



Application for Works Approval

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

Works Approval Number	W6753/2022/1
Applicant	Mt Weld Mining Pty Limited
ACN	053 160 400
File number	DER2022/000021
Premises	Mt Weld Rare Earths Project Elora Road LAVERTON WA 6440 Legal description - Within Mining Leases M38/58, M38/59, M38/326 M38/327, G38/34 and G38/35. As defined by the Premises Map in Schedule 1
Date of report	13 February 2024
Decision	Works approval granted

**A/MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES**

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

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction, commissioning and operation of the Premises. As a result of this assessment, works approval W6753/2022/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) 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 and overview of premises

Mt Weld Mining Pty Limited (the applicant), a subsidiary of Lynas Rare Earths Ltd (Lynas) is currently holds licence L8141/2007/2 for the operation of a rare earth's (RE) processing plant (Category 5) and operation of a putrescible landfill site (Category 89) at the Mt Weld Rare Earths Project (the Premises) under Part V of the *Environmental Protection Act 1986* (EP Act). The Premises is situated on the Mt Weld Pastoral Station located within the Shire of Laverton, approximately 26 km south-west of the town of Laverton.

On 21 September 2022, the Applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act). This application seeks authorisation to:

- construct, commission and operate (under time limited operation) new processing plant infrastructure to process apatite ore (in addition to the existing ore type) and to increase design capacity to 1.3 million tonnes per annum (mtpa) (Category 5);
- construct and operate (under time limited operation) new water treatment plants (WTP) and refurbish existing WTPs to treat bore water for use in ore processing circuit; and
- construct, commission and operate (under time limited operation) a 22-megawatt (MW) high voltage (HV) power station (Category 52).

The prescribed premises boundary is depicted in Figure 1, with detailed site layout showing the location of the proposed expansion infrastructure shown in Figure 2.

The premises relates to the Categories 5 and 52 activities and design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6753/2022/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in W6753/2022/1.

The premises is currently authorised under existing licence L8141/2007/2 to process up to 443,000 tonnes per annum (tpa) of rare earth-bearing ore (Category 5) and 300 tpa of putrescible landfill waste (Category 89).

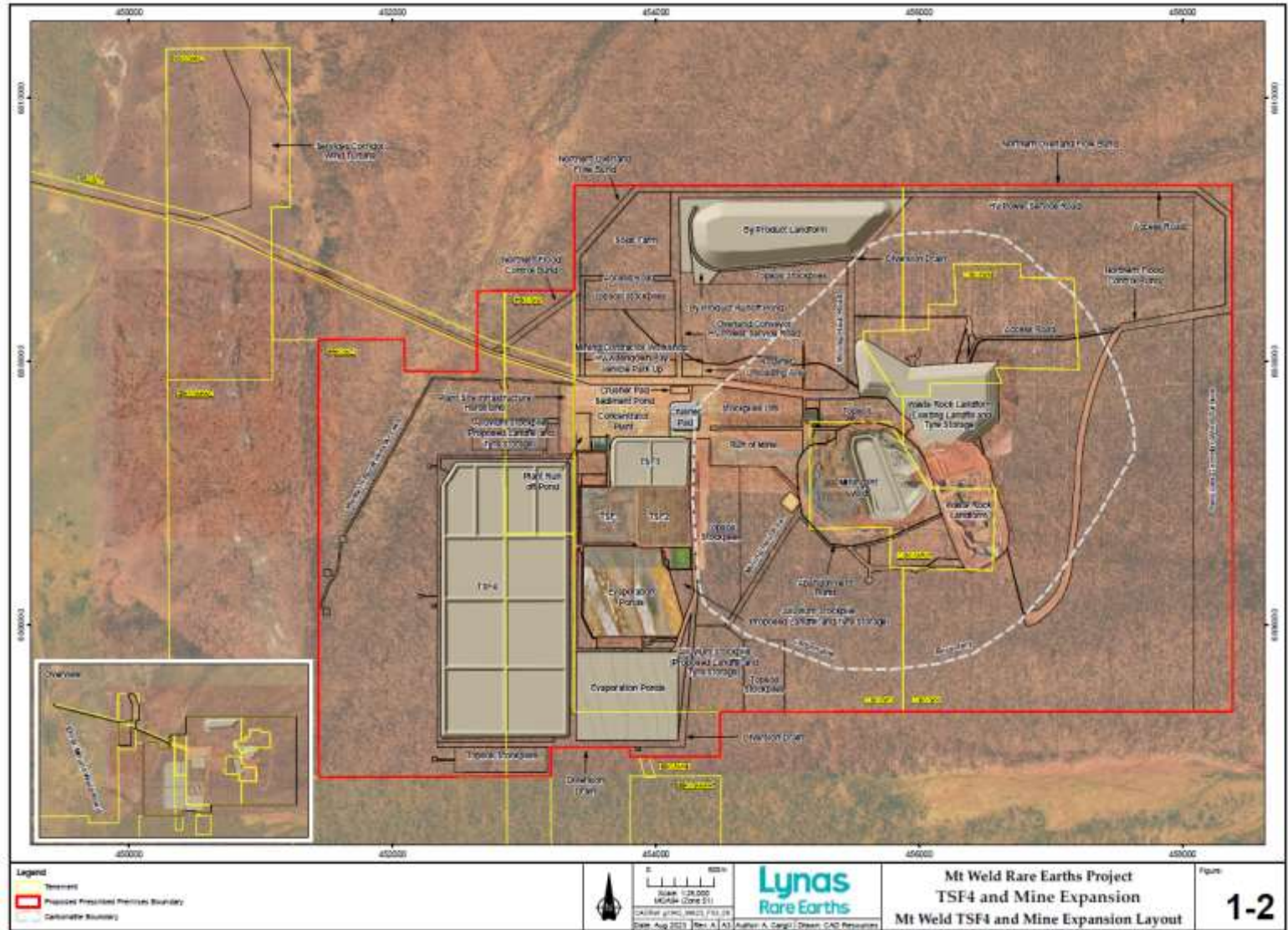


Figure 1: Map of the boundary of the prescribed premises

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IR-T13 Decision report template (short) v3.0 (May 2021)

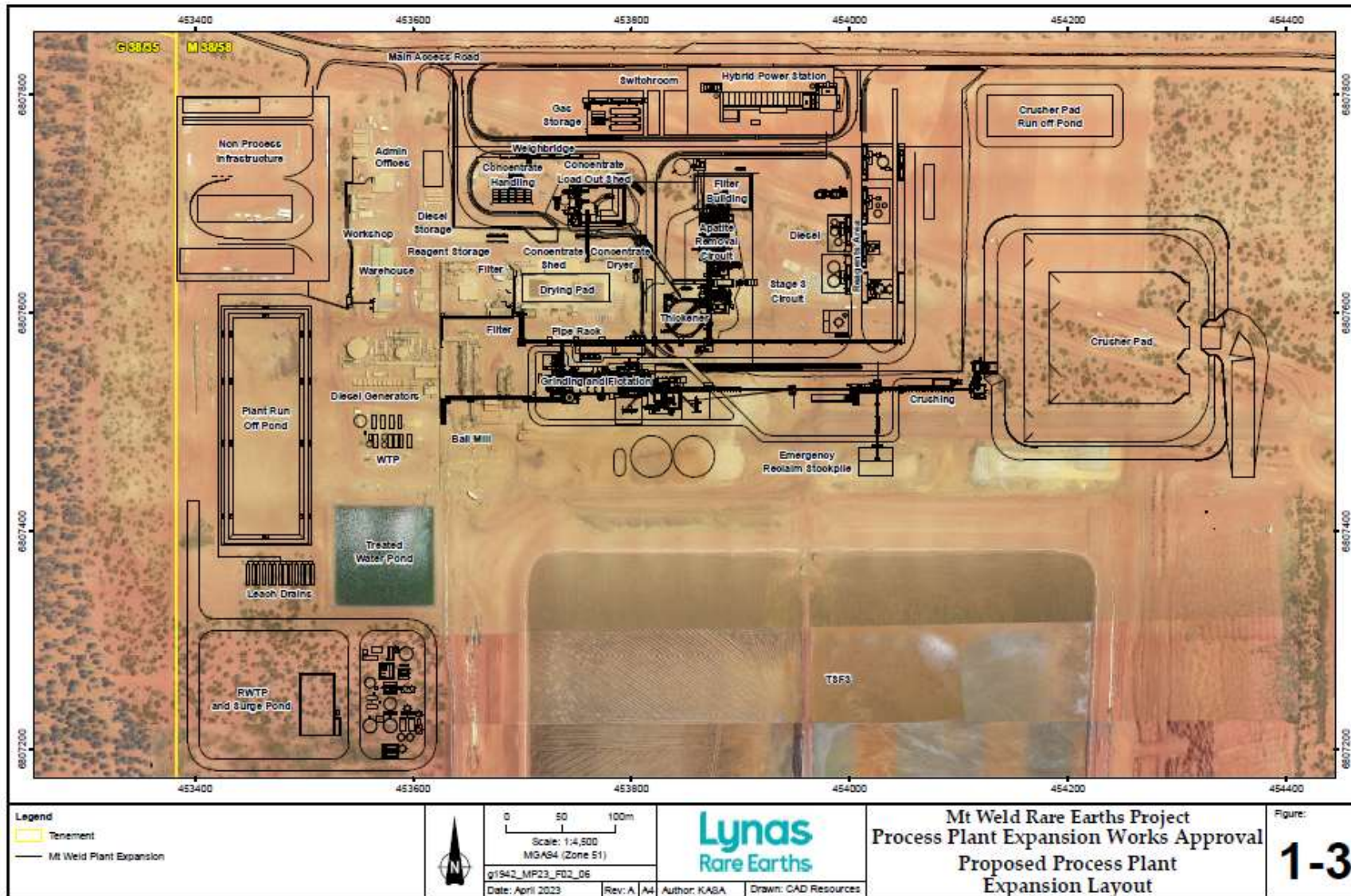


Figure 2: layout map showing locations of key infrastructure

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2.3 Description of proposed activities

2.3.1 Rare earth processing plant expansion

The premises currently processes high-grade Crandallite Zone and Limonitic Ironstone (CZLI) ores at its rare earths (RE) processing plant since operations commenced in 2011. In order to meet the growing demand for RE products, the applicant has proposed to expand the RE processing plant at the premises to:

1. increase ore processing capacity from 443,000 tpa to 1.3 mtpa; and
2. process apatite ore.

Apatite ore is located in the less weathered ore zone below the CZLI zone. The presence of apatite dilutes the rare earth oxide (REO) concentrate grade, which reduces cracking kiln capacity during downstream processes. As such, the RE processing plant will need to be expanded with the appropriate infrastructure to reduce the apatite mineral component to maintain high REO concentrations. The ability to process both CZLI and apatite ore significantly expands the potential ore reserve, justifying an increase in ore processing capacity. Post-expansion, the RE processing plant will treat a blend of both CZLI and apatite ore, resulting in feed REO grade and tailings REO grade being lower than existing grades, at approximately 8%.

The construction works are proposed to be constructed in three stages over a four-year period. The construction of each stage is expected to be completed within a timeframe of approximately nine months. The proposed additional ore processing and containment infrastructure are detailed in Table 1 and shown in Figure 2.

Table 1: Infrastructure for RE processing plant expansion

Stage of construction	Infrastructure to be constructed for RE processing plant expansion
<p>Stage 1</p>	<p>The following infrastructure will be constructed/installed to have sufficient design capacity to process 1.3 mtpa of RE ore and manage stormwater from the expanded footprint of the RE processing plant:</p> <ul style="list-style-type: none"> • Concentrate dewatering circuit, including thickeners and filter. <p>At this stage, the RE processing plant does not have the capability to process apatite ore (i.e., only CZLI ore). Only a portion of the RE processing plant (i.e., concentrate dewatering circuit) is capable to operating at 1.3 mtpa.</p>
<p>Stage 2</p>	<p>The following infrastructure will be constructed/installed to have sufficient design capacity to process 1.3 mtpa of RE ore, including apatite ore:</p> <ul style="list-style-type: none"> • Comminution circuit, including crushing, primary grinding and regrinding infrastructure; • Crusher pad for RE ore stockpile and associated crusher pad runoff pond; • Deepening of existing Plant Run Off Pond to increase storage capacity to accommodate RE processing plant expansion footprint; • Flotation circuits, including new flotation tanks and repurposing of existing flotation infrastructure; • Apatite conversion circuit, including leach tanks, filters, acid regeneration facilities and residue neutralisation facilities; and • Container Rotainer® load-out shed for concentrate drying, storage and loading. <p>At this stage, the RE processing plant is capable of processing up to 1.3 mtpa of RE ore to produce REO concentrate. The RE processing plant can also process apatite ore, in addition to CZLI ore.</p>

Stage of construction	Infrastructure to be constructed for RE processing plant expansion
<p>Stage 3</p>	<p>The following infrastructure will be constructed/installed to have sufficient design capacity to process 1,300,000 tonnes of RE ore, including apatite ore:</p> <ul style="list-style-type: none"> • Apatite removal circuit, including leach tanks, filters, acid regeneration facilities and residue neutralisation facilities. <p>At this stage, the RE processing plant is capable of processing up to 1.3 mtpa of RE ore (i.e., CZLI and apatite ore) to produce high grade (35%) REO concentrate. Furthermore, all apatite has been removed from the concentrate, which improves downstream processing capacity.</p>

Following the construction of each stage, the applicant has requested an environmental commissioning phase duration of up to 12 months. Environmental commissioning is required due to the complex modifications being made to the existing infrastructure at the RE processing plant.

While an environmental commissioning plan was not submitted for each stage of construction, the emissions and discharges associated with environmental commissioning are similar to those associated with the (time limited) operation of the RE processing plant and have been considered by the applicant in their risk assessment.

Based on the risk assessment of the operational activities, the Delegated Officer determined that an environmental commissioning plan was not required to be provided with the application. However, the plan will need to be submitted to the department at least three months prior to the commencement of commissioning activities and has been conditioned in the works approval.

Following environmental commissioning, the applicant requested authorisation to undertake time limited operation for each stage of expansion for a duration of up to nine months. The intent of time limited operation is to allow time for the submission and assessment of a licence amendment application, which authorises the operation of the relevant infrastructure. Therefore, the Delegated Officer has authorised a duration of 180 calendar days for the time limited operation of each staged expansion. This is the longest duration that can be authorised under time limited operation, in accordance with department's *Guideline: Industry Regulation Guide to Licencing* (DWER 2019).

2.3.1.1 Crushing and milling circuit

The RE processing plant is not currently equipped with a crusher, with ore feed reporting directly to the ball mill. As part of the expansion, a new three-stage comminution circuit will be constructed.

A Mineral Sizer with design capacity of 1.3 mtpa will be installed at the southern portion of the RE processing plant (i.e., directly north of tailings storage facility [TSF] 3) (Figure 3). The Mineral Sizer will crush ore feed from an F₈₀ of 600 mm to a P₈₀ of between 100 mm and 130 mm.

Feed ore will be stockpiled at the Crusher Pad prior to crushing. A separate area will be prepared for the emergency reclaim stockpile to hold excess crushed ore. Following crushing, the ore will be ground in a milling circuit via a SAG mill and ball mill to reduce the ore size to a P₈₀ of 53 µm. Water, sodium silicate and caustic soda will be added into the circuit as reagent conditioning.

2.3.1.2 Processing circuit

Post crushing and milling, the ground slurry is sent to a floatation stage, where approximately 60% of apatite is floated, thickened and pumped to an active TSF. After apatite floatation, the remaining REO-rich stream is reground in a fine grinding mill, conditioned with an emulsion of sodium silicate, caustic soda, fatty acid and diesel and undergoes a multi-stage floatation process to concentrate the REO content from 8% to 25%. Floatation tailings are pumped to an

active TSF.

The REO floatation concentrate is partially dewatered via thickening. During Stage 2 of expansion works, the applicant will construct an apatite conversion circuit, where the concentrate is treated with sulfuric acid to convert the remaining apatite to gypsum (i.e., calcium sulfate) and phosphoric acid. While the phosphoric acid is filtered out, the gypsum will remain with the treated REO concentrate, resulting in no change to the concentrate grade.

During Stage 3 of expansion works, an apatite removal circuit will be introduced, where phosphoric or hydrochloric acid will be used to remove the residual apatite and further increase concentrate grade to 35% REO. The final concentrate is then dried and loaded into Rotainers® for transport offsite for further processing. The leach liquor will be neutralised with lime and ultimately disposed at an active TSF. In Stage 3, a portion of the phosphoric acid and hydrochloric acid can be reclaimed and reused in the apatite leaching circuit.

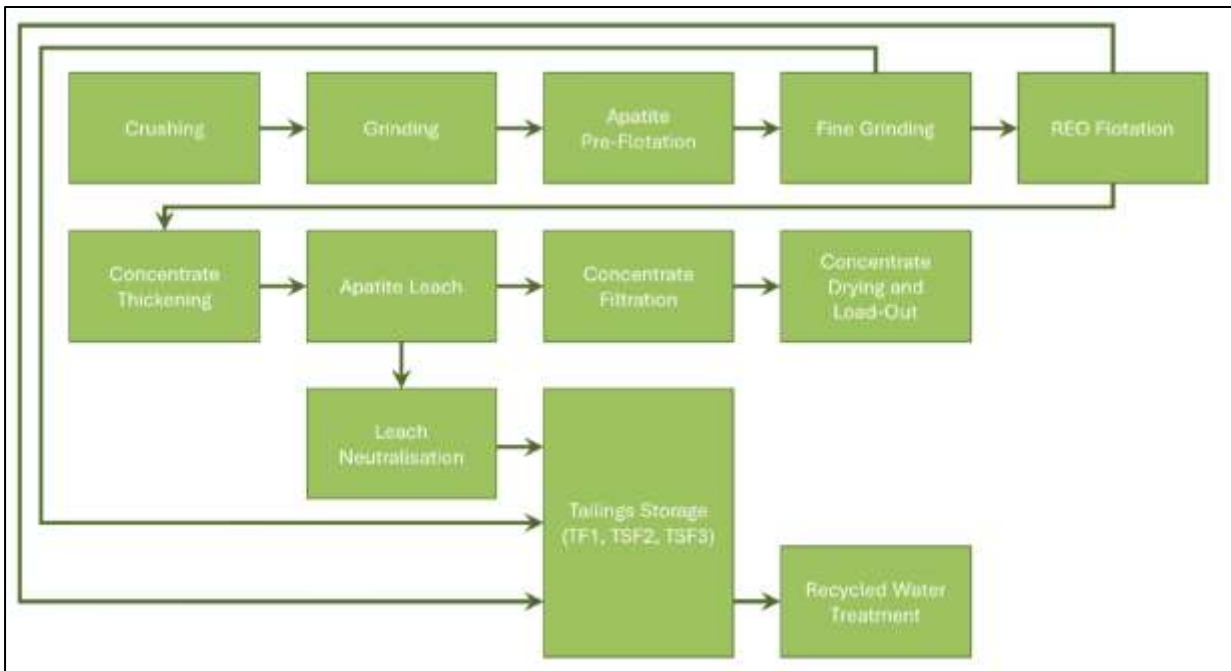


Figure 3: Upgraded RE processing plant flow diagram

2.3.2 Tailings management

The applicant currently operates three operational TSFs at the premises: TSF1, TSF2 and TSF3. All three TSFs have available storage capacities to receive tailings when required. A fourth TSF (TSF4) and associated evaporation ponds have been proposed.

As a result of the RE processing plant expansion, the tailings generated at the premises is expected to increase from 327,623 dry metric tonnes (dmt) to 1.15 dmt per annum. Up to three tailings waste streams are expected to be produced concurrently from the ore processing and deposited into an active TSF in separate cells (Figure 3):

1. Pre-float, apatite-rich slurry;
2. REO multi-stage floatation tailings; and
3. neutralised leach liquor filtered from apatite-rich concentrate (as part of apatite conversion circuit and apatite removal circuit).

The department understands that, aside from the REO flotation tailings, the other tailings waste streams are unique to the proposed RE processing circuit (i.e., where apatite ore is treated). Adequate geochemical characterisation is required to inform potential risks to the environment, in the event of a planned or uncontrolled release to the environment.

The existing TSF infrastructure have limited storage capacity. The proposed TSF4 is required to accommodate the increased tailings production during environmental commissioning and time limited operation, as a result of the RE processing plant expansion. At the time of this assessment, TSF4 is currently under assessment under Part V of the EP Act, under works approval W6816/2023/1.

2.3.2.1 Apatite tailings waste stream characterisation

In August 2023, the applicant completed a tailings leaching test in accordance with the Australian Standard Leaching Procedure (ASLP). The testing included samples from the three tailings waste streams described in Section 2.3.1.2: (1) apatite-rich pre-flotation concentrate tailings, (2) the REO flotation tailings, and (3) the sulfuric acid neutralised waste (from the Stage 2 apatite conversion circuit) and phosphoric acid neutralised waste (from the Stage 3 apatite removal circuit).

Under a pH 5 leaching fluid, the leachable concentrations of major ions, metals and metalloids varied between the tailings waste stream types (Table 2). While the existing REO flotation tailings stream does not appear to contain significant concentrations of metals and metalloids, the leachate from the apatite-rich pre-flotation concentrate tailings contained detectable concentrations of manganese, cadmium, nickel, cobalt and zinc. In particular, cadmium concentration (0.038 mg/L) was higher than the ANZG livestock drinking water guideline value of 0.01 mg/L (ANZECC & ARMCANZ 2000). The ASLP testing undertaken on CZLI tailings previously found low leaching potential (Stantec 2021b) and it was expected to change significantly with the addition of apatite ore.

Table 2: Tailings characterisation using pH 5 ASLP

Parameter	LOR ¹	Livestock GV ²	AR-PF ³	REO-F ⁴	SA-NW ⁵	PA-NW ⁶
pH	0.1	-	4.3	5.0	4.4	4.7
Arsenic (As)	0.001	0.50	<0.01	<0.01	0.024	<0.01
Cadmium (Cd)	0.0002	0.01	0.038	<0.002	0.0073	0.0028
Chromium (Cr)	0.01	1.00	<0.01	<0.01	0.03	<0.01
Cobalt (Co)	0.001	1.00	0.015	<0.01	0.057	0.19
Copper (Cu)	0.001	0.50	<0.01	<0.01	<0.01	0.014
Iron (Fe)	0.05	N/A	<0.5	<0.5	<0.5	2
Lead (Pb)	0.01	0.10	<0.01	<0.01	<0.01	<0.01
Manganese (Mn)	0.005	N/A	3.70	<0.05	1.80	3.4
Magnesium (Mg)	0.5	N/A	61.0	1.00	51.0	47
Mercury (Hg)	0.0001	0.002	<0.001	<0.001	<0.01	<0.001
Nickel (Ni)	0.001	1.00	0.03	<0.01	0.06	0.16
Thorium (Th)	0.05	N/A	<0.05	<0.05	<0.05	<0.05
Uranium (U)	0.005	0.20	<0.05	<0.05	<0.05	<0.05

Parameter	LOR ¹	Livestock GV ²	AR-PF ³	REO-F ⁴	SA-NW ⁵	PA-NW ⁶
Zinc (Zn)	0.005	20.00	0.92	<0.05	0.084	0.18
Calcium (Ca)	0.5	1000.00	120	2.3	11001	17002
Sodium (Na)	0.5	N/A	200	230	420	340
Neodymium (Nd)	0.001	N/A	0.0014	0.04	<0.001	<0.001
Cerium (Ce)	0.001	N/A	0.0015	0.02	<0.001	<0.001
Sulfur (S)	0.1	333.3	0.8	0.5	200	310

Note 1: LOR means limit of reporting.

Note 2: Livestock GV refers to the livestock drinking water guideline values (ANZECC & ARMCANZ 2000).

Note 3: AR-PF refers to apatite-rich pre-flotation tailings.

Note 4: REO-F refers to rare earth oxide flotation tailings.

Note 5: SA-NW refers to neutralised sulfuric acid waste, produced from the Stage 2 apatite conversion circuit.

Note 6: PA-NW refers to neutralised phosphoric acid waste, produced from the Stage 2 apatite removal circuit.

While the ASLP analytical data provided a preliminary characterisation of the apatite tailings geochemistry, they should be considered along with the limitations of the testing methodology:

1. The leachability of many chemical constituents in tailings is highly sensitive to variations in the pH of the leaching fluid that surrounds individual tailings particles. The existing ASLP was undertaken at only one pH. No information was provided to indicate the pH of each tailings waste stream that would be discharged into the TSF. Therefore, it is unclear whether the results of the ASLP leaching test (using pH 5 leaching fluid) was representative of *in situ* conditions within the TSF. Given the concurrent production of several tailings waste streams at the premises, there is potential for the pH and chemical composition of the leachate at the TSF may vary over time, depending on the relative rate at which seepage is produced from different waste containment cells in the facility.
2. It is unclear how the samples were obtained (i.e., whether individual grab samples taken or blending of material to obtain sample more representative of the average chemical composition of these materials). Furthermore, the number of samples leached for each tailings waste stream was unclear. It is important that sufficient sample size from each tailings waste stream is obtained to ensure that the natural variability of these materials is determined during the leaching tests.
3. The leaching tests did not include lanthanum in their analytical suite. The rare earth element lanthanum may be present in the tailings produced. At elevation concentrations, lanthanum is known to present a risk to vegetation (Krasavtseva & Maksimova 2022), soil fauna (Li *et al.* 2018), and potentially grazing fauna. As gypsum is soluble in water, there is also a risk that seepage produced from neutralised leach liquor (which contains gypsum) may also contain elevated concentrations of dissolved lanthanum.

The applicant has committed to undertaking further geochemical characterisation on the tailings waste streams, which will be documented as part of the environmental commissioning plan and reported to the department prior to the commencement of time limited operations.

2.3.3 Radiation management

Current REO concentrate feed from the CZLI ore contains naturally occurring radioactive material (NORM). Dry tailings sampled typically contained up to 450 parts per million (ppm) of thorium and 30 ppm of uranium (equivalent to radiation specific activity of 1.6 Bq/g and 0.3 Bq/g, respectively), sufficiently high to require registration under the *Radiation Safety Act 1975* and

compliance in accordance with the Australian Radiation Protection and Nuclear Safety Agency's (ARPANSA) *Code of Practice for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing 2005*. With the expansion, the inclusion of apatite ore in the processing circuit will result in a lower REO grade in the plant feed and subsequently, in the tailings waste streams produced.

The risks associated with the mining, processing and disposal of NORM's waste required management under a Radiation Management Plan (RMP) and Radioactive Waste Management Plan (RWMP). An RMP for the existing operations was approved by the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) on 21 March 2022. DEMIRS advised that, based on the information provided for the proposed plant upgrade, the radiological consequences associated with the change in feedstock are insufficient to warrant a change in the RMP. The data provided in the approved RMP indicates that the tailings reporting to the TSF contain 353 ppm of thorium oxide (ThO₂) and 29 ppm of triuranium octoxide (U₃O₈), and these do not change significantly with the new feed materials.

The applicant has noted that they are revising the existing operational RMP and RWMP as relevant for their life of mine expansion and Kalgoorlie Rare Earth Processing Facility (REPF), which is under assessment by the Environmental Protection Authority (EPA) (refer to Section 2.4). The Radiological Council of Western Australia (RCWA) advised that the applicant would still be required to liaise with the RCWA and DEMIRS regarding any significant changes to existing approvals (refer to Section 4).

2.3.4 Water treatment plants

To support water demand at the expanded RE processing plant, the applicant requires additional water treatment infrastructure in addition to upgrading and repurposing existing infrastructure.

Currently, the premises operates a recycle water treatment plant (RWTP) and a WTP. The RWTP utilises dissolved air flotation (DAF), three ultrafiltration (UF) plants and two reverse osmosis (RO) plants to treat return water from the existing TSFs, while the brackish Carbonatite Borefield WTP comprises three RO plants to treat bore water abstracted from the brackish Carbonatite aquifer. The applicant proposes to repurpose the five existing RO plants at the RWTP and Carbonatite Borefield WTP, which involves replacement of membranes and recommissioning of multimedia filtration. These RO plants will be amalgamated and be collectively referred to as Carbonatite Borefield WTP going forward.

Furthermore, an additional WTP ('Western Borefield WTP') will also be constructed, comprising a series of multimedia filtration and RO membranes. Cumulatively, the two WTPs will treat blended bore water from the Carbonatite borefield and the Western borefield at a rate of approximately 300 m³/hour to 400 m³/hour each. As only bore water from the brackish Carbonatite borefield is currently being treated at the premises, the introduction of bore water from the hypersaline Western borefield is expected to increase the salinity of the blended bore water treated by the WTPs, depending on the ratio of water from each borefield.

Treated water from the WTPs will be sent to the existing Treated Water Pond for reuse in the processing circuit, while waste products are sent for disposal at an active TSF and the saline brine by-product is sent to the evaporation ponds.

To replace the repurposed RWTP, the applicant proposes to construct a new RWTP to continue treating return water reclaimed from the TSFs. The new RWTP will treat return water that has undergone DAF to remove suspended matter, where the water will undergo chemical softening and clarification, dual multimedia filtration, weak acid cation ion exchange and an RO process (Figure 4). The treated water is then sent to the Treated Water Pond, while the brine is sent to the evaporation ponds.

To service the new RWTP, a dedicated surge pond will be constructed adjacent to the RWTP to receive tank overflow from the RWTP, rejected treated water, and the recyclable portion of

the regeneration wastes (i.e., backwash and fast rinse) from the dual media pressure filters and weak acid cation ion exchange unit (Figure 4). These wastes typically consist of solids retained in the filter media and hard water and metal cations collected in resin matrix. The pond will be periodically drained into a Combined Waste Tank, where it will be disposed of within a TSF cell dedicated for REO flotation tailings.

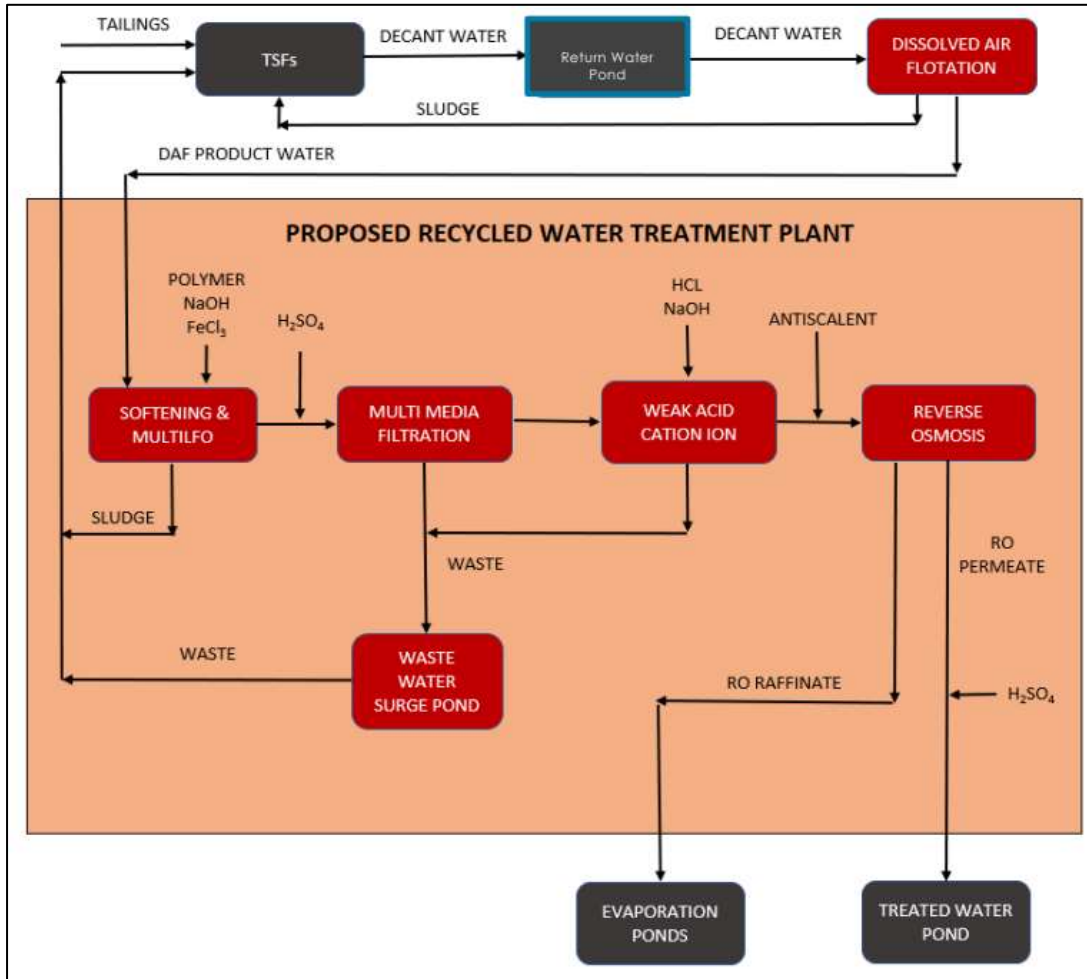


Figure 4: Recycle water treatment flow diagram

2.3.5 HV gas engine power station

To meet the premises maximum operating power demand of 17.6 MW, the applicant proposed to construct a new 22.185 MW high voltage gas engine power station, located north of the RE processing plant (Figure 2). Existing works approval W6120/2018/1 authorises the installation of up to five 1 MW diesel generators.

To facilitate the construction and commissioning of the RE processing plant expansion, up to ten 1.07 MW diesel generators will be installed and utilised, resulting in a cumulative power generation capacity of 10.07 MW. An additional five 3.367 MW gas-powered turbine generators (with total power generation capacity of 16.835 MW) will be installed, and once operational, up to five diesel generators will be decommissioned, bringing total power generation capacity to 22.185 MW.

Beyond that, the applicant intends to increase power generation capacity at the premises to approximately 64 MW using renewable power. Electric power generation using renewable sources does not fit the description of Category 52 activity. Thus, the works approval will only assess the installation and operation of diesel generators and gas-powered turbine generators up to a total power generation capacity of 22.185 MW.

The applicant will report emissions from diesel fuel combustion and particulate generation as part of their annual National Pollutant Inventory (NPI) and National Greenhouse and Energy Reporting (NGER) to the department and the Clean Energy Regulator, respectively.

Table 3: Power station phase and electric power generation capacity

Power station phase	RE processing plant expansion phase	Indicative timeframe	Unit model type	Power generation capacity per unit (MW)	Number of units	Total power generation capacity (MW)
Phase 1	Construction and commissioning	2024	415V Cummins KTA50	1.07	10	10.7
Phase 2	Commissioning and ramp up	2025 onwards	415V Cummins KTA50	1.07	5	5.35
			11kV Jenbacher J620	3.367	5	16.835
<i>Total Category 52 design capacity (Phase 2)</i>						22.185
Phase 3	Operation	2025 onwards	415V Cummins KTA50	1.07	5	5.35
			11kV Jenbacher J620	3.367	5	16.835
			Renewable source			
<i>Total power generation capacity (Phase 3)</i>						64.838
<i>Total Category 52 design capacity (Phase 3)</i>						22.185

2.4 Part IV of the EP Act

Ministerial Statement (MS) 476, published on 26 May 1998, applies for the mining and beneficiation of a RE deposit at the premises. The Ministerial Statement was amended on 16 September 2020 under section 45C of the EP Act to increase the approved area of disturbance to 429 hectares (ha) and increase the development envelope to 505 ha, as detailed in Attachment 7 of MS 476.

On 17 August 2022, the applicant submitted a section 38 referral under Part IV of the EP Act for a significant amendment to the proposal approved under MS 476. The amendment was for the expansion of infrastructure and mining activities at the existing Mt Weld Rare Earths Project, extending the maximum project life up to 30 years. The proposed mine expansion involves an increase in the development envelope from 505 ha to 2,802 ha and includes the following key components to facilitate the increase in ore production capacity to 1.3 mtpa:

- Expansion of RE mine pit;
- Expansion of RE beneficiation plant;
- Construction of new TSF (TSF4);
- Inclusion of a dry stack tailings area;
- Construction of additional evaporation ponds;

- Expansion of the existing Run of Mine (ROM) pad;
- Expansion to waste rock landforms and long-term storage of Kalgoorlie REPF by-products are landform;
- Construction of hybrid power station, including solar array, wind turbines and battery storage;
- Establishment of accommodation village, including wastewater treatment plant;
- Expansion of borefield network and tailings water recycling infrastructure.
- Construction of a 22-megawatt hybrid solar/wind power station;
- Establishment of a worker's accommodation village; and
- Additional borefield and tailings water recycling infrastructure.

The applicant was advised on 30 November 2022 that the Delegated Officer is constrained from making a decision on works approval W6753/2022/1 until a determination has been made on the proposal by the EPA. In order to meet project timeframes, the applicant submitted an application under section 41A(3) of the EP Act to undertake minor and preliminary (M & P) works associated to the proposal. The disturbance footprint area is up to 14.26 ha and the scope of the M & P works includes:

- Bulk earthworks activities;
- Installation of concrete foundations for proposed expansion infrastructure;
- Erection of steel frames for buildings and conveyor systems;
- Erection of buildings and/or building shells for selected expansion infrastructure; and
- Establishment and use of laydown areas.

The Delegated Officer determined that the scope of the M & P works appear to be preparatory in nature and that the proposal is not likely to trigger a prescribed activity under Part V of the EP Act. The section 41A(3) application for M & P works was approved on 13 March 2023.

On 9 November 2023, the EPA published EPA Report 1752 detailing its assessment of the proposal. Two key environmental factors were identified and assessed by the EPA:

1. **Terrestrial fauna** – Potential impacts to fauna habitat (i.e., long-tailed dunnart), fauna mortality due to vehicle and machinery movements and indirect impacts due to feral animal activity, weeds and altered fire regimes; and
2. **Human health** – Potential impacts from radiation exposure during mining and mineral processing of NORM, radiation exposure to public and workers during the transport and storage of NORM, and radiation risk from closure.

The EPA recommended that the proposal may be implemented, subject to the conditions outlined in MS 1216, which was approved by the Minister for Environment on 20 December 2023.

The EPA Report 1752 stated that the following environmental factors can be adequately regulated under Part V of the EP Act (and other legislation):

1. **Terrestrial environmental quality** – Impact by seepage from waste structures and potential chemical and hydrocarbon spills and leaks; and
2. **Inland waters** – Potential contamination of groundwater and surface water from seepage from waste structures, increased sediment levels in runoff and altered hydrological regimes due to construction of project infrastructure.

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 2020b).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction, commissioning and operation (including time limited operation) which have been considered in this decision report are detailed in Table 4 below. Table 4 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Noise emissions associated with construction and operation of rare earths processing plant upgrade and the HV gas engine power station activities have been discounted from the risk assessment as there are no nearby sensitive human receptors.

Table 4: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction of RE processing plant expansion, including crusher pad run-off pond and plant run-off pond upgrades Stormwater and drainage infrastructure upgrades	Air / windborne pathway	<ul style="list-style-type: none"> • Areas to be cleared will be limited to areas required for construction works; • Construction area will be monitored for dust lift-off, with dust suppression applied when lift-off is observed; • A water cart will be available to apply dust suppression, if considered necessary.
Contaminated stormwater	Construction of the RWTP and Western WTP, including surge pond Repurposing of existing RWTP and Carbonatite WTP Construction of HV gas engine	Overland runoff during rainfall events.	<ul style="list-style-type: none"> • Construction work will be undertaken during dry periods, where possible; • Existing diversion channels and bunding around the operational area will be maintained to prevent surface run-off from the catchment area from entering the operational area; • Potentially contaminated stormwater runoff within the operational area will be directed to the Plant Run Off Pond for settling of solids and evaporation; and • Areas susceptible to erosion and sedimentation will be identified and inspected

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Emission	Sources	Potential pathways	Proposed controls
	power station Light vehicle / mobile equipment movement		regularly. The premises is also subject to existing licence L8141/2007/2, which contains conditions requiring visual inspection of stormwater drains and channels and diversion structures quarterly and after significant rainfall events. As well as conditions requiring the capacity of the Plant Run off pond to be visually confirmed prior to forecast storm events.
Hydrocarbon and chemical reagent		Loss of containment, resulting in spills and leaks	<ul style="list-style-type: none"> • All equipment servicing will be undertaken in a dedicated workshop; • All refuelling will be undertaken on a refuelling pad (bunded hardstand), with drainage towards a collection sump; • Work areas will be inspected visually for signs of contamination or spills; • Spill kits will be available for immediate clean up in the event of a spill, with spill cleanup procedures implemented to remove any contaminated material from the premises; • Hydrocarbons and other chemical reagents will be stored in designated areas and on self-bunded facilities; • Machinery will be operated and maintained in accordance with manufacturer's specifications; and • Visual inspection of vehicles and machinery will be undertaken daily to ensure no leaks or spills have occurred. <p>The premises is also subject to existing licence L8141/2007/2, which contains the following conditions as controls:</p> <ul style="list-style-type: none"> • Spills of hydrocarbons outside an engineered containment system must be recovered or removed and disposed of; and • All pipelines containing environmentally hazardous substances must be either equipped with telemetry and pressure sensors or be contained in secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.
Commissioning and Time Limited Operations			
Processing plant expansion			
Dust, including	Unloading, loading and stockpiling	Air / windborne	<ul style="list-style-type: none"> • For fixed equipment where dust is an issue, water sprays will be fitted to the

Emission	Sources	Potential pathways	Proposed controls
NORMs	<p>of material onto ROM pad during ore processing</p> <p>Crushing and milling of ore material prior to wet RE processing</p> <p>Light vehicle/mobile equipment movements</p>	pathway	<p>equipment. The Crusher Feed Bin atop the Crusher Pad will be fitted with a curtain water spray system;</p> <ul style="list-style-type: none"> • Transfer points along the comminution circuit will be enclosed to collect dust; • Rubber curtain will be placed on the kibble opening to further minimise dust from transfer points; • Mobile water sprays via use of a water cart will be utilised where fixed sprays are not appropriate (e.g., Crusher Pad ore stockpiles, roads within the RE processing plant area); and • Concentrate load-out will be via closed containers (Rotainers); • Radiation Management Plan approved by DMIRS and RCWA will be implemented, including: <ul style="list-style-type: none"> - continuing to measure external gamma radiation around the premises during area surveys; - continuing to measure personal exposure using personal monitors; and - continuing to measure internal exposure to alpha radiation using positional dust monitoring and thoron monitoring.
Contaminated stormwater	<p>Spills and leaks from RE processing plant area and reagent storage area.</p> <p>Vehicle movements at crusher pad</p>	Overland runoff during rainfall events.	<ul style="list-style-type: none"> • All new wet processing circuits will be installed within bunded hardstand compounds; • Drainage infrastructure will be designed such that offsite natural surface water flow is maintained as much as possible; and • Existing diversion channels around the operational area will be maintained to prevent surface run-off from the catchment area from entering the operational area; • Potentially contaminated stormwater runoff within the operational area will be directed to the Plant Run Off Pond for settling of solids and evaporation; • Areas susceptible to erosion and sedimentation will be identified and inspected regularly; • Existing Plant Run Off Pond will be deepened to meet increased runoff capture requirements at the RE processing plant expansion; and • Crusher Pad Run Off Pond will be constructed to meet capture runoff requirements at the crusher pad. <p>The premises is also subject to existing licence L8141/2007/2, which contains the</p>

Emission	Sources	Potential pathways	Proposed controls
			<p>following conditions as controls:</p> <ul style="list-style-type: none"> Spills of saline water, wastewater, process liquors, tailings or hydrocarbons outside an engineered containment system must be recovered or removed and disposed of; and Stormwater drains, channels and diversion structures must be visually inspected to ensure they are free of accumulated sediments on a quarterly basis and after significant rainfall events. The capacity of the Plant Run Off Pond must be visually confirmed prior to a forecasted storm event
<p>Hydrocarbon and chemical reagent; Process water; Apatite tailings waste</p>	<p>Processing of apatite ore Storage of hydrocarbon and chemical reagent Transport and use of hydrocarbon, chemical reagent and process water in RE processing</p>	<p>Loss of containment, resulting in spills and leaks</p>	<ul style="list-style-type: none"> New wet circuit infrastructure (i.e., floatation cells) of the RE processing plant expansion will be installed within bunded hardstand areas; Hydrocarbons and other chemical reagents will be stored in designated areas and on self-bunded facilities, in accordance with Dangerous Goods Licence DGS021014; Hydrocarbon and chemical reagent storage and bunding will be constructed to meet <i>AS 1940: Flammable Liquids Storage & Handling</i> standards. As a minimum, the storage facilities will consist of an impervious concrete bunded area, fitted with a sump and pump that is capable of recovering spilled chemicals or be of sufficient storage capacity to contain 110% of the largest tank or 25% of the total tank volume within the bunded area, whichever is greater; Concrete hardstand and bunding associate with storage infrastructure will be maintained; All equipment servicing will be undertaken in a dedicated workshop; All refuelling will be undertaken on a refuelling pad (bunded hardstand), with drainage towards a collection sump; Work areas will be inspected visually for signs of contamination or spills; Spill kits will be available for immediate clean up in the event of a spill, with spill cleanup procedures implemented to remove any contaminated material from the premises; Machinery will be operated and maintained in accordance with manufacturer's specifications; and Visual inspection of vehicles and machinery will be undertaken daily to ensure no leaks or spills have occurred. <p>The premises is also subject to existing licence L8141/2007/2, which contains the</p>

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Emission	Sources	Potential pathways	Proposed controls
			following conditions as controls: <ul style="list-style-type: none"> Spills of saline water, wastewater, process liquors, tailings or hydrocarbons outside an engineered containment system must be recovered or removed and disposed of; All pipelines containing environmentally hazardous substances must be either equipped with telemetry and pressure sensors or be contained in secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.
Water treatment plants			
Saline bore water from Carbonatite and Western borefield Return water from TSF	Transfer of raw bore water from borefield to WTP to treated water pond Transfer of return water from return water pond to RWTP to treated water pond Water treatment process at RWTP and WTP	Loss of containment, resulting in spills and leaks	<ul style="list-style-type: none"> WTP operational area will be sited within secondary earthen bunding; WTP operational area will be graded towards the surge pond; Reverse osmosis bullets will be within bunded hardstand compound; Any loss of containment from the RWTP and WTPs will be managed using similar controls proposed for managing contaminated stormwater at the RE processing plant area. The premises is also subject to existing licence L8141/2007/2, which contains the following conditions as controls: <ul style="list-style-type: none"> Spills of saline water, wastewater and/or process liquor outside an engineered containment system must be recovered or removed and disposed of.
		Pipeline failure, resulting in leaks and spills	<ul style="list-style-type: none"> Return water pipeline from the TSF will continue to be located within earthen bunds with isolation valves installed at either end to isolate flow, if required; Return water pipeline from the TSF will be bunded or equipped with telemetry systems and pressure sensors to detect failures; and Pipelines will be inspected daily. The premises is also subject to existing licence L8141/2007/2, which contains the following conditions as controls: <ul style="list-style-type: none"> All pipelines containing environmentally hazardous substances must be either equipped with telemetry and pressure sensors or be contained in secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; and

Emission	Sources	Potential pathways	Proposed controls
			<ul style="list-style-type: none"> Tailings return lines must be inspected daily for visual integrity.
Water treatment by-product waste	Water treatment process at RWTP	Overtopping of surge pond	<ul style="list-style-type: none"> Surge pond will be constructed with sufficient storage capacity to service the associated RWTP, including storing runoff and tank overflow collected by the plant drainage system; Surge pond will be equipped with a level transmitter to monitor pond water level via telemetry and control the water transfer pump; and Contents of the surge pond will be periodically transferred to a Combined Waste Tank via the water transfer pump. <p>The premises is also subject to existing licence L8141/2007/2, which contains the following conditions as controls:</p> <ul style="list-style-type: none"> Spills of wastewater or process liquor outside an engineered containment system must be recovered or removed and disposed of; and A minimum top of embankment freeboard of 300 mm must be maintained at all containment infrastructure on the premises.
		Seepage through surge pond base and wall	<ul style="list-style-type: none"> Surge pond will be lined with HDPE; and Dried solids will be periodically removed from the surge pond and deposited in an active TSF.
Brine waste	Water treatment process at RWTP, Western WTP and Carbonatite WTP	Seepage through evaporation pond base and wall	<ul style="list-style-type: none"> Brine will be discharged into existing evaporation ponds, which are clay lined with permeability ranging between 5.33×10^{-9} m/s to less than 10^{-8} m/s; <p>The premises is also subject to existing licence L8141/2007/2, which contains the following conditions as controls:</p> <ul style="list-style-type: none"> Spills of wastewater or process liquor outside an engineered containment system must be recovered or removed and disposed of.
Treated water	Water treatment process at RWTP, Western WTP and Carbonatite WTP	Overtopping of treated water pond	<ul style="list-style-type: none"> Treated water pond is currently of sufficient size to meet water requirements at increased throughputs needed to meet plant water demand; Treated water pond will be monitored via telemetry and equipped with a level transmitter to monitor pond water level and control the water transfer pump operation; and <p>The premises is also subject to existing licence L8141/2007/2, which contains the following conditions as controls:</p>

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Emission	Sources	Potential pathways	Proposed controls
			<ul style="list-style-type: none"> Spills of wastewater outside an engineered containment system must be recovered or removed and disposed of; and A minimum top of embankment freeboard of 300 mm must be maintained at all containment infrastructure on the premises.
		Seepage through treated water pond base and wall	<ul style="list-style-type: none"> Treated water pond is HDPE lined.
		Discharge to land (dust suppression)	<p>None proposed.</p> <p>The premises is also subject to existing licence L8141/2007/2, which contains the following conditions as controls:</p> <ul style="list-style-type: none"> Only treated water of adequate quality may only be used for dust suppression to avoid damage to surrounding vegetation as a result of over-spraying or runoff.
Gas engine HV power station			
Stack emissions (particulate matter, CO, NO _x , So _x)	Operation of LNG-powered HV power station	Air / windborne pathway	<ul style="list-style-type: none"> Air emission estimates will be reported under the annual National Pollutant Inventory (NPI) and National Greenhouse and Energy Reporting (NGER) requirements; A commissioning and testing plan will be implemented to ensure stack emissions are as per manufacturer's design specifications.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020b), the Delegated Officer has excluded the applicant's employees, visitors, and contractors 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 2020a)).

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

Human receptors	Distance from prescribed activity
Gold Fields Granny Smith Gold Mine accommodation camp	<p>The closest human dwelling is the Gold Fields Granny Smith Gold Mine, located approximately 10.5 km west of the premises boundary. The distance between the proposed activities and the accommodation camp is adequately large such that impacts from emissions and discharges are unlikely to be present at the accommodation camp. As such, the Gold Fields Granny Smith Gold Mine accommodation camp will not be considered further in this risk assessment.</p> <p>No sensitive human receptors are applicable for the purposes of this risk assessment.</p>
Environmental receptors	Distance from prescribed activity
Native vegetation	<p>Native vegetation at the premises is dominated by a mulga woodland with some localised mallee and spinifex communities. Specifically, native vegetation abuts the immediate north and west of the proposed RE processing plant area, as well as north of the proposed HV power station. The area suffers from impacts from overgrazing (e.g., cattle, rabbits, camels, horses) and exploration activities.</p> <p>A detailed flora and vegetated survey undertaken in 2020 found no Threatened or Priority Ecological Communities at the premises (Stantec 2021a). Native vegetation at the premises were determined to be well represented at all levels (i.e., state-wide, bioregional and local). No rare or geographically restricted flora species were recorded.</p>
Surface water bodies	<p>The premises is subject to surface sheet wash drainage following heavy or prolonged rainfall events. The topographic of the premises indicates that runoff flows westward.</p> <p>Several surface water lines surround the premises boundary, with the closest located 1.3 km west from the RE processing plant. These water lines drains into Lake Carey, located approximately 14 km west-southwest of the premises. Lake Carey is a major salt lake surrounded by low-relief topography comprising aeolian dunes. While the lake is generally dry for most of the year, small pools persist at lower elevations on the lake surface following rainfall events. These pools may be accessed by birdlife and act as habitats for aquatic invertebrates, such as shrimp species.</p>
Groundwater aquifer	<p>Three main regional groundwater flow systems occur within the vicinity of the premises:</p> <ol style="list-style-type: none"> 1. An unconfined superficial aquifer formed within the surface alluvium, located at approximately 20 m below ground level (mbgl); 2. A confined/semi-confined weather carbonatite aquifer, formed by the carbonatite regolith, located east of the existing TSFs, located at approximately 35 mbgl; and 3. A confined/semi-confined regional weathered bedrock/fresh bedrock aquifer, located below the carbonatite aquifer. <p>Limited connectivity is thought to occur between the superficial and bedrock aquifers due to the presence of lacustrine clays, which act as a confining layer. Regional groundwater flow is south-west, away from the carbonatite and towards Lake Carey and the Carey Paleodrainage System. However, historical dewatering of the carbonatite aquifer has created a sink, with hydraulic influence</p>

	<p>extending into the surrounding TSFs and evaporation ponds (Ultramax 2011). This has reversed the local groundwater flow back towards the mine pit, rather than towards Lake Carey in the west.</p> <p>The premises is located within the Goldfields Groundwater Area, proclaimed under the Rights in Water and Irrigation Act 1914. The applicant currently abstracts groundwater under licence GWL171310(3).</p> <p>Groundwater monitoring assessment undertaken by the applicant indicated that bore water remains safe as livestock drinking water (Kasa Consulting 2022). No increase in bore water salinity nor evidence of contamination of the groundwater resources were observed.</p>
Cultural receptors	Distance from prescribed activity
Aboriginal Sites and Heritage Places	<p>Up to five registered Aboriginal cultural heritage sites, classified as artefacts/scatter, are present to the west of the RE processing plant:</p> <ul style="list-style-type: none"> • MW19-02 (Place ID 38144), approximately 290 m west of the RE processing plant; • MW19-05 (Place ID 38147), approximately 700 m west of the RE processing plant; • MW19-03 (Place ID 36203), approximately 1.16 km south-west of the RE processing plant; • MW19-04 (Place ID 38146), approximately 1.31 km south-west of the RE processing plant; and • Mt Weld 8 (Place ID 20602), approximately 2.09 km north-west of the RE processing plant. <p>The boundary of the prescribed premises falls within the Nyalpa Pirrniku Native Title Claim area (WC2019/002, WAD91/2019). The applicant has noted that an Aboriginal Heritage survey was conducted in collaboration with the Nyalpa Pirrniku Native Title Claimant Group across the project area between 14 February 2022 and 18 February 2022. No new heritage sites were identified during the survey. Three heritage sites that were previously identified in October 2019 were revisited during the survey and it was determined that none of the sites will be impacted by the proposed activities at the premises.</p>

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020b) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant 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 applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 6.

Works approval W6753/2022/1 that accompanies this decision report authorises construction, commissioning and time limited operations. The conditions in the issued works approval, as outlined in Table 6 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

An amendment to licence L8141/2007/2 is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises i.e., operation of the rare earths processing plant upgrade, water treatment plants and HV gas engine power station. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 6: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and time limited operation

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls / comments
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Construction of RE processing plant expansion, including crusher pad run-off pond and plant run-off pond upgrades;	Dust	Pathway: Air/windborne pathway Impact: Impact to ecological health and amenity	Native vegetation	Refer to Section 3.1	C = Slight L = Unlikely Low risk	Y	None.	N/A
Stormwater and drainage infrastructure upgrades; Construction of RWTP and Western WTP, including surge pond;	Sediment laden stormwater	Pathway: Overland runoff during rainfall event Impact: Impact to ecological health and amenity	Native vegetation	Refer to Section 3.1	C = Slight L = Rare Low risk	Y	None.	N/A
Repurposing existing RWTP and Carbonatite WTP; Construction of HV gas engine power station; and Light vehicle/ mobile equipment movement.	Hydrocarbon and chemical reagent	Pathway: Loss of containment, resulting in spills and leaks Impact: Impact to ecological health	Surface water bodies Aboriginal heritage places	Refer to Section 3.1	C = Minor L = Rare Low risk	Y	None.	N/A
Commissioning and Operation (including time limited operation)								
Unloading, loading and stockpiling of material onto ROM pad during ore processing; and Crushing and milling of up to 1.3 mtpa of ore feed material	Dust (NORM)	Pathway: Air/windborne pathway Impact: Impact to ecological health and amenity	Native vegetation	Refer to Section 3.1	C = Moderate L = Unlikely Medium risk	Y	Condition 1: Construction requirements Condition 8: Environmental commissioning requirements Condition 14: Time limited operation requirements	The Delegated Officer considers that environmental risks associated with NORM has been adequately managed with the existing RMP and RWMP, based on consultation with RCWA. Applicants proposed controls to manage dust have been conditioned as per DWER

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Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls / comments
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
								<i>Guideline: Risk Assessments.</i> No additional regulatory controls are required.
Chemical processing of RE ore, including flotation and apatite leaching; and Hydrocarbon and chemical reagent storage.	Contaminated stormwater	Pathway: Overland runoff during rainfall event Impact: Impact to ecological health and amenity	Native vegetation Surface water bodies Aboriginal heritage places	Refer to Section 3.1	C = Minor L = Unlikely Medium risk	Y	Condition 1: Construction requirements Condition 8: Environmental commissioning requirements Condition 14: Time limited operation requirements	Applicants proposed controls have been conditioned as per <i>DWER Guideline: Risk Assessments.</i> No additional regulatory controls are required.
	Process water	Pathway: Loss of containment, resulting in spills and leaks Impact: Impact to ecological health		Refer to Section 3.1	C = Moderate L = Unlikely Medium risk	Y		
	Hydrocarbon and chemical reagent			Refer to Section 3.1	C = Minor L = Unlikely Medium risk	Y		
	Apatite tailings waste			Refer to Section 3.1	C = Moderate L = Unlikely Medium risk	Y		
Operation of RWTP, Western WTP and Carbonatite WTP; Operation of surge pond and treated water pond.	Saline bore water; Return water	Pathway: Loss of containment, resulting in spills and leaks Impact: Impact to ecological health	Native vegetation Surface water bodies	Refer to Section 3.1	C = Minor L = Unlikely Medium risk	Y	Condition 1: Construction requirements Condition 14: Time limited operation requirements	Applicants proposed controls have been conditioned as per <i>DWER Guideline: Risk Assessments.</i> No additional regulatory controls are required.

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Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls / comments
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
		Pathway: Pipeline failure, resulting in spills and leaks Impact: Impact to ecological health		Refer to Section 3.1	C = Minor L = Unlikely Medium risk	Y		
	Water treatment by-product waste;	Pathway: Overtopping of surge pond or treated water pond Impact: Impact to ecological health	Native vegetation	Refer to Section 3.1	C = Minor L = Rare Low risk	Y		
	Brine waste; Treated water	Pathway: Seepage through base and embankment Impact: Impact groundwater resource and ecological health	Native vegetation Groundwater aquifer	Refer to Section 3.1	C = Minor L = Rare Low risk	Y		
Operation of HV gas engine power station	Stack emissions	Pathway: Air/windborne pathway Impact: Impact to ecological health	Native vegetation	Refer to Section 3.1	C = Slight L = Unlikely Low risk	Y	Condition 1: Construction requirements Condition 14: Time limited operation requirements	No pathway to human receptors (due to distance). No controls required due to low risk.

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

Note 2: Proposed applicant 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
Application advertised on the department's website on 16 November 2022.	One public submission was received on 14 December 2022. Comments are summarised in Appendix 1.	Refer to Appendix 1.
Shire of Laverton advised of proposal on 16 November 2022.	No comments received.	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal on 16 November 2022.	DMIRS replied on 30 November 2022 advising the following: <ul style="list-style-type: none"> There appears to be inconsistencies between the activities proposed under the works approval and what was approved under Mining Proposal REG ID 96627. DMIRS encourages the applicant to consult with them to determine whether further approvals are required under the <i>Mining Act 1978</i>. The department's Mine Safety Directorate has advised that based on the information provided the radiological consequences associated with the change in feedstock are insufficient to warrant a change in the Radiation Management Plan (RMP). The data provided on page 27 of the approved RMP (dated 21 March 2022) indicates that the tailings reporting to the TSF contain 353ppm ThO₂ and 29ppm U₃O₈, and these barely change with the new feed materials. 	Noted and reflected in Section 2.3.3 of this report accordingly. The Delegated Officer encourages the applicant to contact DMIRS to determine if further approvals are required for the Mt Weld Rare Earths Project expansion under the <i>Mining Act 1978</i> .
Radiological Council of Western Australia (RCWA) advised of proposal on 16 November 2022.	The RCWA replied on 11 April 2023 advising the following: <ul style="list-style-type: none"> The risks associated with radiation are regulated by the RCWA under the <i>Radiation Safety Act 1975</i> and its regulations. The mining site and operations are co-regulated for radiation with DMIRS. A registration is required under the <i>Radiation Safety Act 1975</i> which will require compliance with Australia's <i>Code of practice for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005)</i>, published by ARPANSA. The risks associated with mining, processing 	Noted and reflected in section 2.3.3 of this report accordingly.

	<p>and the disposal of waste which may contain levels of naturally occurring radionuclides is addressed by the code and requires a RMP and RWMP.</p> <ul style="list-style-type: none"> The applicant advised in a meeting with the RCWA that through the project expansion for the life of mine proposal and Kalgoorlie REPF (which they have identified as not being within the scope of this works approval), they have been revising the existing operational Radiation Management Plan as relevant. The RCWA advised that the Applicant would still be required to liaise with the RCWA and DMIRS regarding significant changes to existing approvals. 	
<p>Department of Planning, Lands and Heritage (DPLH) advised of proposal on 16 November 2022.</p>	<p>DPLH replied on 8 December 2022 providing advising the following:</p> <ul style="list-style-type: none"> The proposed infrastructure does not intersect with any known Aboriginal Heritage places or sites and as it stands do not require any approvals under the <i>Aboriginal Heritage Act 1972</i>; and An Aboriginal Heritage Survey which included a desktop assessment to review existing heritage survey reports in addition to a comprehensive heritage survey was undertaken by Integritat across the project area between 18 February 2022 and 18 February 2022. The survey was conducted in collaboration by members of the Nyalpa Pirniku Native Title Claimant group, with no new heritage sites identified during the survey. 	<p>Noted.</p>
<p>Nyalpa Pirniku Native Title Claimants advised of proposal on 16 November 2022.</p>	<p>No comments received.</p>	<p>N/A</p>
<p>Applicant was provided with draft documents on 21 December 2023.</p>	<p>Comments on the draft documents were received on 5 February 2024. Refer to Appendix 2.</p>	<p>Refer to Appendix 2.</p>

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Australian and New Zealand Environment and Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand (ANZECC & ARMCANZ) 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3, Primary Industries – Rationale and Background Information*, National Water Quality Management Strategy, Australian Water Association, Artarmon, New South Wales.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2019, *Guideline: Industry Regulation Guide to Licencing*, Perth, Western Australia.
4. DWER 2020a, *Guideline: Environmental Siting*, Perth, Western Australia.
5. DWER 2020b, *Guideline: Risk Assessments*, Perth, Western Australia.
6. Kasa Consulting 2022, *Mt Weld Mining Pty Limited – Process Plant Expansion – Works Approval Supporting Document*, prepared on behalf of Lynas Rare Earths Ltd, dated 20 September 2022, DWER Reference: DWERDT662097.
7. Krasavtseva EA & Maksimova VV 2022, Evaluation of the rare earth elements phytotoxicity on the example of La and Ce, *IOP Conference Series: Earth and Environmental Science*, 1112, doi: 10.1088/1755-1315/1112/1/012109.
8. Li J, Verweij RA, Cornelis AM & van Gestel CAM 2018, Lanthanum toxicity to five different species of soil invertebrates in relation to availability in soil, *Chemosphere*, 193, pp. 412-420.
9. Stantec 2021a, *Mt Weld Rare Earths Project: Detailed Flora and Vegetation Survey – Phase 2*, Perth, Western Australia.
10. Stantec 2021b, *Mt Weld Rare Earths Project Mine Closure Plan*, Perth, Western Australia.
11. Ultramax 2011, *Mt Weld Monitor Bores LMW-01 to LMW-09*, prepared for Mt Weld Mining Pty Ltd.

Appendix 1: Summary of issues raised in public submission

Public submission	Submission Points	Summary of submission points	Department's response
Public submission received on 14 December 2022.	Submission Point 1	<p><u>Concurrent assessment process</u></p> <ul style="list-style-type: none"> Comments indicate concern that the process of concurrently assessing the proposal under Part IV and works approval under Part V of the EP Act is potentially duplicative and premature as the process is pre-empting conditions under the Part IV approval that should be reflected in the works approval application. The Submission asserted that the concurrent assessment process excludes public visibility over the conditions that are set in a works approval and has formally requested to review the works approval assessment following the Environmental Protection Authority (EPA) assessment process noting there may be significant changes following the outcome of the EPA assessment. 	<p>As discussed under Section 2.4 of this report, the applicant was advised on 30 November 2022 that Part V are constrained from making a decision on the works approval application until a decision has been made on the Section 38 referral under Part IV of the EP Act.</p> <p>As stipulated under sections 54(4)(b) and 57(4)(b) of EP Act, the CEO cannot issue a works approval or licence that is “<i>contrary to, or otherwise than in accordance with, an implementation decision or agreement</i>”. The Part V assessment process will not duplicate matters already addressed under the Part IV process. Part V has reviewed the EPA’s report for the proposal as part of the assessment of the works approval to avoid regulatory duplication and ensure consistency between approvals whilst ensuring all potential risks are considered and addressed.</p> <p>The department does not provide reviews of decision reports to third parties during the assessment process, only once a decision has been made on the works approval, third parties aggrieved by this decision are entitled to lodge an appeal against the conditions of a works approval under section 102(3)(a) of the EP Act. Under section 102(4), the conditions of the works approval remain in effect pending the determination of any third-party appeals.</p>
	Submission Point 2	<p><u>Staged construction of works</u></p> <ul style="list-style-type: none"> The Submission has raised concern that the Stage 1 works for the plant expansion outlined in the works approval application will commence in January 2023, however, there has been no further description on the works proposed at this stage, nor for Stages 2 and 3. The submission has requested the department provide clarity on what works the applicant is authorised to do in the 	<p>Further information on what infrastructure is proposed to be constructed for each stage of construction has been requested from the applicant prior to the department accepting the works approval application for assessment. The construction works authorised for the proposed activities are detailed under Condition 1 (Table 1) of the works approval W6753/2022/1 and under Section 2.3 of this report.</p>

Public submission	Submission Points	Summary of submission points	Department's response
		absence of a Part IV of Part V approval.	
	Submission Point 3	<p><u>Radiological risk of NORMs transportation</u></p> <ul style="list-style-type: none"> The Submission has expressed concern over the potential radiological risks to the public and the environment associated with the processing and transportation of ores containing uranium and thorium, resulting in the production of NORM wastes. Concern has been raised regarding the increase of the transportation of NORMs through populated areas of Kalgoorlie between the Mt Weld mine and the REPF in Kalgoorlie as a result of the proposed expansion. The Submission notes that there are no draft plans available for public review for the Transport Management Plan (TMP) mentioned throughout the EPA referral document and the works approval application described as being currently implemented. The Submission requested that the TMP be released for public comment and approval before it is approved given the proposed increase in truck movements has generated a high level of public interest. 	<p>It is noted that the transportation of NORM's is outside of the Department's regulatory powers under the EP Act and is managed under separate legislation. The RCWA is responsible for administering the <i>Radiation Safety (Transport of Radioactive Substances) Regulations 2002</i> under the <i>Radiation Safety Act 1975</i> which requires that the transportation of radioactive waste is done so in accordance with a valid licence/registration.</p> <p>Radiation safety on mining operations is regulated under the <i>Work Health and Safety Act 2020</i> by the Mines Safety Directorate of DEMIRS. The mining and/or processing of NORMs requires approval from both DEMIRS and the RCWA under the <i>Work Health and Safety Act 2020</i> which includes the granting of an RMP. As discussed under Section 2.3.3, the applicant has an RMP for the existing operation. Noting DEMIRS and the RCWA are the statutory bodies that regulate NORMs, the Department consulted with DEMIRS and the RCWA regarding the works approval application seeking advice on whether a revised RMP would be required for the proposed plant expansion. As noted in Table 7, the RCWA advised that any significant changes to existing approvals would require liaison with the RCWA and DEMIRS.</p> <p>The Delegated Officer notes that the works approval application does not mention a TMP in the supporting document. As noted above, the transportation of NORM's is not within the scope of this works approval application and is regulated by other legislation.</p>
	Submission Point 4	<p><u>Waste Management</u></p> <ul style="list-style-type: none"> Comments were made in respect to the approved Kalgoorlie REPF as to whether the facility can manage the significant increase in material and subsequently large increase in NORM wastes. Comments expressed concern on how the different 	<p>The applicant has obtained approval for the construction and operation of the Kalgoorlie REPF under MS 1181 and works approval W6567/2021/1 under Part IV and Part V of the EP Act respectively. The proposal approved under MS 1181 is for a proposal life of up to 25 years. Both approvals are for the processing of 162,000 dry tonnes per annum of REO concentrate and 68,000 tonnes of RE carbonate per annum. No</p>

Public submission	Submission Points	Summary of submission points	Department's response
		<p>waste streams and waste types will be managed at Mt Weld mine site during operation. The submission questioned where the radioactive waste products will be stored and under what conditions waste from the Kalgoorlie REPF will be managed at the Mt Weld mine site during operation and closure.</p> <ul style="list-style-type: none"> The Submission raised concern regarding the tailings management at the Kalgoorlie REPF and the timeline for managing tailings waste on the surface prior to in-pit disposal. The Submission requested that there be a whole assessment of waste management across the Mt Weld mine site and the Kalgoorlie REPF that is open to public comment as assessing waste management across four different agencies (DWER, EPA, DMIRS and RCWA) makes it difficult for the public to follow. The Submission asserts that the waste management on site should have been addressed through a Public Environmental Review and a complete Waste Management Plan that includes waste coming back to the site for storage from the Kalgoorlie REPF. The Submission has requested for a complete Waste Management Plan across the Mt Weld and REPF sites that considers the different waste streams and waste types as well as a comprehensive plan which details where and for how long wastes will be stored including the management of by-products. Comments were also made concerning the mine closure aspects of the project and post mine closure monitoring/management requirements which the submission noted could be addressed through a Public Environmental Review. The Submission has requested further public consultation prior to the approval of the detailed Mine Closure Plan. 	<p>increase in REO concentrate and REO carbonate has been proposed, only what has already been approved as noted above.</p> <p>Condition 3.2 of MS 1181 stipulates that, during the operation of the Kalgoorlie REPF, the proponent is required to ensure that REPF-derived gypsum waste is removed to a waste facility at Mt Weld mine site or an alternative waste facility approved by DMIRS within 12 months of its production or when capacity of the dedicated gypsum waste storage infrastructure is exceeded.</p> <p>It is noted that an application for works approval W6816/2023/1 was received by the department, which included a new by-product landform and associated infrastructure (including a runoff / sediment pond, overland conveyor and stacker) for long-term storage of gypsum and iron phosphate by-products from the Kalgoorlie REPF. The application also includes the construction and operation of a fourth TSF (TSF4) and associated infrastructure. This application was advertised on the department's website for a 21-day public submission period after it has been accepted.</p> <p>The environmental aspects associated with the large scale of the project requires regulation and assessment under a number of different pieces of state legislation which are regulated across different agencies. The applicant has also submitted separate Part IV and Part V applications to the department as the project has developed. This makes it difficult to undertake a whole assessment of waste management for public comment. Although the Part IV and Part V applications have been assessed separately, the cumulative impacts are considered under each application. Each application, along with the relevant supporting documents, has been advertised on the department's website for public review and to allow opportunity for the public to submit comments.</p> <p>The Delegated Officer notes that the mine closure aspects and post mine closure monitoring/management requirements of the project are outside of the department's regulatory powers under the EP Act and are managed through Mine Closure Plans approved by DEMIRS under the <i>Mining Act 1978</i>.</p>

Public submission	Submission Points	Summary of submission points	Department's response
	Submission Point 5	<p><u>Piecemeal assessment and lack of community engagement</u></p> <ul style="list-style-type: none"> The Submission asserts that the assessment of the Mt Weld expansion and Kalgoorlie REPF has had a piecemeal approach with the scope and scale of the project only becoming clear to the public following the referral of the proposed mine expansion. The Submission notes that the separate public environmental review of the Kalgoorlie REPF has contributed to the piecemeal assessment of the overall impact of the project. Comments indicate concern with the expansion of the whole project significantly impacting the environment from emissions and discharges to air, land and water as well as the health of the community. The Submission indicates concern that there is no opportunity for public comment with DEMIRS or the RCWA over issues related to the management of NORMs through RMP's, waste (tailings) management plans, mine proposals or mine closure plans. The Submission notes that the applicant is proposing to consult with the Nyalpa Pirniku Native Title Claimant group under section 18 of the <i>Aboriginal Heritage Act 1972</i>, however, recommends that consultation be made with other Aboriginal Groups that will be affected by the proposal along the transport route and in Kalgoorlie. Comments indicate the department should defer making a decision on the proposed expansion until the outcomes of consultations are made publicly available and endorsement from the affected Aboriginal Groups has been received. The Submission notes that the mining proposal available through MINDEX demonstrates that there is a significant concern across a range of Aboriginal groups and Native Title claimant groups about the whole project. 	<p>As noted above in Submission point 4, although the applicant has submitted separate applications as the project has developed, the department has advertised each new application, along with the relevant supporting documents, on the department's website for public review and comment. The department also considered the cumulative impacts of the project during each risk-based assessment under Part V of the EP Act. A risk-based assessment was undertaken for the emissions and discharges associated to the proposed expansion of the project.</p> <p>As noted under Submission point 3, the transportation and management of NORMs is regulated under separate legislation administered by DEMIRS and the RCWA. The department sought technical advice and comments with respect to the existing RMP for the operation from both agencies which have been incorporated into the assessment of this works approval.</p> <p>As detailed under Table 5 of this report, the assessment identified that the prescribed premises boundary intersects a number of Aboriginal Heritage sites and falls within the Nyalpa Pirniku Native Title Claim area. Therefore, the department consulted with DPLH noting that they are the custodians of the Aboriginal Heritage sites database for the state and the Nyalpa Pirniku Native Title Claimant group regarding the works approval application. As noted under Table 7, no comments were received back from the Nyalpa Pirniku Native Title Claimant group.</p> <p>The DPLH did respond confirming that no Aboriginal Heritage Sites will be impacted by the proposed activities within the premises boundary. It is up to the applicant to ensure that they meet their obligations under the <i>Aboriginal Heritage Act 1972</i>, which is a separate regulatory process to that of applying for a works approval under Part V of the EP Act. The granting of the works approval does not remove the obligation under the <i>Aboriginal Heritage Act 1972</i>.</p>
	Submission Point 6	<p><u>Scale of expansion</u></p> <ul style="list-style-type: none"> Comments indicate significant concern regarding the size 	<p>As addressed under Submission point 2, the construction works authorised for the proposed activities associated to the plant</p>

Public submission	Submission Points	Summary of submission points	Department's response
		<p>and scale of the proposal not being clearly outlined. The increase in ore processing from 240,000 tpa to 1.3 mtpa is more than four times the current size of the existing operation and the Submission notes that in order to process the intended volume of ore it would either require an additional four concentrators or the construction of a huge new concentrator.</p> <ul style="list-style-type: none"> The Submission notes that is unclear what new infrastructure is required to increase the processing of ore to 1.3 mtpa or what the subsequent volume of concentrate and tailings will be as a result of the proposed expansion. Further detail on the new infrastructure for processing and the waste outputs as well as water requirements is requested in the comments. Comments express concern that the works approval application includes only one new additional tailings dam for the proposed expansion when to date three tailings' dams have been required for the existing operation. Noting the proposed increase of ore production being four times the size of the existing operation, the Submission raises concern that several works approval applications will be submitted in the future for construction of additional tailings dams which emphasises the ongoing piecemeal approach of the project. 	<p>expansion are detailed under Condition 1 (Table 1) of the works approval W6753/2022/1 and under Section 2.3 of this report. This works approval application is only for a small component of the life of mine proposal, being the upgrade of the processing plant, water treatment plants and new HV gas engine power station.</p> <p>Additional mine expansion works (e.g., TSF4, additional evaporation ponds, Kalgoorlie REPF waste landforms etc.) are being assessed under a separate works approval W6816/2023/1 (as noted under Submission point 4). The authorisation to operate the expanded infrastructure will be assessed under amendments to existing licence L8141/2007/2. Section 2.4 of this report outlines all aspects of the proposed mine expansion under the life of mine proposal that has been assessed by Part IV of the EP Act.</p>
	Submission Point 7	<p><u>Impact on local water sources</u></p> <ul style="list-style-type: none"> The Submission raises concern regarding the availability of water at Mt Weld and the impacts of water abstraction at Mt Weld and/or neighbouring aquifers. 	<p>The Delegated Officer notes that the impacts from groundwater abstraction is outside of the scope of the assessment under Part V of the EP Act. The management, use and protection of water resources are regulated under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act). The department's Water Licencing division administers this legislation and authorises licences to take water under section 5c of the RIWI Act. It is up to the applicant to ensure they have the relevant authorising water licence to take water in a proclaimed RIWI Act groundwater area. The applicant commits an offence under the RIWI Act if they perform this action without a relevant authorising water licence or permit (or an exemption).</p>

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Item	Condition	Summary of applicant's comment	Department's response
Decision Report			
1	Section 2.2 – Application summary and overview of premises	The applicant clarified that the premises is located approximately 35 km south of Laverton, not 26 km north-west.	While the department has corrected the error relating to the direction of the premises in relation to the Laverton township, desktop siting undertaken by the department shows that the distance between the premises and the township was closer to 26 km than 35 km. Therefore, the distance was not changed.
2	Section 2.3.1.1 – Crushing and milling circuit	Further information was provided on the crushed ore sizing outputted by the Mineral Sizer. The P80 of 70 mm was modified to P80 of 100 mm to 130 mm.	The department has included this change in the decision report text.
3	Section 2.3.1.2 – Processing circuit	Further information was provided on the multi-stage floatation process, specifying the conditioning reagents to also include sodium silicate and caustic soda, in addition to fatty acid emulsion and diesel.	
4	Section 2.3.4 – Water treatment plants	Further information was provided on the specifications of the existing RWTP, which includes dissolved air flotation (DAF), three ultrafiltration (UF) plants, in addition to two reverse osmosis (RO) plants.	
5		Further information was provided on the flow rates for the proposed Western Borefield WTP and Carbonatite Borefield WTP, ranging between 300 m ³ /hour and 400 m ³ /hour each.	
6	Section 2.3.5 – HV gas engine power station	<p>The applicant specified that the power mix of the proposed hybrid power station had undergone further changes and optimisation since the works approval was submitted in 2022.</p> <p>Currently, up to ten 1.07 MW diesel generators will be utilised to facilitate the construction and commissioning of the process plant expansion. A total of five 3.367 MW gas turbines will be installed during the expansion.</p> <p>Upon commissioning of the five gas turbines (with total power generation capacity of 16.835 MW), five of the diesel generators will be removed, reducing diesel-generated capacity from 10.07 MW to 5.35 MW.</p>	The department has updated Section 2.3.5 of the Decision Report accordingly to reflect the changes in infrastructure configuration and phasing.

Works approval: W6753/2022/1

Item	Condition	Summary of applicant's comment	Department's response
		<p>Operation of the five diesel generators and five gas turbines will produce maximum thermal generational capacity of 22.185 MW.</p> <p>The applicant also indicated that from 2026 onwards, up to 42.653 MW of power will generated using renewable sources, bringing the total power generation capacity at the premises to 64.838 MW.</p>	
7	Section 3.1.1 – Emissions and controls	<p>In Table 4, the applicant wished to outline the permitted use of process wastewater for dust suppression in accordance with condition 1.3.8 of existing licence L8141/2007/2.</p> <p>While the applicant has proposed to recover or remove spilt materials outside of a containment area, they also wish that outline that they will operate within the bounds of their licence.</p>	<p>The department acknowledges that the applicant is authorised (under existing licence L8141/2007/2) to use process wastewater for dust suppression, if the water is within limits specified in Table 1.3.6 of licence L8141/2007/2 and does not cause damage to vegetation through overspraying or runoff.</p> <p>This authorisation has been considered in the risk assessment of works approval W6753/2022/1. The conditions of works approval W6753/2022/1 do not restrict the applicant from undertaking this activity. Nevertheless, it is not appropriate to make mention of this requirement in Table 4 as the controls proposed in the relevant section of the table relates to management of process (waste)water that has already been released to the environment through unintended means (i.e., spill, leaks), and not intended means (i.e., dust suppression).</p> <p>As such, Table 4 has not been modified.</p>
8		<p>Section 3.1.1 – In Table 4, the applicant clarified that pipelines associated with transport of raw bore water are not proposed to be banded, installed with telemetry or inspected daily. This is consistent with current operating conditions for raw water pipelines.</p> <p>However, pipelines associated with the transport of tailings, brine and decant (from TSF to the Return Water Pond and RWTP) are proposed to be banded, installed with telemetry and inspected routinely.</p>	<p>The department has modified the proposed controls for the emissions and discharges associated with pipeline failure at water treatment plants in Table 4 accordingly. Relevant return water pipelines were specified.</p> <p>Accordingly, Table 4 of condition 14 has been updated, such that inspection requirements apply only to pipelines associated with the transport of tailings return water and brine.</p> <p>This change does not modify the outcome of the risk assessment.</p>
Works approval			
9	Condition 1	In Table 1, the applicant confirmed the location of the Stage 1 concentrate dewatering infrastructure, as requested by the department.	The department has updated Table 1 accordingly to reflect the location of the infrastructure.
10		In Table 1, the applicant highlighted a typological error for the design capacity of the comminution circuit, which was mistakenly written as	The department has corrected this typological error.

Works approval: W6753/2022/1

Item	Condition	Summary of applicant's comment	Department's response
		'1,300,00', instead of '1,300,000'.	
11		In Table 1, the applicant confirmed the location of the Stage 2 flotation circuit, as requested by the department.	The department has updated Table 1 accordingly to reflect the location of the infrastructure.
12		In Table 1, the applicant confirmed the location of the Stage 2 apatite conversion circuit, as requested by the department.	
13		In Table 1, the applicant specified that the acid regeneration tanks, and belt filters are not included in the proposed Stage 2 apatite conversion circuit	The department has updated Table 1 accordingly, such that relevant infrastructure included only leaching tanks, plate and frame filters and associated tanks.
14		In Table 1, the applicant confirmed the location of the Stage 3 apatite removal circuit, as requested by the department.	The department has updated Table 1 accordingly to reflect the location of the infrastructure.
15		In Table 1, the applicant clarified that not all infrastructure at the Recycle Water Treatment Plant (RWTP), Western Borefield WTP and Carbonatite Borefield WTP was proposed to be bunded with concrete hardstand. Specifically, bunded areas include the carbon in pulp tanks, dangerous goods chemical storage areas and reverse osmosis bullets. The following dangerous good chemicals will be stored within double containment: sulfuric acid, hydrochloric acid, sodium hydroxide, ferric chloride. Several non-dangerous goods tanks will be provided with overflow piping that drains into the HDPE-lined Surge Pond. All other infrastructure will be installed within secondary earthen bunding provide around the perimeter of the water treatment plant operational area, where any loss of containment within the area will be contained and graded towards the Surge Pon, such that no spills or leaks will reach undisturbed vegetation. Subsequently, any loss of containment will be removed in accordance with proposed controls for contaminated stormwater.	The department has modified the proposed controls for the emissions and discharges associated with loss of containment from the water treatment plants in Table 4 of the Decision Report accordingly.
16			Accordingly, Table 1 of condition 1 and Table 4 of condition 14 of the works approval have been updated, such that the water treatment infrastructure should be installed within secondary earthen bunding and be graded towards the surge pond. This change does not modify the outcome of the risk assessment.
17			
18		In Table 1, the applicant requested that the construction requirements be updated for the HV gas engine power station to reflect the updates to the power mix and infrastructure configuration (refer to Item 6 for	The department has updated Table 1 accordingly to reflect the changes in infrastructure configuration and phasing.

Item	Condition	Summary of applicant's comment	Department's response
		further information).	Furthermore, Table 4 of condition 14 has been updated to limit the maximum power generation capacity to 22.185 MW.
19	Condition 8	<p>In Table 2, the applicant requests each stage of the RE processing plant expansion be provided with its own authorised commissioning duration, as it is currently unclear.</p> <p>The applicant noted that 365 days was unlikely to be sufficient for commissioning all three stages. A nominal 270 days (i.e., nine months) was estimated to be the commissioning period for each phase, to enable all components to be adequately commissioned and to undertake required monitoring.</p>	<p>The department notes that the authorised commissioning duration listed in Table 2 was intended to apply to each item of infrastructure in Table 2 individually. This is reinforced in the wording of condition 8.</p> <p>Nevertheless, the department has amended Table 2 to provide clarity and remove ambiguity on the authorised commissioning duration for stage of the RE processing plant expansion.</p>
20	Condition 14	In Table 4, the applicant confirmed the location of the Stage 1 concentrate dewatering infrastructure, as requested by the department.	The department has updated Table 4 accordingly to reflect the location of the infrastructure.
21		<p>In Table 4, the applicant requested that operational requirement (b) for Item 2 (RE processing plant expansion Stage 2 – Comminution circuit) be removed. The requirement was to ensure ore stockpiles were wetted down using water trucks for dust suppression.</p> <p>The justification was that the requirement was a duplicate in intent with operational requirement (c), which required dust suppression to be undertaken where fugitive dust was visible.</p> <p>Operational requirement (c) could already be interpreted as taking the same action as operational requirement (b) and is not limited to managing dust emissions from only ore stockpiles.</p> <p>Furthermore, operational requirement (b) could be interpreted as having to undertake dust suppression even at times when there are no fugitive dust emissions from the ore stockpiles. Undertaking dust suppression in these instances was considered unnecessary and a waste of water resource.</p>	The department has removed operational requirement (b). The applicant is still required to undertake dust suppression when there are visible fugitive dust emissions, including at the ore stockpiles. This change does not modify the outcome of the risk assessment.
22		In Table 4, the applicant confirmed the location of the Stage 2 flotation circuit, as requested by the department.	The department has updated Table 4 accordingly to reflect the location of the infrastructure.
23		In Table 4, the applicant confirmed the location of the Stage 2 apatite conversion circuit, as requested by the department.	The department has updated Table 4 accordingly to reflect the location of the infrastructure.

Item	Condition	Summary of applicant's comment	Department's response
24		In Table 4, the applicant highlighted a typological error for the operational requirements of the Stage 3 apatite removal circuit, which was mistakenly written as 'buning', instead of 'bundling'.	The department has corrected this typological error.
25		In Table 4, the applicant confirmed the location of the Stage 3 apatite removal circuit, as requested by the department.	The department has updated Table 4 accordingly to reflect the location of the infrastructure.
26	----	<p>The applicant provided an updated Figure 1 showing the prescribed premises boundary, as requested by the department.</p> <p>The applicant provided an updated Figure 2, which better reflects the siting of infrastructure specified in Table 1 and Table 4 of the works approval.</p>	The department has updated Figure 1 and Figure 2 within the Schedule 1 of the works approval.

Appendix 3: Application validation summary

SECTION 1: APPLICATION SUMMARY				
Application type				
Works approval	<input checked="" type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:		None <input type="checkbox"/>
		Has the works approval been complied with?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Date Report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input type="checkbox"/>	Current licence number:		
		Relevant works approval number:	N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:	None	<input type="checkbox"/>
Date application received	21 September 2022			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Mt Weld Pty Limited			
Premises name	Mt Weld Rare Earths Project			
Premises location	Mining Lease M38/58, M38/59 and M38/327, Laverton. M38/326 – is included in Premises boundary, however no activities are proposed within this mining lease.			
Local Government Authority	Shire of Laverton			
Application documents				
HPCM file reference number:	DER2018/001042-8~20			
Key application documents (additional to application form):	Supporting Documents (DWERDT662097) including: <ul style="list-style-type: none"> • <i>Kasa Consulting (2022), Mt Weld Mining Pty Limited Process Plant Expansion – Works Approval Supporting Document, prepared for Lynas Rare Earths Ltd;</i> • <i>DWER Online Authorisation;</i> • <i>Figure 1-1 – Regional location;</i> • <i>Figure 1-2 – Existing Infrastructure and Proposed Expansion Layout;</i> • <i>Figure 1-3 – Proposed Process Plant and Expansion Layout;</i> • <i>Figure 3-1 – Existing topography;</i> • <i>Figure 3-2 – Conservation reserves;</i> • <i>Figure 5-1 – Proposed process plant surface water management</i> 			

	<p><i>features; and</i></p> <ul style="list-style-type: none"> • <i>Figure 6-1 – Environmental monitoring locations.</i> <p>Response to request for further information, dated 3 November 2022 and 5 October 2023.</p>
<p>Scope of application/assessment</p>	
<p>Summary of proposed activities or changes to existing operations.</p>	<p><u>Mt Weld Process Plant Expansion (Category 5)</u></p> <p>Expansion of the rare earth bearing ore processing plant to enable the processing of different ore types (including Apatite ores) to accommodate an increase in ore throughput of up to 1.3 Mtpa (currently approved throughput of 443, 000 tpa under L8141/2007/2). The plant expansion will result in an increase in tailings generation to 1.15 dry metric tonnes.</p> <p>The proposed plant upgrade to accommodate the increased throughput will involve:</p> <ol style="list-style-type: none"> 1. New comminution circuit, including crushing, primary grinding and regrind stages; 2. Install a new flotation circuit and repurpose some of the existing flotation infrastructure; 3. New concentrate dewatering circuit, including thickeners and filters; 4. New apatite leaching circuit, including leach tanks, filters, acid regeneration facilities and residue neutralisation facilities; 5. New ROM stockpile area between the mine and process plant; 6. New concentrate Rotainer® load-out shed; and 7. Expansion of maintenance and workshop areas west of the existing facilities <p>Containment Infrastructure</p> <ul style="list-style-type: none"> • New Water Treatment Surge Pond (HDPE lined) that utilises part of the existing Plant Run-off Pond; and • Increase to the existing Plant Run-off Pond depth to meet run-off capture requirements. <p>Gas, diesel and reagent storage</p> <ul style="list-style-type: none"> • Additional reagent storage and handling facilities. <p>New recycle water treatment plant (RWTP)</p> <ul style="list-style-type: none"> • Including chemical softening, clarification, multimedia filtration, weak acid cation ion exchange and high recovery reverse osmosis; • New sea water reverse osmosis plant (Western WTP) to treat high salinity bore water sources from regional aquifers; and • Repurpose the existing five reverse osmosis plants (Carbonatite WTP) to all treat brackish water from the Mt Weld Carbonatite aquifer. <p>Natural Gas Power Generation (Category 52)</p> <p>Installation of a new natural gas engine HV power station with a capacity of up to 22MW installed power.</p>

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	Current throughput (L8141/2007/2): 443,000 tonnes per annum.	1.3 mtpa (increase of 0.857 mtpa)
Category 52: Electric power generation	22 MW	-

Legislative context and other approvals

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?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Referral decision No: EPA Report 1752 Managed under Part V <input type="checkbox"/> Assessed under Part IV <input checked="" type="checkbox"/> Key environmental factors assessed were terrestrial fauna and human health. Environmental factors that can be adequate regulated under Part V were terrestrial environmental quality and inland waters.
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 (MS) 476 applies to the Premises. Environmental impacts associated with the processing rate and tailings deposition rate were assessed through works approval W6120/2018/1 and the associated existing Licence L8141/2007/2. The applicant has submitted a proposal to the EPA under section 38 of the EP Act, which the chair determined on 4 October 2022 that the proposal requires assessment. The Applicant has included an assessment of the increased ore production capacity, increased tailings production and power plant. This was approved by the EPA on 20/12/2023 (MS 1216).
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Mining lease / tenement <input checked="" type="checkbox"/> M38/58: Expiry date 25/11/2026 M38/59: Expiry date 25/11/2026 M38/327: Expiry date 26/11/2033

Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Mining tenements are regulated under the <i>Mining Act 1978</i> .
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"/>	The applicant has advised that clearing has been approved under MS 476.
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"/>	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: GWL171310(2)
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Name: Goldfields Groundwater Area Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any other Acts or subsidiary regulations?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>Mining Act 1978</i> <i>Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007</i> <i>Radiation Safety Act 1975</i> <i>Rights in Water and Irrigation Act 1914</i>
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Classification: N/A Date of classification: N/A