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|--------------------------|---|
| Licence Number | L8141/2007/2 |
| Licence Holder | Mt Weld Mining Pty Limited |
| 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 | 14/02/2019 |

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.

Tim Gentle

Manager 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 Locked Bay 10 JOONDALUP WA 6169 info@dwer.wa.gov.au |
| 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> |
| Existing Licence | The Licence issued under Part V, Division 3 of the EP Act and in force |
| 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 |
| NEPM | National Environmental Protection Measure |
| 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 Decision Report applies, as specified at the front of this Decision Report. |
| Risk Event | as described in <i>Guidance Statement: Risk Assessment</i> |
| RCWA | Radiological Council of Western Australia |
| TDS | Total dissolved solids |
| TSF | Tailings Storage Facility |

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 notice is limited only to an amendment for Category 5.

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

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessment (February 2017)*

Amendment description

On 9 November 2018, Mt Weld submitted an application to increase the production (throughput) capacity of the processing plant to 443,000 tpa and to allow operation of the newly constructed Tailings Storage Facility 3. Both changes were subject to assessment under Works Approval W6120/2018/1, with the operational risks assessed and found acceptable subject to construction compliance conditions of the Works Approval being met.

On 10 September 2018 the construction compliance documents and groundwater bore logs for newly constructed bores were submitted to DWER. DWER found these documents to meet the requirements of conditions 1, 2, 3 and 4 of W6120/2018/1 for Stage 1 of TSF3 (initial embankment height), as of 14 September 2018.

It is noted that the processing plant upgrades that were authorised as part of the W6120/2018/1, are not yet complete; however it is also noted that the proposed production increase will initially be met by debottlenecking.

Mt Weld have also applied to allow saline dewater above 17,000 mg/L total dissolved solids (TDS) concentration to be used for dust suppression.

Table 2 below outlines the proposed changes to the Licence:

Table 2: Proposed throughput capacity changes

| Category | Current throughput capacity | Proposed throughput capacity | Description of proposed amendment |
|----------|-----------------------------|------------------------------|---------------------------------------|
| 5 | 242 000 tpa | 443 000 tpa | Increase in processing plant capacity |

Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 3.

Table 3: Relevant approvals

| Legislation | Number | Approval |
|----------------------------------|--------|---|
| <i>Radiation Safety Act 1975</i> | N/A | Approval to use wastewater currently discharged into evaporation ponds for dust suppression, as of 13 September 2016. |

Amendment history

Table 4 provides the amendment history for L8141/2007/2.

Table 4: 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. |
| L8141/2007/2 | 14/02/2019 | Amendment Notice 2 Authorise operation of TSF3, increased production to 443,000 tpa. Use of saline wastewater for dust suppression irrespective of total dissolved solids (TDS) concentration. |

Location and receptors

Table 5 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 5: Receptors and distance from activity boundary

| Residential and sensitive premises | Distance from Prescribed Premises |
|---|------------------------------------|
| Accommodation camp at Granny Smith Mine | 10.5km to the west of the Premises |

Table 6 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 6: Environmental receptors and distance from activity boundary

| Environmental receptors | Distance from Prescribed Premises |
|-------------------------|--|
| Lake Carey | Located 12km to the west of the Premises. Major salt lake, terminus of the Carey paleodrainage (groundwater system). Important breeding site for water birds at time of flooding. Habitat for aquatic invertebrate species. |

Risk assessment

Table 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.

Risks associated with the operation of TSF3 and increased production capacity have previously been assessed under Works Approval W6120/2018/1 and are not repeated here.

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 | Discharge of saline mine dewater to ground for dust suppression | Saline dewater with a concentration of TDS in excess of 17,000 mg/L | Native vegetation | Direct discharge from overspray | Adverse impacts to the health and survival of vegetation | Minor Road verges are constructed with earthen bunds between the roadway and vegetated areas, to keep road drainage away from vegetation (Mt Weld 2018b). | Unlikely Mt Weld have detailed that the competency of water cart operators is verified via theory and practical assessment (Mt Weld 2018b). | Medium Existing controls within the Licence prescribe the locations where saline dewater can be applied subject to the TDS concentration. Condition 1.3.8 states that the water used for dust suppression with a concentration above 5,000 mg/L TDS must only be used on areas that are haul roads, approved areas for construction and active mining and processing areas. Data provided as part of the application demonstrates that the TDS of the water abstracted for use and consequently the wastewater generated is trending above 17,000 mg/L to ~20,000 - 21,000 mg/L (Mt Weld 2018b). However the |

| | | | | | | | | | |
|--|--|--------------------------------|------------------------------|----------------------------|---|-----|-----|-----|--|
| | | | | | | | | | potential risk to vegetation is conditioned via 1.3.8 which states the water shall be applied to avoid damage to vegetation. Mt Weld has committed to visually monitoring monthly all roads and areas where saline water is applied for dust suppression (Mt Weld 2018b). |
| | | Trace radionuclides in dewater | Fauna, soils and groundwater | Direct discharge to ground | Health and amenity impacts to fauna. Soil and groundwater contamination | N/A | N/A | N/A | This matter was considered by the RCWA at their 238 th meeting of 13 September 2016. The Council agreed that the use of the proposed raffinate and decant water stream represented a minimal risk and the proposal was approved. As the ore processing only consists of physical separation, radionuclides are mainly bound with the solids and hence only small concentrations are in the wastewater reporting to the evaporation pond. Radium 226 and Radium 228 concentrations in the evaporation wastewater are essentially the same concentrations as in the carbonatite aquifer (Mt Weld 2016). |

Decision

Compliance with the construction requirements for TSF3 has been met and hence the approval to operate the facility is granted.

Proposed licence controls for TSF3 as listed in the Decision Report of W6120/2018/1 have been adopted in the amended licence conditions following. Conditions currently on the Licence capture operational emissions relating to containment infrastructure and have been updated to include TSF3.

The three additional groundwater monitoring bores installed as part of the construction works for TSF3 are now added to the Licence and the monitoring program amended as a result.

Fluoride has been added to the analytes subject to monitoring, as fluoride is associated with rare earth ores. Bicarbonate has been added in order to complete the analysis of major ions.

The increase to the production rate has previously been assessed in Works Approval W6120/2018/1 and whilst the proposed ore processing works have not been constructed as of the date of this amendment, the impacts associated with increased processing are primarily associated with increased tailings storage, which is addressed by the construction of the additional TSF3. The increase is granted.

The use of saline wastewater is approved given the controls for vegetation protection currently implemented by Mt Weld (competency checks for water cart operators, bunds and drainage lines to protect drainage on roadways from vegetation, visual monitoring). Condition 1.3.8 requires that wastewater be applied to so as to avoid damage to vegetation. Radiological considerations with respect to the application of wastewater in dust suppression have been previously assessed by the Radiological Council of Western Australia (RCWA 2016). As the source water for dust suppression is effectively the same as that approved for use in 2016 (similar radionuclide concentrations), the risk remains minimal.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 12 February 2019. Comments received from the Licence Holder have been considered by the Delegated Officer as shown in Appendix 2.

Amendment

1. The Prescribed Premises category table for category 5 is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

Prescribed premises category

Schedule 1 of the *Environmental Protection Regulations 1987*

| Category number | Category description | Category production or design capacity | Approved Premises production or design capacity |
|-----------------|---|--|---|
| 05 | Processing or beneficiation of metallic or non-metallic ore | 50 000 tonnes or more per year | 242 000 <u>443 000</u> tonnes per annual period |
| 89 | Putrescible landfill site | More than 20 but less than 5 000 tonnes per year | 300 tonnes per year |

2. 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’ for the purpose of correspondence means;

Director General
 Department Administering the Environmental Protection Act 1986
~~Locked Bag 33~~
~~CLOISTERS SQUARE WA 6850~~
Locked Bag 10
JOONDALUP WA 6169
 Email: info-der@dwer.wa.gov.au

3. Condition 1.3.1 of the Licence is amended by the insertion of the red text shown in underline below:

- 1.3.1 The Licensee shall ensure that waste material is only stored and/or treated within vessels or compounds provided with the infrastructure detailed in Table 1.3.1.

| Table 1.3.1: Containment infrastructure | | |
|--|--|---|
| Storage vessel or compound | Material | Requirements |
| TSF 1 | Tailings | HDPE geomembrane liner with permeability of 1×10^{-11} m/s |
| TSF 2 | Tailings | Geosynthetic clay liner (GCL) overlain with 300mm compacted colluvium soil. |
| <u>TSF 3</u> | <u>Tailings</u> | <ol style="list-style-type: none"> 1. <u>Three embankments constructed to a height of 5m (425 m AHD - Stage 1);</u> 2. <u>Underdrainage recovery sump (cut-off trench) and well under the embankments with a small recovery pond downstream of the embankment;</u> 3. <u>Foundation of underlying hardpan (hydraulic conductivity of 1×10^{-8} m/s) and lacustrine clays (hydraulic conductivity of 1×10^{-9} m/s); and</u> 4. <u>Top of TSF perimeter embankment graded so as spillage from pipelines falls towards the TSF.</u> |
| Evaporation Pond Phase 1, Cells 1- 5 | Blend of raffinate from reverse osmosis and clarified TSF supernatant (decant) water. Combined permitted discharge volume to all evaporation ponds 810 000m ³ per annum. | Clay lined, average permeability of 5.33×10^{-9} m/s. |
| Evaporation Pond Phase 2, Cells 6-8 | Blend of raffinate from reverse osmosis and clarified TSF supernatant (decant) water. Combined permitted discharge volume to all evaporation ponds 810 000m ³ per annum. | 400mm depth soil liner comprising compacted in situ colluvium and lacustrine clay, with 200mm depth of colluvial sand above soil liner. Permeability of less than 1×10^{-8} m/s. |

| | | |
|--------------------|---|-------------------------|
| Return Water Pond | Tailings supernatant from TSF 2 | HDPE lined |
| Plant Run Off Pond | Potentially contaminated stormwater | Compacted earthen basin |
| Treated Water Pond | Permeate (treated water) from Reverse Osmosis Plant | HDPE lined |

5. Table 1.3.6 of the Licence is amended by the deletion of the text shown in strikethrough and the insertion of the red text shown in underline below:

| Table 1.3.6: Water quality limit for dust suppression | | | | |
|---|------------------------|-----------------------------------|-------|---|
| Description | Parameter | Limit | Units | Permitted Use |
| Reverse osmosis raffinate water, clarified TSF supernatant or blend of both | Total Dissolved Solids | <5 000 | mg/L | Can be used on any disturbed areas |
| | | <17 000 <u>-</u> | | Haul/access roads, concentration plant, approved areas for clearing for construction, open pit, active mining areas |

6. 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 <u>Fluoride</u> Iron Manganese Mercury Molybdenum Nickel Selenium Strontium Uranium Thallium Thorium Zinc | mg/L | Quarterly | Spot sample |
| Calcium Magnesium Sodium Potassium <u>Bicarbonate</u> Carbonate Chloride Sulfate | | | | |
| TSF1 | Volume discharged | m ³ (wet) & DMT | Cumulative Monthly Total | None specified |

| | | | |
|-------------|--|----------------|--|
| TSF2 | | | |
| <u>TSF3</u> | | | |
| RWP | Volume discharged to Evaporation Ponds | m ³ | |

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

Note 2: Metals analysis for soluble component only.

7. Table 3.3.1 of the Licence is amended by the insertion of the red text shown in underline below:

| Table 3.3.1: Monitoring of ambient groundwater quality | | | | | | |
|---|--------------------------------|---------------|--------------|--------------|-------------------------|------------------|
| Monitoring point reference and location | Parameter^{1,2} | Target | Limit | Units | Averaging period | Frequency |
| LWM1 – LWM13 <u>LWM16</u> | Standing water level | 6 | 4 | mbgl | Spot sample | Quarterly |
| | pH | - | - | - | | |
| | Electrical conductivity | - | - | µS/cm | | |
| | Total dissolved solids | - | - | mg/L | | |
| | Aluminium | - | - | | | |
| | Arsenic | - | - | | | |
| | Cadmium | - | - | | | |
| | Chromium | - | - | | | |
| | Copper | - | - | | | |
| | <u>Fluoride</u> | - | - | | | |
| | Lead | - | - | | | |
| | Mercury | - | - | | | |
| | Manganese | - | - | | | |
| | Molybdenum | - | - | | | |
| | Nickel | - | - | | | |
| | Selenium | - | - | | | |
| | Strontium | - | - | | | |
| | Thallium | - | - | | | |
| | Thorium | - | - | | | |
| | Uranium | - | - | | | |
| | Zinc | - | - | | | |
| | Iron | - | - | | | |
| Calcium | - | - | | | | |
| Magnesium | - | - | | | | |
| Sodium | - | - | | | | |
| Potassium | - | - | | | | |
| <u>Bicarbonate</u> | - | - | | | | |
| Carbonate | - | - | | | | |
| Chloride | - | - | | | | |
| Sulfate | - | - | | | | |

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

Note 2: Metals analysis for soluble component only.

8. Table 3.3.2 of the Licence is amended by the insertion of the red text shown in underline below:

| Table 3.3.2: Management actions | | |
|--|---|--|
| Monitoring point reference | Event | Management action |
| LWM1 – LWM13 <u>LWM16</u> | Exceedance of the target in Table 3.3.1 for two consecutive quarters. | <p>The Licensee shall design and implement a groundwater recovery plan.</p> <p>The licensee shall measure the standing water level in the monitoring bore/s monthly as a minimum until such time as standing water levels in the monitoring bore/s are in excess of the target in Table 3.3.1.</p> |

Appendix 1: Key documents

| | Document title | In text ref | Availability |
|----|---|---------------|--|
| 1 | Licence L8141/2007/2 – Mt Weld Rare Earths Project | L8141 | accessed at www.dwer.wa.gov.au |
| 2 | Works Approval W6120/2018/1 – Mt Weld | W6120 | DWER records (A1651997) also At www.dwer.wa.gov.au |
| 3 | Letter from DWER to Mt Weld Mining (2018) <u>Subject: Submission of Partial Compliance Document</u> , dated 14 September 2018 | DWER 2018 | DWER records (A1721341) |
| 4 | Letter from Mt Weld Mining to DWER (2018a) <u>Subject: Works Approval Compliance Document – W6120/2018/1 Tailings Storage Facility 3 0 Stage 1 Mt Weld Rare Earths Project – Mt Weld Mining Pty Limited</u> , dated 10 September 2018 | Mt Weld 2018a | DWER records (A1718874) |
| 5 | Mt Weld (2018b) Mt Weld Rare Earths Project Licence Amendment Supporting Document, Mt Weld Mining Pty Limited, 5 November 2018 | Mt Weld 2018b | DWER records (A1737699) |
| 6 | Letter from Radiological Council of Western Australia (RCWA) to Lynas Corporation Ltd– Mt Weld Mining (2016), dated 10 October 2016 | RCWA 2016 | DWER records (A1346872) (Appendix 2 to the Mt Weld L8141 Licence Amendment Application dated 20 December 2016) |
| 7 | Memorandum from Alex Logan, Lynas Corporation Ltd to Radiological Council <u>Subject: Radiation Assessment for Licence Amendment (L8141)</u> , dated 29 August 2016 | Mt Weld 2016 | DWER records (A1346872) (Appendix 2 to the Mt Weld L8141 Licence Amendment Application dated 20 December 2016) |
| 8 | DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth. | DER 2015a | accessed at www.dwer.wa.gov.au |
| 9 | DER, November 2016. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth. | DER 2016b | |
| 10 | DER, November 2016. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth. | DER 2016c | |

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 12 February 2019 for review and comment. The Licence Holder responded waiving the remaining comment period.

| Condition | Summary of Licence Holder comment | DWER response |
|-----------|---|---------------|
| N/A | Correction to the name of the applicant | Addressed |