Chapman, J., 2016. *Backfilled Pits – Laboratory-scale Tests for Assessing Impacts on Groundwater Quality*. Proceedings of the AusIMM Life-of-Mine Conference, Brisbane, 28-30 September 2016. Available from: [www.srk.com](http://www.srk.com).



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

Condition	Summary of Licence Holder's comment	Department's response
3, Table 2	<p>The Licensee requests the following revision to the Operational Requirements of the Wastes Fines Storage Facility (WFSF):</p> <ul style="list-style-type: none"> <li>Continuous volume of tailings discharge, <del>water quality monitoring must be recorded and to location, while discharging.</del></li> </ul> <p>Water quality monitoring is a Monitoring Requirement addressed in Schedule 3, Table 6 (rather than an Operational Requirement), and further, the frequency of tailings water quality monitoring specified in Schedule 3 is quarterly. Continuous tailings water quality monitoring poses operational difficulties.</p>	Updated operational requirement as per Licence Holder's request.
3, Table 2	<p>The Licensee requests the frequency of inspections be revised from daily to monthly to align with the 'medium' risk rating for the facility or removed altogether from Condition 3, Table 2. The design requirements of Works Approval W6284/2019/1, limitations specified in Condition 5, Table 4 and monitoring specified in Schedule 3, Table 6 are expected to mitigate the risk of erosion. Further, inspections and maintenance were not controls specified in the Stage 1 Licence Amendment (where Category 6 was included in L8234/2008/2).</p> <p>If inspection (and maintenance) of the discharge point are not able to be removed, the requirement should be included in Condition 11, Table 7 (rather than an Operational Requirement). The Licensee also requests the following revisions;</p> <ul style="list-style-type: none"> <li>Inspect the discharge outlet daily*, when discharging, for excessive scouring and make good repairs within 14 days of recording the maintenance request; *access permitting</li> </ul> <p>Access to the Warrambo Creek discharge point is limited following heavy rainfall events. Inspection of the discharge outlet will occur as soon as safe access is reinstated however, it is requested that the Licence reflect this limitation to avoid the requirement to report potential non-compliances where daily inspections are not possible.</p> <p>Similarly, maintenance requests may not be actionable within 14 days if heavy rainfall events limit access to the area.</p>	<p>The operational requirement "inspect the mine dewatering pipeline daily, when discharging, to Warrambo Creek" has been removed and inspection of the dewatering pipeline has been included under condition 11, Table 7 as monthly inspections.</p> <p>The operation requirement "inspect the discharge outlet daily..." has been as the following "inspect the discharge outlet, when discharging, for excessive scouring and make good repairs where required and access permitting".</p>
3, Table 2	<ul style="list-style-type: none"> <li>continuous volume of dewatering discharge, water quality monitoring must be recorded and to location, while discharging.</li> </ul> <p>As noted above, water quality monitoring is a Monitoring Requirement addressed in Schedule 3, Table 6 (rather than an Operational Requirement), and further, the frequency of discharge water quality monitoring specified in Schedule 3 is quarterly. Continuous discharge water quality monitoring poses operational difficulties.</p>	Operational requirement has been removed as per the Licence Holder's request.
4, Table 3	<p>The Licensee would like to note that Figure 7 illustrates spigots that are currently constructed (DP1, DP3 and DP4).</p> <p>Figure 8 illustrates the three spigots that are currently constructed (DP1, DP3 and DP4) and the conceptual locations of the remaining spigots that are subject to change based on current design activities.</p>	Reference to figures 7 and 8 have been amended with the correct figure titles.
7	Please refer to the commentary included in Schedule 3: Monitoring, below.	Amended, see response under 'Schedule 3: Monitoring' comment below.
11, Table 7	<p>The Licensee requests the removal of row 'WFSF Pit ½ embankment' from Table 7. Embankment integrity checks are addressed in the internal system, iAuditor, which specifies the requirements for daily TSF inspections.</p> <p>The licensee also requests the following amendment to line item 'WFSF Pit ½ embankment freeboard'.</p>	<p>Daily inspections for 'WFSF Pit ½ embankment' based on the Licence Holders reasoning.</p> <p>The term 'embankment' has been removed from 'WFSF Pit 1/2 freeboard' as per Licence Holder's request.</p>
17, Table 8	<p>The Licensee requests further clarification reading the following Conditions in Table 8;</p> <p>Condition 7: Warrambo Creek discharge point.</p> <p><i>Requirement:</i></p> <p><i>The results to be provided to the CEO must include but need not be limited to the following... assessment and comparison against the ANZECC 2000 and previous monitoring results.</i></p> <p>Could the Department please confirm the Licensee can provide assessment and comparison against Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018) Guidance for livestock drinking water.</p>	<p>Warrambo Creek discharge point monitoring data can have an assessment and comparison against the ANZG 2018 water quality values for livestock drinking water as the ANZG 2018 guideline is the most current Fresh and Marine Water Quality Guideline.</p> <p>This has been amended in Table 8 in relation to 'Condition 7 – Warrambo Creek discharge point' reporting requirements.</p>
17, Table 8	<p>Condition 9: Dust Monitoring.</p> <p><i>Requirement:</i></p> <p><i>Provide the results of the dust monitoring programme highlighting exceedances.</i></p>	The following reporting requirement has been amended to include 'monthly averages' for dust results and the removal of 'highlighting exceedances':

Condition	Summary of Licence Holder's comment	Department's response
	<p>Could the Department please confirm the frequency of data required to be provided. E-Samplers record continuously, the Licensee requests to submit monthly averages.</p> <p>Could the Department please also clarify what dust exceedance thresholds should be used in the assessment of the dust monitoring results?</p>	<p>"provide the results as monthly averages of the dust monitoring programme"</p>
17, Table 8	<p>Condition 9: Groundwater Monitoring.</p> <p><i>Requirement:</i></p> <p><i>The results to be provided to the CEO must include, but need not be limited to the following... cumulative time-series graphs in Microsoft Excel format for each monitoring bore for standing water level in mbgl and those parameters resulting in exceedances; include an assessment and comparison against the ANZG 2018, baseline data and previous monitoring results; and copies of original monitoring, laboratory and analysis reports submitted to the licence holder by third parties.</i></p> <p>Could the Department please confirm the Licensee can provide assessment and comparison against the ANZG (2018) Guidance for livestock drinking water.</p> <p>The Licensee currently provides DWER-Water with tabulated raw data in the Annual Aquifer Review (AAR) for the Mesa A / Warramboe Operations. Exceedances are highlighted in the AAR and hydrographs are provided with water levels in mAHD extracted from a Spotfire report (rather than Excel format). The Licensee is seeking a revision to the following point, '<i>cumulative time-series graphs in Microsoft Excel format for each monitoring bore for standing water level in mbgl and those parameters resulting in exceedances</i>'; to align with what is already reported externally in the AAR, avoiding duplication and the reassessment of this data.</p> <p>The Licensee also seeks the removal of the requirement to provide '<i>copies of original monitoring, laboratory and analysis reports submitted to the licence holder by third parties</i>'. Monitoring data will be provided as required by the relevant conditions, the submission of laboratory reports will be a duplication of this information.</p>	<p>The Department confirms assessment and comparison of groundwater monitoring data is against the ANZG (2018) Guideline for livestock drinking water, with exception to cobalt and nickel that will be compared against ANZECC (20000 Guideline for irrigation areas.</p> <p>The Department has reviewed the most recent Annual Aquifer Review for the Mesa A / Warramboe Operations that relates to the Groundwater Licence (GWL). The production and monitoring bores under the GWL are not assessed under this Licence, with exception to the monitoring bore WB07WARR001, which has been noted as an alternative monitoring bore for MB21WAR0001 when it is dry during a sampling period.</p> <p>The reporting requirements for the WFSF monitoring bores under this Licence remains as the monitoring is required for conditions 7 and 8. The reporting requirement "<i>copies of original monitoring, laboratory and analysis reports submitted to the licence holder by third parties</i>" has been removed as per the Licence Holder's request to avoid duplication of information.</p>
17, Table 8	<p>Condition 10 Water balance.</p> <p><i>Requirement:</i></p> <p><i>Provide the results of the monthly water balance monitoring tabulated form and as a cumulative time-series graphs in Microsoft Excel format for each monitoring parameter; ... and copies of original monitoring, laboratory and analysis reports submitted to the licence holder by third parties.</i></p> <p>The Licensee seeks the removal of the requirement to provide '<i>copies of original monitoring, laboratory and analysis reports submitted to the licence holder by third parties</i>'. This is not an expected input for the water balance.</p> <p>The Licensee also notes that the Amendment Report references a revised water balance from the commencement of operating with real data collected, and then annually. The Licensee requests Condition 10 is updated to reflect this and the requirement for the provision of monthly water balance monitoring results is removed.</p>	<p>The reporting requirement "<i>copies of original monitoring, laboratory and analysis reports submitted to the licence holder by third parties</i>" has been removed as per the Licence Holder's request.</p> <p>Condition 10 remains as monitoring of the water balance is required to be monthly and reporting and revision of the water balance is annually.</p> <p>The control listed within the Amendment Report under Table 3 has been amended to the following:</p> <ul style="list-style-type: none"> <li>Undertake monthly monitoring of the water balance for WFSF Pit 1/2 and 3, where the water balance is reported and revised annually, including calibration of seepage rates</li> </ul>
Condition X (New)	<p>The Licensee requests that additional standard conditions are incorporated into Licence L8234/2008/2 to allow for the ongoing disposal of up to 1,000 tonnes of wastes per annual period to the landfill assessed via Works Approval W6284/2019/1 (construction deferred) and subsequent landfill facilities at the Mesa A Warramboe Iron Ore Mine without requiring further amendments to Licence L8234/2008.</p>	<p>The following was provided in the Amendment Report for this licence granted 21 November 2022:</p> <p><i>"The department notes that the landfill facilities assessed under W6284/2019/1 have been deferred (Rio Tinto 2022a). Under section 57 (2)(a)(ii) (A) of the EP Act works under a works approval must be completed prior to a licence application. This would require a compliance report for the landfill facilities to be submitted prior to the licence amendment application. The subsequent licence amendment application could include the request for the construction and operation of waste dump and putrescible landfill facilities to be assessed. The department has not included category 64 to the licence under this licence amendment".</i></p> <p>The Department 's stance remains regarding the inclusion of the condition (s) for landfill facilities to not be included in this current Licence amendment until construction of the landfill facility is completed under the works approval W6284/2019/1.</p>
Schedule 3: Monitoring	<p>The Licensee requests the frequency of monitoring at the WFSF monitoring bores be revised from monthly to quarterly to align with the 'medium' risk rating for the facility. If exceedances of baseline groundwater chemistry are observed, the frequency of monitoring at the WFSF monitoring bores can be increased to monthly.</p> <p>The Licensee also notes that monitoring bores MB21WAR0008 and MB21WAR0009 are not referenced in Table 6.</p>	<p>Monitoring frequency for WFSF Pit 1/2 and Pit 3 monitoring bores has been amended as quarterly.</p> <p>Monitoring bores MB21WAR0008 and MB21WAR0009 have been referenced within Table 6.</p>
Schedule 4: Infrastructure and equipment	<p>The Licensee notes that reference to the tailings delivery pipelines, tailings decant pipelines and turkey's nest is missing from Item 7 in Table 10.</p>	<p>Turkey's nest has been referenced in Table 10 as part of item 7 and figure 7 has referred to instead of figure 6.</p>

Condition	Summary of Licence Holder's comment	Department's response
		The tailings delivery pipeline has been referenced as 'waste fine delivery pipeline' under item 8 in Table 10. Tailings decant water discharge pipelines has been referenced in Table 10 as part of item 8.
Figure 5	Please find attached to this package an update to Figure 5 (Attachment 1).	Updated.
Figure 6	The Licensee requests the text be amended to read; 'Figure 6: Conceptual site plan of the WFSF at Warrambo'	Amended.
Figure 7	Please find attached to this package an update to Figure 7 (Attachment 2)	Updated.
Figure 8	Please find attached to this package an update to Figure 8 (Attachment 3). The Licensee requests the inclusion of the following footnote: 'The figure provides the indicative spigot locations, these may be subject to relocation to optimise operation of the facility'.	Updated and footnote has been included as per request from the Licence Holder.
Figure 9	Please find attached to this package an update to Figure 9 (Attachment 4).	Updated.
<b>Amendment Report</b>		
2.2.1 WFSF – Operational Aspects Applicant to provide the following information – what are the contingencies, what is the trigger (i.e., level of chloride concentration), what are the storage options and treatment options? This will need to be conditioned.	Please refer to Attachment 5. The Licensee notes that a revised decant water arrangement is required within Pit ½ for ongoing operation of the facility. The existing decant water system in Pit ½ utilises a floating pontoon to remove supernatant water. The pontoon pump arrangement sits on a pit bench with an elevation of 48 mRL. The floor of the pit is at 40 mRL. Owing to the elevation difference, the existing pumps cannot remove the lower-level supernatant water within the WFSF. To allow lower-level supernatant water within the WFSF to be removed, the existing pontoon pump arrangement is planned to be modified. This includes an extension of the pontoon and suction pipeline to utilise turret suction over the pit bench into the lower-level supernatant water. If this arrangement remains inadequate for removing the supernatant water from the WFSF, the option to install new access to relocate the pontoon will be explored further. Future decant in Pit 3 will utilise a trailer mounted pump with turret suction. This is a typical decant water arrangement utilised at other Operations, which is enabled by the presence of suitably located access roads into Pit 3.	The following information has been included under section 2.2.1 related to level of chloride concentration. Further information is required from the Applicant, indicated in bold text below:  Chloride levels within the processing circuit are monitored by chloride meters installed at the decant pumps within Pit 1/2, Warrambo Turkey's nest outlet, and within the thickener. The Applicant has stated the following:  <i>"Seepage from the in-pit storage of waste fines at Warrambo is expected to increase the chloride concentration in groundwater. Modelling indicates changes to groundwater chloride concentrations due to seepage from the WFSF will be contained within the cone of depression resulting from groundwater abstraction immediately below the pit and increasing chloride concentrations (due to the presence of the WFSF) are not expected to reach water supply bores located approximately 400 m from the pit boundary.</i>  <i>However, given the naturally elevated chloride concentrations to the north-west of Warrambo, groundwater quality is expected to be relatively insensitive to any chloride emanating from the in-pit storage of waste fines. Chloride levels naturally range from 48 mg/L to 3,170 mg/L. Chloride concentrations also vary spatially, increasing from south to north with the highest concentrations to the north-west of the Warrambo pits."</i>  ....Chloride level exceedances will be triggered through the pumping of the decant water to Pit 3 at either the WFSF, Turkey's nest outlet or thickener.  <b>Applicant to state the level of chloride concentration that will trigger an exceedance and to state other treatment options for chloride concentration exceedances that my impact reuse in the processing plant.</b>
2.2.3 Groundwater and Monitoring Applicant to provide baseline data for bores MB13WARR003, MB13WARR012, MB13WARR013, MB13WARR016 and MB17WARR0008 as the first sampling would have occurred in 2013, 2017, and 2019 respectively. The Table below will be updated with the updated baseline data for these six	Please refer to Attachment 6. The Licensee notes no laboratory chemistry data is available for 2014, 2017 and 2019 however the earliest available data has been provided.	The Licence Holder has provided baseline data for the requested monitoring bores.  Table 1 within the Amendment Report has been updated with this data.

Condition	Summary of Licence Holder's comment	Department's response
monitoring bores.		
<p>Section 3.1.1 Emissions and controls</p> <p>Applicant to provide a timeframe for the revision of the water balance</p>	<p>Please refer to Attachment 7.</p>	<p>The Applicant has provided an updated revision and calibration of the water balance over a five-month period April to August 2022.</p> <p>Conclusions from this revision have been included under section 2.2.2.</p>
<p>Section 3.1.1 Emissions and controls</p> <p>Applicant to provide controls to prevent air / windborne dispersion of dust from the WFSF</p>	<p>No dust emissions are expected from the operation of the WFSF. The WFSF is an active facility, the surface of the WFSF is wet preventing the dispersion of dust. The tailings surface is also below the crest of the embankments, reducing wind exposure.</p> <p>Watercarts are used for dust suppression on surrounding roads as required.</p>	<p>Reference to dust lift-off under section 3.2 in Table 5 have been removed as there is not a clear emission-pathway-receptor linkage for controls to be imposed.</p> <p>Dust controls on the existing licence apply and dust monitoring is undertaken as part of condition 9 to assess dust emissions from the premises at the sandsheet community (PEC) and background levels of particulate matter.</p> <p>The Licence Holder has noted that the WFSF is an active facility where the surface remains wet and the tailings surface is below the crest of the embankment to reduce dust lift-off from wind exposure.</p>
<p>Section 3.1.1 Emissions and controls</p> <p>Applicant to consider the following controls for seepage control:</p> <ul style="list-style-type: none"> <li>Revise water balance from the commencement of operating with real data collected and then annually, including calibration of seepage rates</li> </ul>	<p>Comments are provided below in response to the proposed controls for seepage;</p> <p>The Licensee is supportive of this however, requests that the requirements of Condition 15, Table 8 (Condition 10: Water Balance - <i>provide the results of the monthly water balance monitoring tabulated form and as a cumulative time-series graphs in Microsoft Excel format for each monitoring parameter; and provide a summary of the water balance results and if required, revise the water balance where there is a concern of seepage losses</i>) are removed.</p>	<p>Condition 10 remains as monthly monitoring to be undertaken for the water balance to monitor monthly changes in the water balance.</p> <p>The control listed within the Amendment Report under Table 3 has been amended to the following:</p> <ul style="list-style-type: none"> <li>Undertake monthly monitoring of the water balance for WFSF Pit 1/2 and 3, where the water balance is reported and revised annually, including calibration of seepage rates</li> </ul> <p>The following amendment has been made under condition 17 in Table 8:</p> <p><i>revise and calibrate the water balance where there is a concern of seepage losses and revise the decant operations for the management of water levels</i></p>
<ul style="list-style-type: none"> <li>Selection of flocculant in consideration of chemistry</li> <li>Develop a contingency plan if monitoring bores</li> <li>Use ecological screening value based on ecotoxicological literature to establish levels of concern</li> </ul>	<p>A flocculant assessment, development of a flocculant contingency plan and use of ecological screening values (based on ecotoxicological literature) to establish levels of concern are not currently planned to be undertaken for the Warrambo WFSF.</p> <p>A flocculant assessment was undertaken to support the Works Approval Application for TSF3 at the Mesa J Operation to understand the potential impacts of the flocculant, Flopam™ on aquatic fauna assemblages of the Robe River Pools. The environmental fate, persistence, and aquatic toxicology of the flocculant were considered, as well as the likelihood for ecological receptors to be exposed. The assessment concluded that the risk to sensitive ecological receptors was low however, given the uncertainties in the in the assessment and the significance of these receptors, the Licensee committed to develop a contingency plan. Given the considerably lower risk rating for the Warrambo WFSF (given the absence of sensitive ecological receptors), the Licensee considers that the level of detailed information and controls provided in Works Approval W6495/2020 are not required.</p> <p>Acrylamide is included as a monitoring parameter in Schedule 3, Table 6. Given the anticipated very low flocculant concentrations in groundwater and the lack of published guideline values for assessment and comparison, the Licensee considers a flocculant assessment, development of a flocculant contingency plan and use of ecological screening values (based on ecotoxicological literature) to establish levels of concern would be of limited value.</p>	<p>The Department has removed the proposed controls specified, based on the Licence Holder's reasoning and acknowledges acrylamide included as a monitoring parameter in the Licence, Schedule 3, Table 6 will monitor the presence of flocculent concentrations in groundwater.</p>
<ul style="list-style-type: none"> <li>Meeting the current ANZECC 2000 water quality guideline framework</li> </ul>	<p>The Licensee requests further clarification before accepting these controls. Could the Department please confirm the Licensee can provide assessment and comparison against ANZG (2018) Guidance for livestock drinking water (or Site-Specific Guideline Values (SSGVs) if required, for example, the ANZG (2018) DGV for nitrate is not applicable to waters that generally exhibit high hardness, as is common in Pilbara inland waters, as hardness reduces the toxicity of nitrate. An adapted nitrate guideline value was developed for the <i>Nitrate Management Plan</i> required by Works Approval W6495/2020 using the preferred species sensitivity distribution (SSD) method (Warne et al. 2018), from data on local test species and literature on non-local species tested under similar water conditions (Van Dam, 2020)).</p> <p>The Licensee further considers that the level of detailed information provided in the <i>Nitrate Management Plan</i> required by Works Approval W6495/2020, including the development of SSGVs is not required given the absence of sensitive ecological receptors at Mesa A / Warrambo.</p>	<p>The Department reviewed the time limited operation monitoring data from the monitoring bores surrounding Pit 1/2 and Pit 3 WFSFs that identified several observed concentrations of exceedances and also sought internal advice from the Senior Hydrogeologist. Further reasoning for the inclusion of ANZECC (2000) for cobalt and nickel only are detailed in section 2.2.3 of this amendment report.</p> <p>The following proposed control has been amended as follows:</p> <ul style="list-style-type: none"> <li>Groundwater quality monitoring data to be assessed and compared against ANZECC (2000) water quality guidelines for irrigation areas (for cobalt and nickel only) and ANZG (2018) water quality guidelines for livestock drinking water DGVs or site specific guideline values (SSGVs) (if required)</li> </ul>

Condition	Summary of Licence Holder's comment	Department's response
<ul style="list-style-type: none"> <li>Install and construct seepage recovery bores, where monitoring bore and water balance results indicate seepage loss</li> </ul>	<p>Seepage from the in-pit storage of waste fines at Warramboos is expected to increase the chloride concentration in groundwater. Modelling indicates changes to groundwater chloride concentrations due to seepage from the WFSF will be contained within the cone of depression resulting from groundwater abstraction immediately below the pit and increasing chloride concentrations (due to the presence of the WFSF) are not expected to reach water supply bores located approximately 400 m from the pit boundary.</p> <p>However, Given the naturally elevated chloride concentrations to the north-west of Warramboos, groundwater quality is expected to be relatively insensitive to any chloride emanating from the in-pit storage of waste fines. Chloride levels naturally range from 48 mg/L to 3,170 mg/L. Chloride concentrations also vary spatially, increasing from south to north with the highest concentrations to the north-west of the Warramboos pits. As such, elevated chloride poses a low risk to environmental receptors.</p> <p>Revised water balance (seepage) modelling undertaken annually will indicate seepage loss / rates. The results of the water balance modelling will inform whether additional controls are required.</p> <p>The Licensee committed (as part of a suite of options for consideration in the Works Approval Application for TSF3) that bores, installed as part of the groundwater monitoring network for TSF3, could be converted to recovery bores if required to manage seepage, detected via monitoring emanating towards the Robe River. Given the considerably lower risk rating for the Warramboos WFSF (given the absence of sensitive ecological receptors), the Licensee considers that the level of detailed information and controls (including the installation of seepage recovery bores) provided in Works Approval W6495/2020 are not required.</p>	<p>The Department has removed this proposed control based on the Licence Holder's reasoning, however, the Department will review the Annual Environmental Report that will provide a revised water balance model and groundwater monitoring data to monitor potential seepage losses to consider whether installation of seepage recovery bores are required.</p>
<ul style="list-style-type: none"> <li>Prepare and develop a water quality management plan, where 3 consecutive monitoring events indicate exceedances for at least 3 water quality parameters in comparison to the baseline groundwater monitoring data. The management plan is to be prepared as per the <i>Nitrate Management Plan</i> under works approval W6495/2020/1</li> </ul>	<ul style="list-style-type: none"> <li>Prepare and develop a water quality management plan, where 3 consecutive monitoring events indicate exceedances for at least 3 water quality parameters <i>contaminants of concern</i> in comparison to the baseline groundwater monitoring data Site Specific Guideline Values. The management plan is to be prepared as per the <i>Nitrate Management Plan</i> under Works Approval W6495/2020/1.</li> </ul> <p>The Licensee is supportive of this control (development of a water quality management plan) however, requests assessment and comparison against ANZG (2018) Guidance for livestock drinking water or SSGVs (if required), established to protect the receiving environment from contaminants of concern.</p> <p>The Licensee considers that the level of detailed information provided in the <i>Nitrate Management Plan</i> under Works Approval W6495/2020 is not required given the absence of significant environmental receptors at Mesa A / Warramboos.</p>	<p>The following proposed control has been amended as follows:</p> <ul style="list-style-type: none"> <li>Prepare and develop a water quality management plan, where 3 consecutive monitoring events indicate exceedances <i>contaminants of concern</i> in comparison to ANZECC (2000) (for cobalt and nickel only) and ANZG (2018) DGVs or SSGVs (if required)</li> </ul> <p>The Department has no objection for groundwater monitoring data to be assessed and compared against ANZG (2018) water quality guideline for livestock drinking water or SSGVs, with exception to cobalt and nickel compared against ANZECC (2000) as discussed in section 2.2.3 of this amendment report.</p> <p>The Department acknowledges the level of detailed information for a water quality management plan for Mesa A / Warramboos prescribed premises, will not be as that of the <i>Nitrate Management Plan</i> under works approval W6495/2020/1.</p> <p>If a water quality management plan is prepared, an annual review will be undertaken by the Department as well as reviewing the monitoring data and results as part of the Annual Environmental Report required for this Licence.</p>
<ul style="list-style-type: none"> <li>Develop trigger levels where exceedances of water quality</li> </ul>	<p>The Licensee considers that the level of detailed information provided in the <i>Nitrate Management Plan</i> required by Works Approval W6495/2020, including the development of trigger levels is not required given the absence of sensitive ecological receptors at Mesa A / Warramboos.</p>	<p>The Department has removed these proposed controls based on the Licence Holder's reasoning, however, trigger or limit levels may be proposed if a water quality management plan is prepared and developed and several contaminants of concern have been identified through 3 consecutive monitoring events indicating exceedances.</p>

## Appendix 2: Summary of Licence Holder's comments on risk assessment and draft conditions for second draft

Condition	Summary of Licence Holder's comment	Department's response
<b>Licence</b>		
General	Tailings at Mesa A are contained within previously mined Pit 1 / 2 and Pit 3 of the Warramboe mining area. However, the License holder does not consider that the exhausted pit names accurately represent the current use (deposition of tailings) and requests to amend the names of the approved tailings storage facilities (TSF) within Licence L8234/2008 from Warramboe Waste Fines Storage Facility (WFSF) Pit 1 / 2 and Pit 3 to Mesa A TSF1 and TSF2 respectively. The License holder also requests to amend other references to 'tailings', rather than waste fines, consistent with the terminology used across Rio Tintos operations. The License holder has included the references throughout the Licence that are requested to be amended below.	Amended throughout the Licence and Amendment Report.
Licence history	<i>Terminology:</i> Licence amendment to include the operation of the <del>Warramboe Waste Fines Storage Facility</del> <b>Mesa A Tailings Storage Facility</b> constructed, commissioned, and time-limited operations under works approval W6284/2019/1, and administrative changes	Amended.
Condition 3, Table 2: Infrastructure and equipment requirements: <del>Waste Fines Storage Facility (WFSF) Pit 1/2 and Pit 3</del> <b>Tailings Storage Facility (TSF)1 and TSF2</b>	<i>Terminology:</i> • maintain and operate the decant pumping system in <del>Pit 1/2</del> <b>TSF1</b> ;	Amended.
Condition 4, Table 3: Authorised discharge points: <del>Waste fines to WFSF Pit 1/2 and Pit 3</del> <b>Tailings to TSF1 and TSF2</b>	<i>Terminology:</i> <del>Pit 1/2</del> <b>TSF1</b> via one or more discharge points from spigots located around the pit perimeter. As shown in Schedule 1, Figure 7 ' <del>WFSF Pit 1/2</del> <b>TSF1</b> spigot locations and supporting infrastructure' and 8 ' <del>WFSF Pit 1/2</del> <b>TSF1</b> existing and indicative spigot locations at Warramboe'. <del>Pit 3</del> <b>TSF2</b> via one or more discharge points from spigots located around the pit perimeter. As shown in Schedule 1, Figure 7 ' <del>WFSF Pit 1/2</del> <b>TSF1</b> spigot locations and supporting infrastructure'.	Amended.
Condition 7	The Licence holder supports the change to Condition 7 (the inclusion of 'ANZG 2018 DGVs and the corresponding limits' stated in Schedule 3, Table 6) however, the amended wording requires the Licence holder 'not exceed ANZG 2018 DGVs', any exceedance would result in a non-compliance with Condition 7. Instead, the Licence holder requests that Condition 7 is amended to require 'comparison against ANZG 2018, baseline data and previous monitoring results' (consistent with Condition 17, Table 8: Annual Environmental Reporting), as follows:  The licence holder must monitor emissions in accordance with the requirements specified in Schedule 3, Table 6, <b>compare against ANZG 2018 DGVs, baseline data and previous monitoring results</b> and record the results of all such monitoring.	Amended.
Condition 10	The licence holder must undertake monitoring of the water balance for <del>WFSF Pit 1/2 and Pit 3</del> <b>TSF1 and TSF2</b> each monthly period ( <b>when depositing tailings</b> ), and (as a minimum) record the following information: ...	Amended.
Condition 11, Table 7: Inspections of infrastructure	<i>Terminology:</i> <del>Waste fines</del> <b>Tailings</b> delivery pipelines <del>Waste fines</del> decant water discharge pipelines <del>WFSF Pit 1/2</del> <b>TSF1</b> freeboard <del>WFSF Pit 1/2 and Pit 3</del> decant pond location	Amended.
Condition 12	The License holder agrees to Condition 12 (Specified Actions) however, the Licence holder requests that more time be allowed to complete these detailed investigations. Specifically, the Licence holder requests to provide the report on the groundwater environment and the management of observed concentration exceedances of monitored parameters to the CEO by <b>30 November 2024</b> . In particular, the Licence holder notes the following limitations; • assessment of environmental and heritage matters will be required to undertake the geophysical investigation and installation of additional monitoring bores on sites that have been identified from the geophysical data, required by Condition 12 (a) and (b); • limited availability of specialist consultants to undertake, and also interpret the results of, geophysical surveys required by Condition 12 (a); and • approvals will be required to install additional monitoring bores, required by Condition 12 (b).  Further, the investigation of nitrate concentrations in groundwater (to determine whether the concentrations in the area exceed the SSGV for nitrate (15 mg/L) due to natural origin or as a result of groundwater contamination from the widespread use of explosives for mining in the area) required by Condition 12 € is a complex investigation that will require detailed hydrogeological inputs from the findings of Condition 12 (a) and (b), site water balance and transient seepage modelling, that are unlikely to be available in the specified time.	Updated due date.

Condition	Summary of Licence Holder's comment	Department's response
	<p>The Licence holder has recently experienced delays undertaking a geophysical survey using electrical resistivity imaging (ERI) for the purpose of mapping potential aquifers and preferential groundwater flow pathways under and around Tailings Storage Facility (TSF) 3 at Mesa J. The protection of significant environmental and heritage values on the northern facade of Mesa J, adjacent to the Robe River, as well as the protection of the personnel on challenging, sloping terrain limited access to undertake the survey.</p> <p>The Licence holder will commence the process of engaging a specialist consultant to undertake the geophysical survey to determine the spatial extent and depth of the elevated groundwater salinity anomaly at Mesa A and subsequently, install monitoring bores on sites that have been identified from the geophysical data as soon as possible. However, the recent experience at Mesa J suggests that more time will be required to undertake these detailed investigations and complete the report on the groundwater environment and the management of observed concentration exceedances of monitored parameters.</p>	
Condition 12 (c)	The License holder requests that the nitrate concentration specified in Condition 12 (e) is amended <b>15 mg/L</b> , consistent with the site specific guideline value (SSGV) for nitrate (Nitrate-N) determined for the Robe Valley, as agreed with the Department (and specified in the Nitrate Management Plan required by Works Approval W6495/2021 for TSF3).	Amended nitrate concentration.
Condition 13	<p>The License holder also agrees to Condition 13 (Specified Actions)</p> <p>The licence holder must submit to the CEO a water quality management plan, where 3 (three) consecutive monitoring events indicate exceedances of contaminants of concern in comparison to ANZECC (2000) (for cobalt and nickel only) and ANZG (2018) DGVs or SSGVs. The management plan must include:</p> <p>(a) site specific limit values where there are no ANZECC (2000) and ANZG (2018) DGVs;</p> <p>(b) action response plan to address exceedances;</p> <p>(c) management actions including, but not limited to seepage recovery measures, geophysical investigations;</p> <p>(d) treatment option(s), where required; and</p> <p>(e) timeframes for implementation</p> <p>The Licence holder notes that there is no date specified for submission and requests to provide the water quality management plan to the CEO by <b>30 November 2024</b>, aligned to the expected completion of detailed investigations and provision of the report on the groundwater environment and the management of observed concentration exceedances of monitored parameters, required by Condition 12.</p>	Updated due date.
Condition 17, Table 8: Annual Environmental Report	Condition <b>97</b> Groundwater monitoring	Amended.
Condition 17, Table 8: Annual Environmental Report	<p><i>Terminology:</i></p> <ul style="list-style-type: none"> <li>• <del>waste fines</del> <b>tailings</b> deposited</li> <li>• <del>waste fines</del> <b>tailings</b> density (solid vs water content)</li> </ul>	Amended.
Definitions <b>WFSF TSF</b>	<p><i>Terminology:</i></p> <p><del>Waste Fines</del> <b>Tailings</b> Storage Facility, which is made up of <del>Pit 1/2 and Pit 3</del> <b>TSF1 and TSF2</b></p>	Amended.
Schedule 3: Monitoring Table 6: Emissions and discharge monitoring	<p><i>Terminology:</i></p> <p><del>WFSF Pit 1/2 and Pit 3</del> <b>TSF1 and TSF2</b> monitoring bores</p> <p>Monitoring Location: The License holder confirms that MB17WARR0008 is an active monitoring bore. Figure 9 includes MB17WARR0008 (For ease of reference, MB17WARR0008 is located to the east of MB21WAR0008 and MB21WAR0009, immediately west of TSF2).</p>	Amended.  N/A
Schedule 4 Table 10: Infrastructure and equipment	<p><i>Terminology:</i></p> <p>7. <del>Warramboe WFSF Pit 1/2 and Pit 3</del> <b>TSF1 and TSF2</b> including...</p>	Amended.
Category 5: Processing or beneficiation of metallic ore	<p><i>Terminology:</i></p> <p>8. <del>Waste fine</del> <b>Tailings</b> delivery pipelines and decant water discharge pipelines from Mesa A <b>OPF</b> to <del>Warramboe WFSF</del> <b>TSF1 and TSF2</b>.</p>	Amended.
<b>Amendment Report</b>		
Amendment Report	Licence Number L8234/2008/2	Amended.
2.2.1 WFSF – Operational aspects	<p><del>Once Pit 1/2 has reached capacity (approximately end of 2026), the waste fines will be deposited into Pit 3, with multiple DPs around the perimeter to maximise capacity. Pit 3 supernatant will be decanted using pumps installed at the northern extent of the Pit 3. Chloride level exceedances will be triggered through the pumping of the decant water to Pit 3 at either the WFSF, Turkey's nest outlet or thickener. Chloride levels in process water are expected to increase over time as a result of the reuse of water in the processing system and may exceed a level that is able to be reused in processing without impacting the limit on chloride concentrations in saleable iron ore.</del></p> <p>[Applicant to state the level of chloride concentration that will trigger an exceedance and what actions will be implemented with timeframes (the Department needs clear details on this as it has been detailed as a control for water quality management from seepage)]</p> <p>The chloride concentration in the TSF currently approximates the ambient median groundwater concentration of 480 mg/L. However, the chloride concentration in the TSF is expected to increase over time. Modelling undertaken to support the Works Approval suggested that chloride concentrations of 800 mg/L to 1,000</p>	<p>The following has been included under section 2.2.1 incorporating the Applicant's response to the department's queries in regards to chloride concentration and treatment options;</p> <p>The Applicant has stated that "chloride levels in process water expected to increase over time as a result of the reuse of water in the processing system and may exceed a level that is able to be reused in processing without impacting the limit on chloride concentrations in saleable iron ore."</p>

Condition	Summary of Licence Holder's comment	Department's response
	<p>mg/L were expected (and could reach up to 2,440 mg/L in 2086). Additional modelling of chloride concentrations (undertaken to understand the impact of decant water on the product chloride concentration) suggested that chloride concentrations of 1,300 mg/L to 2,900 mg/L could be expected for TSF1, indicative of evaporation, decant outflow (reused in processing), groundwater seepage and incursion of naturally occurring elevated chloride concentrations in groundwater. While elevated, this is still within the natural range of chloride concentrations recorded in groundwater (between 48 mg/L and 3,170 mg/L). There are currently no appropriate default guideline values (DGVs) for chloride concentrations. The License holder proposes an interim SSTV of 2,400 mg/L for chloride concentrations in groundwater at Mesa A. This value reflects the modelled concentration of chloride in the TSF but is significantly below background concentrations. As already noted, groundwater is expected to be relatively insensitive to chloride concentrations of 2,400 mg/L given the naturally high chloride levels (up to 3,170 mg/L) in surrounding areas. The interim trigger value will be revised, and a final trigger value established as part of the development of SSTVs required by Condition 13(a). Water and Chloride balance modelling will also continue to be refined (with the results of monitoring) to inform the development of the final trigger value. An action plan to address exceedances, management actions, treatment option(s) where required and timeframes for implementation will also be provided as part of the water quality management plan required by Condition 13. As noted above, the License holder requests to provide the water quality management plan by <b>30 November 2024</b>.</p> <p><i>If chloride concentrations are an issue for the product quality, the Applicant will investigate a Reverse Osmosis Plant to be implemented to treat the decant water to the required specification so that it can be reused within the Processing Plant. [Applicant to state other treatment options for chloride exceedances that may impact reuse in the processing plant (and disposal of RO brine)].</i></p> <p>Elevated chloride concentrations pose a low risk to environmental receptors. However, high chloride content in iron ore product results in increased emissions and potentially toxic gases when burnt in the iron making process. As such, Rio Tinto has set limits on chloride concentrations in saleable iron ore. Chloride levels in process water are expected to increase over time as a result of the reuse of water in the processing system, and may exceed a level that is able to be reused in processing without impacting the limit on chloride concentrations in saleable iron ore. However, there are several management strategies available to continue to preferentially reuse decant water in processing (reducing seepage). Ore could be managed (for example, blended with other Robe Valley ore that is lower in chloride content) such that the chloride concentrations in the process water do not impact the chloride content in the iron ore product. There could also be an opportunity to manage water supply. The License holder will investigate alternate water supply sources that are lower in chloride concentrations (for example, an alternate water supply borefield or transfer of water from Mesa J) to dilute the chloride concentrations in the processing system. The Licence holder will also investigate treatment options to be implemented if in the future, chloride concentrations in the process water exceed acceptable limits. Chloride can be removed by reverse osmosis so the Licence holder will investigate a Reverse Osmosis Plant to treat the water to the required chloride concentration so that it can be reused within the processing plant. The Licence holder will also review other treatment processes (for example, precipitation and adsorption) that are successfully used for chloride removal in other industries.</p> <p>Should reverse osmosis or other treatment options to remove chloride result in a concentrated chloride salt, the Licence holder will investigate opportunities to reuse the product onsite, such as for dust suppression, or offsite, for example, marketing the product to other potential users, as well as other options such as storage onsite in a managed area / encapsulation in a waste rock landform, or disposal offsite.</p> <p>Studies have commenced and will continue in 2023 and 2024. The outcomes will be presented as part of the development of treatment options, where required (and timeframes for implementation) required by Condition 13(d) (and Condition 13(e)). As noted above, the License holder requests to provide the treatment options as part of the water quality management plan, required by Condition 13, by <b>30 November 2024</b>.</p> <p>Approvals will also be sought for the implementation of a management or treatment solution, if required, to ensure that the Licence holder can continue to preferentially reuse decant water in the processing system (reducing seepage) without impacting the limit on chloride concentrations in saleable iron ore.</p>	<p>The ambient median groundwater chloride concentration in the TSF is 480 mg/L; however, it's expected to increase over time based on modelling suggesting concentration of 1,300 mg/L to 2,900 mg/L. This elevation is still within the natural range of chloride concentration recorded.</p> <p>If chloride concentrations are an issue for the produce quality, the Applicant will investigate a Reverse Osmosis Plant to be implemented to treat the decant water to the required specification so that it can be reused within the Processing Plant.</p> <p>The Applicant has stated that <i>"there are several management strategies available to continue to preferentially reuse decant water in processing (reducing seepage). Ore could be managed (for example, blended with other Robe Valley ore that is lower in chloride content) such that the chloride concentrations in the process water do not impact the chloride content in the iron ore product. There could also be an opportunity to manage water supply. The License holder will investigate alternate water supply sources that are lower in chloride concentrations (for example, an alternate water supply borefield or transfer of water from Mesa J) to dilute the chloride concentrations in the processing system."</i></p>
Appendix 1: 2.2.1 WFSF – Operational Aspects	<p>Applicant to state the level of chloride concentration that will trigger an exceedance and to state other treatment options for chloride concentration exceedances that may impact reuse in the processing plant.</p> <p>Addressed by responses above.</p>	Addressed above. Will be monitored also via annual reporting.



## Appendix 3: Application validation summary

SECTION 1: APPLICATION SUMMARY				
<b>Application type</b>				
Amendment to licence	<input checked="" type="checkbox"/>	Current licence number:	L8234/2008/2	
		Relevant works approval number:	W6284/2019/1	N/A
Date application received		21/09/2022		
<b>Applicant and Premises details</b>				
Applicant name/s (full legal name/s)		Robe River Mining Co. Pty Ltd		
Premises name		Mesa A / Warramboos Iron Ore Mine		
Premises location		ML248SA, G08/82, G08/85, G08/90, L08/166, L08/177 and L08/178 FORTESCUE WA 6716		
Local Government Authority		Shire of Ashburton		
<b>Application documents</b>				
HPCM file reference number:		DER2014/000868-1		
Key application documents (additional to application form):		Attachment 1A: Proof of legal access Attachment 1C: Authorised Representative Attachment 2: Maps Attachment 8: Stage 2 Licence Amendment Application Supporting Document Appendix 1 – Mesa A Warramboos TSF OMS July 2022 Appendix 2 – Warramboos WFSF Water Balance, GHD 2022 Appendix 3 – Summary of Warramboos WFSF Monitoring Data		
<b>Scope of application/assessment</b>				

<p>Summary of proposed activities or changes to existing operations.</p>	<p>Licence amendment to include the operation of the Warramboob Waste Fines Storage Facility (WFSF) constructed under W6284/2019/1.</p> <p>The following associated Reports the department has received include:</p> <ul style="list-style-type: none"> <li>• Critical Containment Infrastructure Report for the WFSF (including spillway and supernatant pump) received 18 May 2021 (DWERDT453024) and 25 August 2021 (A2038385).</li> <li>• Compliance documentation for the waste fines pipeline received 27 August 2021 (DWERDT496719) and 10 December 2021 (DWERDT537226).</li> <li>• Commissioning Reports for the WFSF, waste fines pipeline and DP1 were received on 9 May 2022 (DWERDT600386).</li> <li>• Diversion structure construction timeframe report was received 1 October 2021 (DWERDT510644).</li> <li>• Bore construction report was received 10 December 2021 (DWERDT537084) and 4 March 2022 (DWERDT572304).</li> <li>• Spigot construction compliance for DP1, DP3 and DP4 received 4 January 2022 (DWERDT545126).</li> <li>• Commissioning report for DP3 was received 7 September 2022 (DWERDT655429).</li> <li>• Commissioning report for DP4 was received 19 October 2022 (DWERDT674273).</li> <li>• Pontoon-mounted pump system and decant water pipeline was received 18 November 2022 (DWERDT688343).</li> </ul>
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**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	35,00, 000 tonnes per year	No change
Category 6: Mine dewatering	7,000,000 tonnes per annual period Currently being assessed under another amendment application for this licence	No change
Category 12: Screening, etc. of material	10,000,000 tonnes per year	No change
Category 54: Sewage facility	341 cubic metres per day	No change

**Legislative context and other approvals**

<p>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?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/></p>
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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 1112 EPA Report No: 1640
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Reference No: 2016/7843  The Proposal was determined to be a controlled action under the EPBC Act and was assessed under an accredited assessment between the Commonwealth and Western Australian governments
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? Mining tenure
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CPS No: 6689
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
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"/>	Licence/permit No: GWL162500
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: Pilbara Type: Proclaimed Groundwater Area/Surface Water Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office: North West

<p>Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Name: N/A  Priority: N/A  Are the proposed activities/ landuse compatible with the PDWSA (refer to <a href="#">WQPN 25</a>)?  Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/></p>
<p>Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i>, <i>Environmental Protection (Controlled Waste) Regulations 2004</i>, <i>State Agreement Act xxxx</i>)</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p><i>Iron Ore (Robe River) Agreement Act 1964</i>  <i>Land Administration Act 1997</i>  <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i></p>
<p>Is the Premises within an Environmental Protection Policy (EPP) Area?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>N/A</p>
<p>Is the Premises subject to any EPP requirements?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>N/A</p>
<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Classification: N/A  Date of classification: N/A</p>