



Application for Licence Amendment

Division 3, Part V *Environmental Protection Act 1986*

Licence Number	L8234/2008/2
Applicant	Robe River Mining Co Pty Limited
ACN	008 694 246
File Number	DER2014/000868
Premises	Mesa A Warramboe Iron Ore Mine Mining Tenement ML248SA (AML 70/248) FORTESCUE WA 6716 Part of Lot 300 on Deposited Plan 63514; Part of Lot 307 on Deposited Plan 63519. Lot 92 on Deposited Plan 215602 Crown Reserve 39702.
Date of Report	1 May 2019
Status of Report	Final

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1. Definitions of terms

In this Amendment Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Category/Categories	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 10, JOONDALUP DC WA 6919 info@dwer.wa.gov.au
Class C	is a secondary treatment process to achieve effluent water quality specified in Table 7 Appendix 6 of the NWQMS.
Amendment Decision Report	refers to this document
Delegated Officer	an officer under section 20 of the EP Act
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
Existing Licence	the Licence L8234/2008/2 issued under Part V, Division 3 of the EP Act and in force prior to the commencement of this licence amendment.
Licence Holder Licensee	Robe River Mining Co Pty Limited
NWQMS	refers to the <i>National Water Quality Management Strategy, Australian Guidelines for Sewage Systems – Effluent Management (Agriculture and Resource Management Council of Australia and New Zealand and New Zealand Environment and Conservation Council) 1997</i>
Premises	refers to the premises Mesa A Warramboe Iron Ore Mine to which this Amendment Decision Report applies, as specified at the front of this Amendment Decision Report.
Risk Event	as described in DWER's <i>Guidance Statement: Risk Assessment</i>
WWTP	Wastewater Treatment Plant

2. Purpose and scope of assessment

2.1 Application details

This Amendment Decision Report is limited only to an application received by the Department of Water and Environmental Regulation (DWER) on 19 December 2018, for an amendment to Category 54 to construct and operate an additional Wastewater Treatment Plant (WWTP) at Mesa A Warramboe Iron Ore Mine (the Premises). The proposed WWTP (WWTP2) will have a design capacity of 186 m³/day and will be operated in addition to the existing WWTP (WWTP1), which is currently authorised to treat up to 155 m³/day. This will result in an increase in sewage throughput at the Premises to 341 m³/day to support the increasing operations workforce at the Premises.

WWTP2 will use an Activated Sludge Bioreactor to treat sewage to achieve 'Class C' effluent water quality that will be discharged to a 6.9 hectare (ha) irrigation sprayfield.

This Amendment Decision Report does not reassess the existing WWTP1 currently authorised for operation at the Premises.

There are no changes to the Prescribed Premises boundary as a result of this amendment and no changes to the aspects of the Existing Licence relating to Category 5 and/or 12 have been requested by the Licence Holder.

Changes made to Licence L8234/2008/2 as a result of this Amendment Decision Report are shown in Appendix 3.

3. Construction overview

Construction of WWTP2 is expected to commence in April 2019 with operation to commence in July 2019. The WWTP will be contained within an earthen bund and consists of a containerised unit treating wastewater through a combined anoxic/aerobic suspended growth treatment process. Prior to treated effluent discharge the wastewater is filtered and disinfected. Bio-solids removed from the treatment process will be collected and disposed of to an appropriately licensed landfill facility. A schematic of the proposed WWTP process is shown in Figure 1 below.

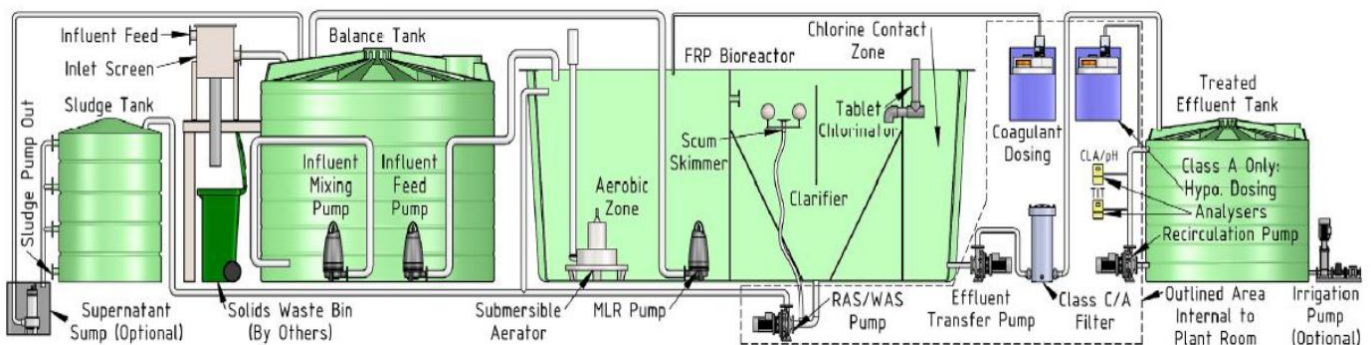


Figure 1: Proposed WWTP process

Commissioning will be undertaken for a three month period, where the applicant will undertake testing of the WWTP to ensure effluent water quality is in accordance with the specifications detailed in Table 2. The treated wastewater will be discharged to a 6.9 ha irrigation spray field.

Table 2: Proposed effluent water quality

Parameter	Class C water quality treatment criteria*	Unit
pH	6-9	pH
Biochemical Oxygen Demand	< 30	mg/L
Total Suspended Solids	< 40	mg/L
Total Nitrogen	< 50	mg/L
Total Phosphorus	< 12	mg/L
<i>E. coli</i>	< 10 ⁶	Organisms/100 ml

*Source: NWQMS

4. Irrigation sprayfield

The proposed irrigation sprayfield is located adjacent to the existing sprayfield and effluent will be discharged via a treated effluent distribution system. A flow meter will be installed to measure the volume of the treated effluent to the spray field. Table 3 shows that the sprayfield is appropriately sized to ensure nutrient application rates of nitrogen and phosphorus are in accordance with *Water Quality Protection Note 22: Irrigation with nutrient rich wastewater, 2008*.

The maximum nutrient application criteria (Table 3) was determined using the soil type fine grained soils which is consistent with loamy soil types that accumulate in the lower lying plain in the Pilbara Region. The soil type presents a low eutrophication risk to surface waters within 500 m.

Table 3: Proposed nutrient application rates

Parameter	Maximum nutrient application criteria for risk category D	Proposed nutrient application rates based on 186m ³ and 6.9 ha
Total Nitrogen (Kg/ha/year)	480	394
Total Phosphorus (Kg/ha/year)	120	118

5. Amendment history

Table 4: Licence amendments since 2016 for L8234/2008/2.

Instrument	Issued	Amendment
L8234/2008/2	25/08/2016	The licence was amended to authorise the operation of WWTP1, constructed under Works Approval W5872/2015/1. Minor administrative amendments were made to term definitions and removal of previous conditions relating to targets, stormwater management and liquid chemical storage.

6. Location and receptors

There are no sensitive human receptors within 10 km of the Premises. A review DWER's geographical database identified the relevant environmental receptors in the vicinity of the Premises shown below in Table 5.

Table 5: Environmental receptors and distance from WWTP2

Environmental receptors	Distance from proposed WWTP2
Threatened Ecological Communities (TECs) (Priority 1): <ul style="list-style-type: none"> Subterranean invertebrate community of Mesas in the Robe Valley Region Subterranean invertebrate community of Pisolitic Hills in the Pilbara Sand Sheet Vegetation (Robe River Valley) 	Directly adjacent to the WWTP 450 m south west of new WWTP >1 km south east of the new WWTP
Threatened and Priority Flora (Priority 1) <i>Ambutylon Onslow</i>	Greater than 16km west from WWTP
Robe River	6 km northeast from the irrigation sprayfield minor tributary ephemeral water courses run directly through the area of the irrigation a field and WWTP.
Warrambo Creek – ephemeral	8 km from the WWTP
Public Drinking Water Source Area: Bungaroo Creek Water Reserve (P1)	Greater than 35 km from the WWTP Groundwater at a depth greater than 15 m below ground level

7. Risk assessment

Tables 6 and 7 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 6: Risk assessment for proposed amendments during construction

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Category 54: Construction activities and vehicle movements on unsealed access roads	Noise: noise emissions from vehicle movements.	Residential receptors are >40km away from WWTP2 TEC's directly adjacent. Threatened Fauna >650m from WWTP2.	Air: wind speed and direction can change the level of impacts from noise and dust to environmental receptors. No pathway to residential receptors due to distance.	Negligible adverse impacts anticipated	N/A	N/A	N/A	Construction activities are expected to be of short duration as the WWTP2 will be prefabricated. Negative impacts to subterranean invertebrates are not anticipated. No residential receptors present.
	Dust: fugitive dust and particulate emissions			Negligible adverse impacts anticipated	N/A	N/A	N/A	The Pilbara environment is naturally dusty with flora and fauna expected to be tolerant to dust deposition over a short duration.

Table 7: Risk assessment for proposed amendments during commissioning and operation

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Category 54 Operation of the WWTP2 and irrigation of treated wastewater to the irrigation sprayfield	Noise: noise emissions generated from the operation of pumps.	Residential receptors are >40 km away from WWTP2 TEC directly adjacent. Threatened Fauna >650m.	Air: wind speed and direction can change the level of impacts from noise to receptors	None anticipated due to distance to receptors and low noise levels generated.	N/A	N/A	N/A	Noise generation during operations is expected to be minimal. No residential receptors present. No adverse impacts are anticipated to TEC's and Threatened Fauna.
	Odour: emissions generated during the operation of WWTP2 and discharge of treated sewage.	Residential receptors are >40 km away from WWTP2	No pathway to receptors due to distance.	N/A	N/A	N/A	N/A	No residential receptors present. Sewage will be treated within enclosed tanks and sludge will be removed for disposal to a licensed landfill facility.
	Wastewater: Discharge of treated effluent to land and runoff to surface waters: excess nutrients and pathogens, including from pipelines.	Surface waters Robe River (6km) and Warrambo Creek (8km) On site soils and terrestrial ecosystems (Priority 1 TECs)	Directly discharged to land and via overland flow. Ephemeral creeks are a potential pathway for impacts to surface waters. Seepage to	Excess nutrient loading in surface waters can lead to eutrophication leading to toxic algae blooms, which have adverse impacts on aquatic organisms and vegetation. Accumulation of nutrients in soils may impacts soil permeability/structure impacting terrestrial ecosystems and	Minor	Unlikely	Medium	The WWTP2 will be operated to ensure treated effluent meets Australian Guidelines. The proposed irrigation sprayfield is appropriately sized to allow for sufficient nutrient uptake by vegetation based on proposed treated effluent quality. Significant impacts to

		adjacent to Sprayfield 2	groundwater.	stygo fauna associated with groundwater systems.				stygo fauna and terrestrial ecosystems are not expected.
	Discharge of raw sewage and partially treated effluent to land as a result of spillage, including from pipelines.	Groundwater ecosystems			Moderate	Rare	Medium	<p>The WWTP2 will be bunded to contain potential raw sewage spillages. Elevated nutrients seeping to groundwater may result in contamination and elevated biochemical oxygen demand at a local scale.</p> <p>Impacts to surface waters are not anticipated due to proposed containment controls.</p> <p><i>The Environmental Protection (Unauthorised Discharges) 2004</i> Regulations are also applicable.</p>

8. Decision

The Delegated Officer has granted the construction and operation of the proposed WWTP2 and associated irrigation sprayfield.

The construction of the WWTP2 is not expected to result in adverse impacts to sensitive receptors and no conditions relating to emissions and discharges during construction have been applied to the amended Licence.

Additional controls have been added to prevent eutrophication risk to surface waters and groundwater ecosystems during operations.

The Delegated Officer has determined that the construction and operation of WWTP2 is acceptable subject to proposed nutrient loading rates being conditioned as limits. To ensure that wastewater treatment infrastructure is maintained and operated such that treated effluent quality is optimised, monitoring conditions have been expanded from the Existing Licence to apply to WWTP2.

9. Licence Holder's comments

The Licence Holder was provided with the draft Decision Report and Draft Licence on 18 March 2019. Comments received from the Licence Holder on 11 April 2019 have been considered by the Delegated Officer as shown in Appendix 2.

Alana Kidd

Manager, Resource Industries

REGULATORY SERVICES

Delegated Officer under section 20 of the *Environmental Protection Act 1986*

10. Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L8237/2008/2 – MESA A Warramboe Iron Ore Mine.	L8237/2008/2	accessed at www.dwer.wa.gov.au
2	<i>National Water Quality Management Strategy, Australian Guidelines for Sewage Systems – Effluent Management (Agriculture and Resource Management Council of Australia and New Zealand and New Zealand Environment and Conservation Council) 1997.</i>	NWQMS	Accessed at http://www.waterquality.gov.au/SiteCollectionDocuments/effluent-management.pdf
3	Licence Amendment Supporting Documentation, Mesa A Warramboe Iron Ore Mine – L8234/2008 December 2018 RTIO-HSE-0327095.	accessed DWER records (A1750762)	
4	DER, July 2015. <i>Guidance Statement: Regulatory principles.</i> Department of Environment Regulation, Perth.	accessed at www.dwer.wa.gov.au	
5	DER, October 2015. <i>Guidance Statement: Setting conditions.</i> Department of Environment Regulation, Perth.		
6	DER, November 2016. <i>Guidance Statement: Environmental Siting</i> Department of Environment Regulation, Perth.		
7	DER, February 2017. <i>Guidance Statement: Risk Assessments.</i> Department of Environment Regulation, Perth.		
8	DER, February 2017. <i>Guidance Statement: Decision Making.</i> Department of Environment Regulation, Perth.		

11. Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Decision Report and Draft Licence on 18 March 2019 for review and comment. The Licence Holder responded on 11 April 2019. The following comments were received on the draft Licence.

Condition	Summary of Licence Holder comment	DWER response
8	The Licensee requests a four month commissioning period to allow time for sufficient monitoring data to be obtained to ensure commission targets are met and operation of the WWTP can commence.	Noted and accepted.
9 and 11	The Licensee requests that the word 'Limit' in Column 5 of Table 2 and in Condition 11 be replaced with 'target' where relevant to commissioning to allow water quality to stabilise without exceeding limits or require reporting of a non-compliance.	Noted. Column 5 pertaining to Limits has been removed from Table 2. Condition 11 has been updated to meeting emission standards specified in Table 1 Column 2.
15	Administrative Error – Condition 9 changed to Condition 14.	Noted Administrative error has been corrected.

12. Appendix 3: Summary of Licence Condition Amendments

Previous Condition	Amendment condition number	Summary of changes to Licence Conditions
Licence amendment March 2019		
Cover Page	N/A	The cover page has been amended to include the increase in Premises Production or Design capacity from 155m ³ /day to 341 m ³ /day.
Definitions	N/A	Australian Standard definitions have been updated. DWER contact address details have been updated and SBR has been deleted. Additional terms 'Condition' and 'Works' have been added.
3(b)	3(b)	Has been updated for readability.
N/A	4 to 11	Conditions 4 to 11 have been inserted to authorise the construction and commissioning of for WWTP2.
5(a), 5(b), 5(c), 5(d), 5(e)	14, 15, 16	Previous condition 5(a) reworded to incorporate WWTP2 into monitoring conditions (14). Previous conditions 5(c) and 5(e) changes to condition numbers only (15 and 16). Conditions 5(a) and 5(d) have been deleted as volume monitoring and required Australian Standards for monitoring are now specified in Column 6 of Table 3.
4, 6, 7, 8, 9, 10, 11	16,17,18,19,20,21	Changed condition numbers only
Attachment 3	Attachment 3	Has been updated to include a Premises map that includes both WWTP1 and WWTP2 and their associated irrigation areas.
Attachment 4	Attachment 4	Annual audit compliance report form has been updated to latest version.