



Licence Number	L8141/2007/2
Licence Holder	Mt Weld Rare Earths Project
ACN	053 160 400
File Number:	DER2014/000427
Premises	Mt Weld Rare Earths Project Elora Road LAVERTON WA 6440 Mining tenement M38/58
Date of Amendment	14 November 2017

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act) as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Date signed on 14 November 2017

Tim Gentle

Manager Licensing (Resource Industries)

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

Definitions and interpretation

Definitions

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

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
Amendment Notice	refers to this document
Category/ Categories/ Cat.	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 33 Cloisters Square PERTH WA 6850 info-der@dwer.wa.gov.au
CS Act	<i>Contaminated Sites Act 2003 (WA)</i>
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>

Licence Holder	Mt Weld Mining Pty Limited
m ³	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
MS	Ministerial Statement
mtpa	million tonnes per annum
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Amendment Notice applies, as specified at the front of this Amendment Notice.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
RO	Reverse Osmosis
RWP	Return Water Pond
TSF	Tailings Storage Facility
UF	Ultrafiltration

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This amendment relates to changes in treatment of discharges under category 5. No changes to the aspects of the original Licence relating to Category 89 have been requested by the Licence Holder.

The following guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Decision Making (November 2016)*
- *Guidance Statement: Risk Assessment (November 2016)*
- *Guidance Statement: Environmental Siting (November 2016)*

Amendment description

Mt Weld Mining Pty Ltd has requested an amendment to their Licence L8141/2007/2 to permit the discharge of tailings supernatant directly to the evaporation ponds, without being treated via a clarifier unit. The clarification step, prior to discharge, was conducted primarily to reduce the suspended solids concentration of the supernatant. Recent improvements to management of the tailings discharge and deposition to the TSF (Tailings Storage Facility) have resulted in improved clarification and settling of the suspended solids entrained in the tailings upstream of the TSF, thereby achieving the desired result without the need for clarification. Refer to the table below for a comparison of the tailings supernatant water quality to that previously assessed as acceptable for discharge to the evaporation ponds.

Table 2: Comparison of tailings supernatant water quality proposed to be discharged to evaporation ponds with water streams previously approved for discharge (Mt Weld 2017a)

Parameter	pH	Total Dissolved Solids (TDS)	Total Suspended Solids (TSS)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Total Alkalinity	Silica
Unit	pH unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Raffinate alone W5078/2011/1	7.9	16,267	48.4	503	604	4,835	901	189
Combined Wastewater (Raffinate and Clarified TSF Decant) W5533/2014/1	9.1	2,900	288	6.7	3.5	980	847	147
Proposed RWP Supernatant	8.2	3,960	24	52	50	1,400	300	103

Table Note:

1. Actual raffinate/RO Reject water quality between 2011-2014
2. Proposed RWP Supernatant data averaged from samples between December 2015 and January 2017 (see Appendix A).
3. Source: (Lynas, 2017a).

Previous assessments and groundwater modelling investigation for associated Works

Approvals W5078/2011/1 and W5533/2014/1 have determined that seepage originating from disposal of either the treated supernatant or raffinate from the reverse osmosis plants to the evaporation ponds would take approximately 20 years to migrate to the adjacent groundwater monitoring bore LMW10 (as depicted as Figure 2 in Schedule 1 of the Licence.)

No changes have been requested to the category throughputs authorised by the existing Licence.

This application is made with the understanding that the provision to discharge directly to the evaporation ponds is allowed as a contingency only, in order to allow for flexibility in the management of the water balance onsite. Occasions where it may be necessary to dispose of supernatant from the TSF without treatment and re-use may occur as a result of severe rain events or due to maintenance or mechanical failures to the ultrafiltration or reverse osmosis units. The primary route for tailings supernatant will continue to be processed via the series of ultrafiltration units and reverse osmosis units to recover water (permeate) to re-use within the processing plant. This is as shown in the Figure below.

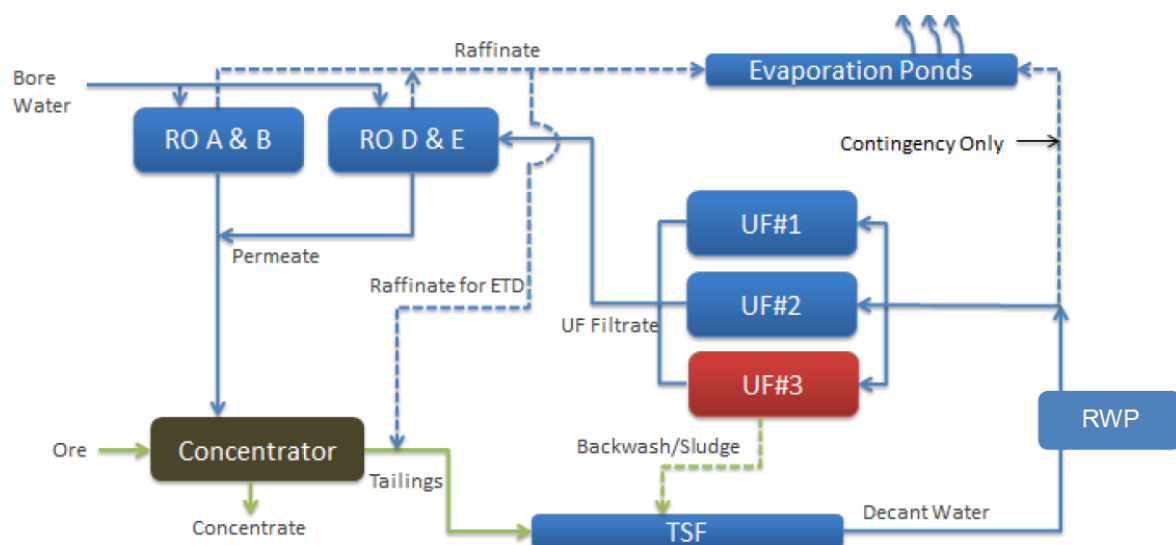


Figure 1: Proposed Mt Weld water balance flow sheet (where RO is reverse osmosis and UF ultrafiltration; Mt Weld 2017a)

The pipeline to transfer the supernatant from the Return Water Pond (RWP) to the evaporation ponds will be located within an earthen bund and fitted with a flowmeter (to allow the record of discharge amounts) and with isolation valves, to allow isolation of the line in the event of a failure or maintenance requirements. The proposed pipeline route is as shown in red below.

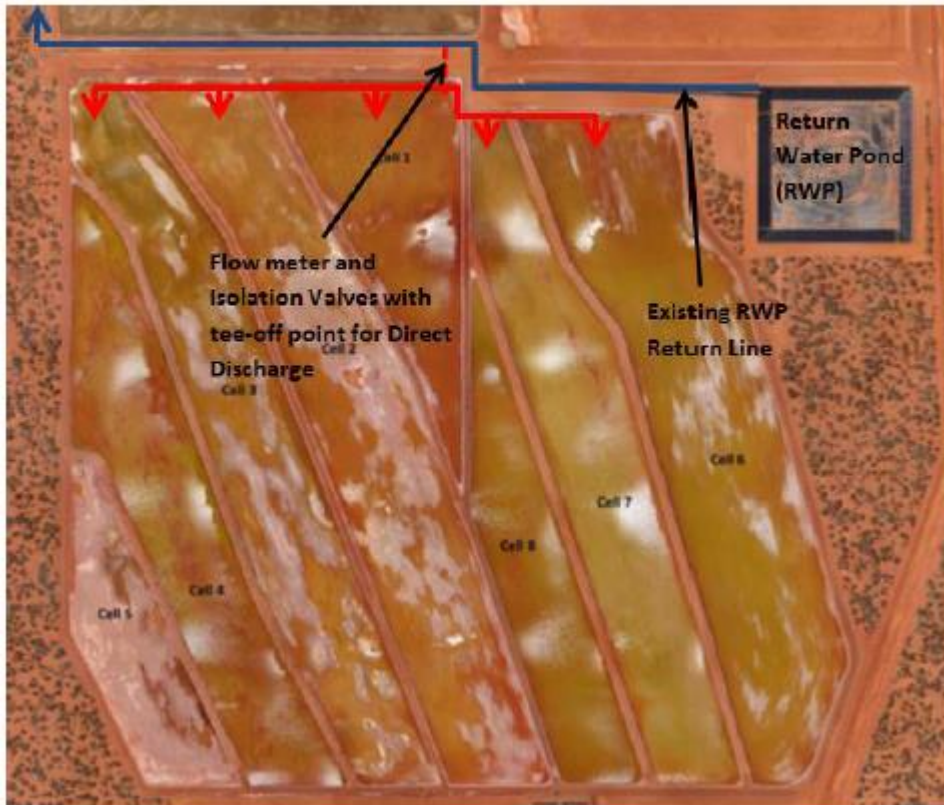


Figure 2: Pipeline route for supernatant discharge to the evaporation ponds (as shown in red; Mt Weld 2017a)

Other approvals

No other approvals are relevant to the requested amendment.

Amendment history

Table 3 provides the amendment history for L8141/2007/2.

Table 3: Licence amendments

Instrument	Issued	Amendment
L8141/2007/2	31/10/2013	Licence amendment to allow for pilot plant trial of tailings dewatering plant (screw press, dewatering system and thickener).
L8141/2007/2	19/08/2016	Licence amendment to authorise category 5 production capacity increase consistent with W5078 (Phase 2 tonnages), and increase to authorised amount of wastewater discharged to the evaporation ponds.
L8141/2007/2	07/04/2017	Licence amendment to authorise operation of TSF2 following receipt of commissioning and compliance documentation. The amendment also authorises reuse of clarified water for dust suppression. Improvement condition 4.1.1 is removed as the surface water management plan was submitted as required.

L8141/2007/2	14/11/2017	Amendment Notice 1 – authorise removal of clarifiers and discharge of TSF supernatant direct to evaporation ponds, without additional treatment.
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Location and receptors

There are no adjacent sensitive land uses. The nearest population is the accommodation camp at Granny Smith Mine, approximately 10.5 km to the west of Mt Weld. The nearest residential communities are at Mt Margaret Aboriginal Community, located 33km to the west and the town of Laverton, located 35km to the north west of the Premises.

Table 4 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 4: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Lake Carey	11.5 km to the west

Risk assessment

Table 7 (following) describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The table identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

The risk rating for these risk events has been determined in accordance with the risk rating matrix set out in Table 5 below.

Table 5: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

The assessment of the consequence and likelihood of the Risk Event was made in accordance with the criteria in Table 6 below.

Table 6: Risk criteria table

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		The following criteria has been used to determine the consequences of a Risk Event occurring:		
		Environment	Public health* and amenity (such as air and water quality, noise, and odour)	
Almost Certain	The risk event is expected to occur in most circumstances	Severe	<ul style="list-style-type: none"> onsite impacts: catastrophic offsite impacts local scale: high level or above offsite impacts wider scale: mid-level or above Mid to long-term or permanent impact to an area of high conservation value or special significance[^] Specific Consequence Criteria (for environment) are significantly exceeded 	<ul style="list-style-type: none"> Loss of life Adverse health effects: high level or ongoing medical treatment Specific Consequence Criteria (for public health) are significantly exceeded Local scale impacts: permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	<ul style="list-style-type: none"> onsite impacts: high level offsite impacts local scale: mid-level offsite impacts wider scale: low level Short-term impact to an area of high conservation value or special significance[^] Specific Consequence Criteria (for environment) are exceeded 	<ul style="list-style-type: none"> Adverse health effects: mid-level or frequent medical treatment Specific Consequence Criteria (for public health) are exceeded Local scale impacts: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	<ul style="list-style-type: none"> onsite impacts: mid-level offsite impacts local scale: low level offsite impacts wider scale: minimal Specific Consequence Criteria (for environment) are at risk of not being met 	<ul style="list-style-type: none"> Adverse health effects: low level or occasional medical treatment Specific Consequence Criteria (for public health) are at risk of not being met Local scale impacts: mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	<ul style="list-style-type: none"> onsite impacts: low level offsite impacts local scale: minimal offsite impacts wider scale: not detectable Specific Consequence Criteria (for environment) likely to be met 	<ul style="list-style-type: none"> Specific Consequence Criteria (for public health) are likely to be met Local scale impacts: low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	<ul style="list-style-type: none"> onsite impact: minimal Specific Consequence Criteria (for environment) met 	<ul style="list-style-type: none"> Local scale: minimal to amenity Specific Consequence Criteria (for public health) met

[^] Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting*.

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines*.

Table 7: Risk assessment for proposed amendments during operation

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts					
Cat 5 Processing or beneficiation of metallic or non-metallic ore	Disposal of tailings supernatant direct to evaporation ponds	Seepage	Groundwater abstracted for pastoral station use	Groundwater	Alteration of livestock water quality due to seepage resulting in an increase in groundwater salinity.	Minor	Rare	Low	Water quality of the tailings supernatant proposed to be discharged is better than that of the combined clarified supernatant and raffinate stream (with the exception of total dissolved solids). Refer to Table 2 of this Amendment Notice 1. Previous fate and contaminant transport modelling has determined that any seepage from the evaporation ponds would take approximately 20 years to travel to groundwater bore LMW10, located 200m to the east of the evaporation ponds (AECOM 2014, quoted in Appendix B of Decision Document for L8141/2007/2). Additionally this seepage would be within the groundwater cone of depression of the mining operation and possibly recovered through the premises' groundwater abstraction, thereby resulting in no net impact. The permeability of the evaporation pond cells 1- 5 is estimated at 5.33×10^{-9} m/s and the cells 6-8 as less than $1 \times$

									10 ⁻⁸ m/s (L8141/2007/2), and have been assessed as engineered containment infrastructure.
		Overflow from evaporation ponds	Native vegetation	Direct release	Release to vegetation of brackish water	Minor	Unlikely	Medium	No change to the disposal rates is proposed with this amendment. No change to risk previously assessed as part previous amendment to L8141/2007/2. (Freeboard for evaporation pond cells is sufficient to contain a 1 in 100 AEP (annual exceedance probability) rainfall event over 72 hours.
	Transferring tailings supernatant from the Return Water Pond to evaporation ponds via pipeline	Tailings supernatant spill	Native vegetation	Direct release	Release to vegetation of brackish water	Minor	Unlikely	Low	The pipeline will be located within earthen bund with isolation valves installed at either end to isolate flow if required. The pipeline is located between the evaporation ponds and TSF2 and the surrounding land immediately adjacent to the pipeline (Mt Weld 2017a) .

Decision

The amendment is granted. Current Condition 1.3.1 on the Licence restricts the total volume of discharges to the evaporation pond to 810 000m³ per annum. Condition 1.3.2 requires all pipelines carrying environmentally hazardous substances to be bunded or equipped with telemetry systems and pressure sensors to detect failures. Condition 1.3.3 prescribes a minimum freeboard of 300mm on all containment infrastructure. Evaporation pond delivery lines and freeboards are required to be inspected daily by Condition 1.3.4.

Table 3.2.1 of Condition 3.2.1 has been updated to include recording of volumes of tailings supernatant discharged to the TSF.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 10 November 2017. No comments received from the Licence Holder. The Licence Holder waived the remaining consultation period on 14 November 2017.

Amendment

1. Definitions of the Licence are amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

'CEO' means the Chief Executive Officer of the Department of Water and Environmental Regulation

'CEO' for the purpose of correspondence means;

Director General

Department Administering the Environmental Protection Act 1986
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'environmentally hazardous substances' means any liquors or slurries (solid and liquids in solution) that are either alkaline, acidic, saline or have the potential to cause environmental harm if released to the environment.

2. Table 3.2.1 of the Licence is amended by the insertion of the red text shown in underline below:

Table 3.2.1: Process monitoring				
Monitoring point reference	Parameter ^{1,2}	Units	Frequency	Method
Evaporation Ponds	Volume discharged to ponds	m ³	Cumulative Monthly Total	None specified
Combined wastewater (measured from standpipe)	pH	-	Monthly	Spot sample
	Total dissolved solids	mg/L		

	Aluminium Arsenic Cadmium Chromium Copper Iron Manganese Mercury Molybdenum Nickel Selenium Strontium Uranium Thallium Thorium Zinc	mg/L	Quarterly	Spot sample
	Calcium Magnesium Sodium Potassium Carbonate Chloride Sulfate			
TSF1	Volume discharged	m ³ (wet) & DMT	Cumulative Monthly Total	None specified
TSF2				
<u>RWP</u>	<u>Volume discharged to Evaporation Ponds</u>	<u>m³</u>		

Note 1: In-field non-NATA accredited analysis permitted for pH and TDS.

Note 2: Metals analysis for soluble component only.

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Mt Weld Licence Amendment Application dated 21 July 2017	Mt Weld 2017a	DWER records (A1485573)
2	Licence L8141/2007/2 – Mt Weld Rare Earths Project	L8141/2007/2	accessed at www.dwer.wa.gov.au
3	Works Approval W5078/2011/1– Mt Weld Rare Earths Project, amended 10 January 2013	W5078/2011/1	DWER records (A589635)
4	Works Approval W5533/2013/1– Mt Weld Rare Earths Project, amended 5 April 2016	W5533/2013/1	DWER records (A124233); also available at www.dwer.wa.gov.au
5	Ministerial Statement 4761	MS 476	accessed at www.dwer.wa.gov.au
6	DER, July 2015. <i>Guidance Statement: Regulatory principles.</i> Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
7	DER, October 2015. <i>Guidance Statement: Setting conditions.</i> Department of Environment Regulation, Perth.	DER 2015b	
8	DER, November 2016. <i>Guidance Statement: Risk Assessments.</i> Department of Environment Regulation, Perth.	DER 2016a	
9	DER, November 2016. <i>Guidance Statement: Decision Making.</i> Department of Environment Regulation, Perth.	DER 2016b	