Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Application for Works Approval Amendment

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

Works Approval Number	W6209/2019/1
Works Approval Holder	Hastings Technology Metals Limited
ACN	122 911 399
File Number	DER2019/000040
Premises	Yangibana Rare Earths Project WEST LYONS RIVER WA 6705 Legal description – Part of Mining Tenements - G09/14, G09/18, G09/17, G09/20, G 09/26, L09/69, L09/93 L09/95, M09/157, M09/158, M09/161, M 09/176, M09/162, M09/178 As defined by the Premises maps attached to the Revised Works Approval
Date of Report	17 February 2025
Decision	Revised works approval granted

Michael Greenslade
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MANAGER, PROCESS INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Works Approval W6209/2019/1 is held by Hastings Technology Metals Limited (Works Approval Holder) for the Yangibana Rare Earths Project (the Premises), located at Mining Tenements G09/14, G09/18, G09/17, G09/20, G 09/26, L09/69, L09/93 L09/95, M09/157, M09/158, M09/161, M 09/176, M09/162, M09/178, West Lyons River 6705.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the construction and operation of the Premises. As a result of this assessment, Revised Works Approval W6209/2019/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary

On 10 October 2024, the Works Approval Holder submitted an application to the department to amend Works Approval W6209/2019/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Changes to Beneficiation Tailings Storage Facility (TSF) design and request for time-limited operations (TLO);
- Updates to the processing facility for the surface water management facilities and also optimisation to the processing process;
- Request for commissioning phase for all items of infrastructure;
- Removal of category 85;
- Request to extend the expiry date of the instrument; and
- Updates to the prescribed premises boundary.

These components are discussed further in this section 2.2. The Works Approval Holder has provided an estimate timeframe for the timing of all the activities shown in Table 1.

Table 1: Timeframes for activities

Infrastructure / equipment	Construction commencement	Works Completion	Anticipated timing to commence discharge[1]
Processing Plant	Q3 2025	Q2 2027	Q2 2027
Beneficiation TSF	Q1 2026	Q2 2026	Q2 2027
Mine dewatering facilities	Q2 2026	Q3 2026	Q3 2026

Note 1: Discharge will first occur during commissioning phase for the item of infrastructure

The delegated officer has considered the request to include a commissioning phase for all items of infrastructure. It is noted that time-limited operations for the category 6 mine dewater infrastructure (section 2.2.3) and the category 5 processing plant (section 2.2.2) have previously been assessed and approved under the current works approval.

2.2.1 Category 5 – Beneficiation tailings storage facility

Requested amendment

Construction for this facility has been previously approved under this original works approval granted in 2020. At the time, the facility was designed to be two celled beneficiation and hydrometallurgical (Hydromet) tailings storage facility (TSF). The updated design is to create two standalone structures for each waste stream. This update to design for the beneficiation TSF includes an increase the height of the beneficiation TSF to accommodate operational needs.

Other aspects of the facility will remain largely the same including the seepage controls and embankment construction.

In addition to these changes to the design, the Works Approval Holder requests to reinstate TLO for the beneficiation TSF. TLO for this facility was assessed and approved under the original Works Approval. The approval of TLO was based on the previous design that was approved for this facility. In the amendment dated 10 June 2022, TLO for both the Beneficiation and Hydromet TSFs were removed based on comments by the Works Approval Holder that the design for the TSFs were likely to change from what was originally assessed. At the time, the Works Approval Holder advised that whilst the construction of the TSFs were still authorised under the current Works Approval conditions, construction of either TSFs would not commence until the updated TSF design has been finalised and its construction and time-limited operations have been assessed by the department under a separate, future amendment to the Works Approval (this assessment).

Construction

Requested changes

Specifically, the changes to the design of the beneficiation TSF are:

- Changes to the location for the vibrating wire piezometers and groundwater monitoring bores;
- increase the maximum height of the facility from 11m to 14 m at the end of 10 years. Noting that past the duration of this Works Approval and through Life of Mine (LOM) the facility will have a maximum height of 19m;
- requesting that clay liner thickness requirements be amended to state that it will be *up to* 300 mm, as specified hydraulic conductivity and can be likely achieved with a clay liner less than 300 mm thick;

Whilst it is noted that some of these changes have implications to the design of the Hydrometallurgical TSF as well, as the updated design reports for this facility have yet to be completed or provided, the department is unable to conduct an assessment on this facility and grant TLO for this item of infrastructure. Therefore, it is noted that the Works Approval Holder will be required to submit a future application for the design change to this facility so an assessment can be conducted prior to construction and time-limited operations.

Construction of Beneficiation TSF

The Beneficiation TSF design report (GHD, 2024) provided details relevant to this facility for the 10 -year construction plan for this facility.

Table 2 provides a summary of the embankment heights and proposed duration for the timing of each embankment lift.

Table 2: Construction design timeframe for Beneficiation TSF

Lift	Starter embankment (Stage 1)	Stage 2	Stage 3	Stage 4
Parameter				
Crest level m RL	335 m RL	338 m RL	340 m RL	342 m RL
Maximum tailings elevation m RL	333.6 m RL	336.6 m RL	338.6 m RL	340.6 m RL
Embankment height	7	10	12	14
Expected duration of operation	1.5 years	5 years	8 years	10 years

Design aspects of the Beneficiation TSF remain largely unchanged from the original Works Approval assessment. The TSF will be constructed with a downstream embankment method, install a clay liner underneath the location of the decant pond (which will be in the same location as originally proposed), inclusion of underdrainage along upstream toe, inclusion of seepage interception trenches and collection ponds.

The Works Approval Holder advised that the maximum deposition into the Beneficiation TSF would be 10 million tonnes, which is in accordance with the current Ministerial Statement 1110, which restricts the deposition of tailings into this facility to this quantity. To ensure consistency with this approval, the delegated officer will condition the maximum deposition into this facility.

Pipelines

The construction of the pipelines will remain the same as assessed in the original assessment. No changes are requested as part of this amendment.

Seepage collection

The proposed seepage collection design for this facility will include:

- dual drain coil pipe encapsulated in a gravel berm installed at the upstream toe enclosed in a geofabric to prevent tailings from migrating into underdrainage system;
- underdrainage pipes will be installed alone the entire upstream toe of the embankment with a 0.5% grading towards the low points;
- underdrainage system will convey seepage to eight collection pits located at the downstream side of the embankment; and
- seepage water will gravitationally flow to three different sumps – water from these seepage sumps will be pumped back to the decant pond that will be recycled back into the return water.

The delegated officer notes that the assessment for the operation of the Beneficiation TSF, which most components remain largely unchanged, were risk assessed in the original works approval assessment[1], with considerations to beneficiation tailings geochemistry and radiological risks. In this assessment, the delegated officer has assessed only components which will differ due to the amendments being sought in this works approval.

The Works Approval Holder has advised that upon completion of the construction for the Beneficiation TSF, an independent auditor will review the construction of the TSF.

Tailing Characterisation

The tailings characterisation is not considered to change from the original assessment. The

[1] W6209/2019/1 Decision Report (dated: 17/06/2020)

Beneficiated TSF tailings were considered by the Works Approval to be benign with slight to moderate enrichments of metals (fluoride and molybdenum) in solid tailings and contact water (EPA, 2019). Based on the Leaching Environmental Assessment Framework (LEAF) test work and past investigations, GHD (2019) concluded there is a low likelihood that metals in the Beneficiated TSF tailings solids will become soluble under the expected pH range (approx. pH 11.8).

Department consideration of Beneficiation TSF design changes

1. Preliminary geochemical test results

The delegated officer obtained technical advice from the department's contaminated sites branch (CSB) who agreed with the results of the preliminary geochemical test work which indicates that the risk of significant quantities of contaminants being leached during rainfall events from the Beneficiated TSF would be low as the tailings do not contain sulfide minerals that could produce sulfuric acid on oxidation.

The technical advice recommended that a pH dependent leaching test using the US EPA LEAF procedure to assess the extent to which rare-earth elements, metals and specific radionuclides would be leachable form the Beneficiated tailings material under the geochemical conditions present in soil near plant roots would be valuable.

2. Request to change the liner thickness specification.

Given the low leaching risk of the tailings material, the delegated officer does not consider that changing the liner thickness will significantly alter the direct leaching risk from the beneficiated tailings, however considers that liners that are significantly thinner than 300 mm would be vulnerable to ripping during construction. It is therefore important that the sub-base of the TSF is carefully prepared before the liner is installed to prevent it being torn-during construction.

3. Considerations for closure

Whilst it is noted that mine closure is generally not assessed or conditioned under an EPA Part V licence, the delegated officer noted that the geochemical work undertaken did not consider the risk associated with vegetation that is grown on the TSF after closure of the facility, and that this vegetation may be able to leach metals from the tailings material. Technical advice obtained suggests that many plants species produce root exudates that contain organic acids that can leach metals from tailings. These plants are then capable to bioaccumulate metals in leaves and other tissue where they would be accessible to grazing wildlife and livestock. Rare earth elements, in particular, are known to be able to bioaccumulate in vegetation and to pose a risk to the health of wildlife that graze on this vegetation.

As a general recommendation but will not be assessed or conditioned under this application, the delegated officer recommends the Works Approval Holder carry out additional testing during the Life of Mine to determine the most effective and environmentally safe way of caping and re-vegging the TSF. It is recommended to undertake trial planting of revegetation species in soil media containing beneficiated tailings material which would be necessary to directly measure the extent to which the bioaccumulation of specific metals, rare-earth elements and radionuclides would occur in vegetated areas after closure.

Commissioning

The Works Approval Holder advised that there would be three stages of commissioning which would take a duration of 12 months. These stages were outlined as:

1. Pre-commissioning which will comprise of static checks on unpowered equipment to confirm that the infrastructure has been built according to the specifications (including foundation permeability testing;
2. Wet commissioning which will comprise of test pumping the tailings and return water pipelines with only water to check for pipeline integrity; and

3. Tailings commissioning which will comprise of testing the operation of the equipment and facilities with tailings.

The delegated officer has reviewed this request and considers that pre-commissioning phase specified by the Works Approval Holder above should be completed prior to the submission of the Critical Containment Infrastructure Report to demonstrate that the facility has been constructed according to the specifications in the Works Approval conditions prior to any discharge into the facility.

Following the draft comments provided by the Works Approval Holder (see Appendix 1), the delegated officer has approved a commissioning duration of 24 months for the TSF to allow adequate time for the delayed construction of the processing plant, and the 12 month period required for commissioning the processing plant. To ensure that the TSF is still fit for purpose following the 12 months, the delegated officer has required that prior to commissioning, the Works Approval Holder will be required to ensure that TSF remains fit for purpose.

Time-limited operations

The Works Approval Holder is requesting to reinstate time-limited operations (TLO) for the beneficiation (TSF). They are requesting TLO for a period of 12 months 'in order to validate tailings handling processes and ensure operational compliance before licensing is sought'.

In addition to the existing requirements for groundwater monitoring, with the reinstatement of TLO, the delegated officer will reinstate previous conditions associated with time limited operations for this facility indicated in the original assessment including water balance monitoring, fauna monitoring and decant water testing.

The Works Approval Holder has advised that the program of ongoing waste characterisation will begin on the tailings generated once material feeds through the process plant reaching steady-state design volumes. This will use test procedures in the US EPA Leaching Environmental Assessment Framework (LEAF) suite of test coupled with geochemical modelling using the ORCHESTRA model to verify the geochemical analysis (GHD, 2019). This ongoing waste characterisation will inform future assessment under the licence application.

Groundwater monitoring bores

As part of the original instrument, the works approval holder was required to install groundwater monitoring bores around the TSFs to the following requirements / specifications:

(a) Six groundwater monitoring bores installed at approximate locations shown on the Map of TSF groundwater and piezometer monitoring locations in Schedule 1 that intercept groundwater in the confined aquifer and include a shallow nested bore to identify upward seepage from the confined aquifer;

(b) Groundwater monitoring bores are to be installed no later than twelve months prior to commencing tailings deposition in either TSFs (whichever commences first)

The works approval holder had advised that these monitoring bores have been installed and has submitted the bore construction report for review.

Whilst it was determined that the installation of the bores deviated from the original design, the delegated officer sought out advice from the department's Principal Hydrogeologist that advised the location of installed monitoring bores are suitable for monitoring seepage from the operation of the TSF (which is the intent of this item of infrastructure) and acknowledges the difficulties of drilling and constructing monitoring bores in hard rock terrains with a deep water table, and therefore the method of bore construction completed was considered acceptable.

Due to this, the department has considered that the monitoring bores constructed are suitable for the purpose of monitoring potential seepage from the TSF and have been constructed prior to the 12 months of tailings deposition.

This requirement for the installation of the groundwater monitoring bores will therefore be

removed and the figure to depict the location of the bores updated.

The Works Approval Holder has also provided groundwater data from the bores since installation. The department notes that the Works Approval Holder is still required to comply with the requirements of the monitoring as specified in Schedule 3, Table 7 that requires monthly monitoring of bores following installation, with at least 12 monitoring events prior to deposition.

2.2.2 Category 5 – Updates to the processing plant

Construction

Under the current Works Approval, the Works Approval Holder is already authorised to construct and conduct TLO for the beneficiation processing plant.

The changes that are requested through this amendment are as followed:

- Optimisation of the processing plant to enhance efficiency and environmental management. The key modifications include the integration of spirals for improved mineral separation, the inclusion of modular crushing units, and a more clearly defined emissions discharge area;
- Updates to the surface water management including:
    - Requesting the removal of the requirement for the sedimentation ponds to be fitted with pumping systems to recover spills, instead the ponds will be used for stormwater evaporation and any plant spills will be contained in the plants concrete bunding instead.;
    - Requesting to remove the requirement to bund the processing facility with granite to divert uncontaminated stormwater away from facility. Instead, the Works Approval Holder has advised that the updated stormwater control design includes diversion drains and sedimentation ponds to ensure clean water is diverted away from the plant without the need for a granite bunding and this new design will achieve the same outcome.

The Works Approval Holder has advised that rainfall in non-bunded areas will be channeled to sedimentation ponds and that these ponds are designed to:

1. collect the overall process plant surface water runoff that falls outside of the concrete bunded area;
2. allow for evaporation and settlement of solids/sludge, though any accumulation of solids is unlikely; and
3. subsequent manual sedimentation removal (if required) which will be deposited in the TSFs or removed from site via appropriately licensed contractors.

The sizing of the ponds will store runoff from the 5-day 85^{h} percentile rainfall event.

The Surface Water Management Plan (Hastings, 2024), indicates that storage areas for reagents within the process plant are designed with concrete bunding to contain 110% of the largest tank's capacity. Any spillage from process will report to sump from where the spillage will be returned to the process as appropriate. Any slurry or settled material that can't be pumped will either be diluted and washed to the sumps and returned to the process or removed manually. Rainfall within concrete bunded areas will be collected and redirected back into the process.

Commissioning

The Works Approval Holder has specified that there will be four stages of commissioning as detailed below:

1. Pre-commissioning which will comprise of static checks on unpowered equipment to confirm that the infrastructure has been build according to specifications;

2. Dry commissioning comprising test operation on empty equipment and facilities without the addition of fuel, reagents, ore, water or air;
3. Wet commissioning comprising of test operation of equipment and facilities with water; and
4. Ore-commissioning comprising of test operation of equipment and facilities with reagents, ore and water.

The delegated officer considers that the activities listed under pre-commissioning should be completed prior to the submission of the Environmental Compliance Report (i.e. prior to beginning of commissioning) as these checks include confirmation that the item of infrastructure has been constructed in manner that is in accordance with the specifications of the Works Approval conditions.

The Works Approval Holder has advised that the commissioning phase for the processing plant will take approximately 12 months until the material feeds into the processing plant will have gradually increased until they reach the steady-state design volumes.

Time limited operations

TLO for the processing facility is already approved under the current works approval for a duration of 180 calendar days.

2.2.3 Category 6 – Mine dewatering

The Works Approval Holder is already authorised for the construction and time limited operations for these category 6 activities.

The mine dewater will be first directed to the two respective turkey's nests, prior to either use for dust suppression or pumped to the raw water tank at the process plant for use in processing or sent to the accommodation camp reverse osmosis.

During normal operating conditions the model produced by the Works Approval Holder showed that the expected volume of dewatering will be utilised through dust suppression or reuse in the ore processing with no direct discharge required. However, under worst-case scenario, the turkey's nests will reach storage capacity and excess dewater will be discharged from the nests to the nearest drainage lines.

During this original works approval assessment, the controls proposed by the Works Approval Holder for the discharges of dewatering activities (during times when the turkey's nest do not have the capacity) were:

- Overflow pipe to convey water to the nearest drainage line;
- Spreader pipe from the discharge point to manage flow into the creek to reduce inundation downstream of the discharge point;
- Rock pitching at the discharge point to disperse kinetic energy and protect bed and banks adjacent to the discharge point; and
- Surface water quality monitoring.

Commissioning

The Works Approval Holder has specified that there will be two stages of commissioning for this activity including:

1. Pre-commissioning that will comprise of checking that the pit sump water inflow rate corresponds to pump duty including flowrate and static head capacity; and
2. Wet commissioning which will comprise of confirming that the Turkey's nest dams are of sufficient capacity and the spillway discharging into existing water courses has been designed correctly. The Works Approval Holder will also check all dewatering pipelines

(to raw water tank, to dust suppression standpipe and from in-pit sump).

The Works Approval Holder is requesting a duration of 9 months to complete environmental commissioning.

Time-limited operations

TLO for the dewatering infrastructure is already approved under the current works approval for a duration of 180 calendar days.

2.2.4 Category 64: Class II or III putrescible landfill site

On 8 March 2022, the Works Approval Holder submitted the Environmental Compliance Report (ECR) for the construction of Bald Hill landfill. The department has assessed this and determined that it meets the requirements of conditions 1, 3 and 4, relating to Row 6 of Table 1 (putrescible and inert landfill) of the works approval. In this correspondence, the department advised the Works Approval Holder, that a further ECR should be submitted on completion of works relating to the Frasers Pit waste rock dump landfill bunkers.

Works approval amendment application for an additional landfill location (Auer North) was submitted on 13 July 2023 and was granted on 7 November 2023. Existing Class II or III putrescible landfill sites have been transferred to the operating licence L9336/2022/1, including construction requirements (Auer North Waste Rock Landform Landfill) was transferred onto the licence during the 17 May 2024 amendment. Meanwhile, they have the operational requirements / authorisation for all landfills (i.e. Auer, Bald Hill and Frasers).

On 28 November 2024, the Works Approval Holder submitted the outstanding Environmental Compliance Report for the construction of Frasers Landfill.

Landfilling activities for Fraser's South Landfill bunker commenced on 21 February 2023 and was completed on 28 February 2023. A total of 2.8 tonnes of waste was deposited into this landfill. The landfilling activities at the Bald Hill landfill bunkers commenced in March 2023 and were completed in August 2023, a total of 41.42 tonnes was deposited into these bunkers.

The delegated officer has assessed the submission of the Fraser's landfill and has considered that it generally meets the requirements of requirements (a) *constructed at approved landfill locations – Frasers WRL*, (b) *bunkers have been constructed in accordance with required dimensions*, (c) *Bunkers are to incorporate an approximate 2 percent slope to the rear to retain stormwater collected within bunkers*, and (d) *bunker has perimeter stormwater diversion channel* in the construction requirements specified in Table 1 of the Works Approval.

The delegated officer has considered that operational requirements for the ongoing operation of this facility are conditioned on the premises licence.

2.2.5 Category 85: sewage facility

The Works Approval Holder has requested to remove all aspects related to the category 85 sewage facility from the instrument as it has been advised that the Wastewater Treatment Plant (WWTP) at the processing plant facility is no longer required for the project and that the primary existing village WWTP is approved under the operating licence for the premises L9336/2022/1.

2.2.6 Extension of WA duration

The Works Approval Holder has requested to extend the duration of the instrument for an additional five years to allow the project to operate under the existing approval until 16 June 2030 to reflect the staged development. The current works approval expiry is 16 June 2025, which will not allow sufficient time to construct the items of infrastructure under this approval.

2.2.7 Changes to prescribed premises boundary

The Works Approval Holder is requesting to extend the prescribed premises to include

additional tenements to ensure that this works approval prescribed premises boundary matches the operating licence L9336/2022/1.

2.2.8 Groundwater monitoring data

Baseline groundwater monitoring results, required by existing conditions of the works approval, from bores installed around TSF (as discussed in section 2.2.1) have been provided as part of this application.

Part of this baseline monitoring included a one-off sample for rare earth elements. The results of this monitoring undertaken in 2022 indicated that all rare earth elements were below detection levels in all bores. A review of this monitoring suite indicates that pH ranges from 6.8 to 8.2 and Total Dissolved Solids (TDS) from 6630 to 1430 mg/L.

It is noted that there were several analytes that were not consistently sampled since installation of the bores. The delegated officer notes that Schedule 3 requires monthly monitoring, such that at least 12 monitoring events have been undertaken prior to tailings deposition.

In addition to the monitoring suite conditioned in Schedule 3, the Works Approval Holder conducted monitoring on a radionuclide suite shown in Table 3.

Table 3: Background radionuclide suite monitoring in groundwater

Bore	Date	Total Alpha	Total Beta	Gross Beta activity 40K	Radium 226	Radium 228
-	-	Bq/L	Bq/L	Bq/L	Bq/L	Bq/L
TSFMB10	25/07/2022	0.920	0.560	0.310	<0.01	<0.08
TSFMB01	26/07/2022	0.160	0.530	0.200	0.030	<0.08
TSFMB09	25/07/2022	0.990	0.490	0.260	0.010	<0.08
TSFMB03	27/07/2022	0.260	0.520	0.200	0.020	<0.08
TSFMB04	28/07/2022	0.200	0.580	0.190	0.050	0.090
TSFMB05	28/07/2022	0.100	0.370	<0.10	0.020	<0.08
TSFMB06	29/07/2022	0.400	0.700	0.380	0.110	0.130
TSFMB08	29/07/2022	0.150	0.620	0.220	0.030	0.080

Standing water levels monitored at bores around the TSF indicate a steady level of groundwater level during the monitoring period as shown in Figure 1.

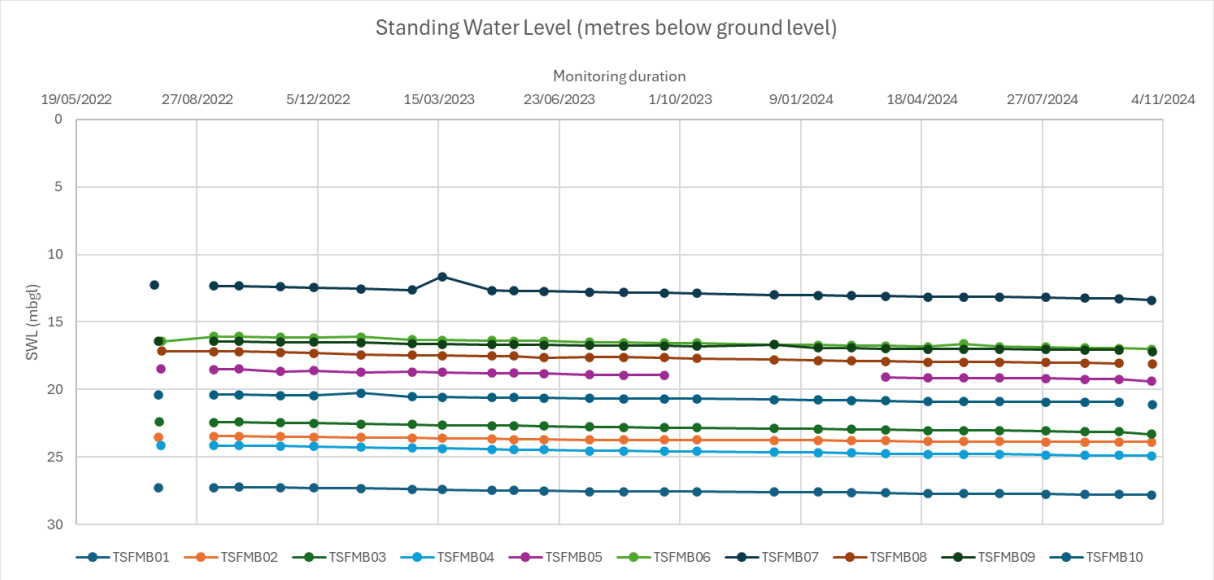

Figure 1: Standing water level of groundwater monitoring bores around the TSF

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 2020).

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 and operation which have been considered in this Amendment Report are detailed in Table 4 below. Table 4 also details the proposed control measures the Works Approval Holder has proposed to assist in controlling these emissions, where necessary.

Table 4: Works Approval Holder controls

Emission	Sources	Potential pathways	Proposed controls

Tailings seepage	Storage of beneficiated tailings	Seepage through embankment and base of TSF	*From original assessment and existing conditions:*
			• Located in an area with low permeability in the superficial soils and near surface weathered rock (<2 x10^{-7} m/s) as indicated in the applicant's in-situ permeability tests;
			• Construction materials sources onsite with materials for low permeability zones within embankments from external borrow areas (but from the TSF footprint where possible);
			• Constructed embankment – near surface clayey sand deposits (i.e. saprolite material) will be used to construct the low permeability embankment zones and backfill to cut off trenches;
			• Detailed design will include the following contingency measures:
			  ○ Treatment of any identified preferential seepage paths between the TSF and downstream receptors using barrier systems such as cement grouting or cut-off walls;
			  ○ Contingency seepage interception systems such as trenches or recovery bores; and
			  ○ Geosynthetic lining of collection drains within the final TSF landform to further reduce long term seepage rates;
			  ○ Perimeter discharges which mitigates liquor ponding by the embankment;
			  ○ Maintain unsaturated beaches and a small central decant pond.
			• Groundwater monitoring program;
			• Clay liner over predicted decant pond area with a hydraulic conductivity of 1 x 10^{-8}m/s;
			New controls:
			• Clay liner thickness specification changed to "up to 300 mm" of the clayey in-situ soils at the base of the pond impoundment area will be proof compacted during construction to reduce potential for vertical seepage from significant rainfall event;
			• Inspection of TSF for signs of visible seepage;
			• Maintain a small centrally-located decant pond;
			• TSF to be operated in accordance with operating strategy, including recovery of decant water.

	Seepage collection infrastructure	Overtopping of seepage collection ponds	Seepage collection sumps will be inspected regularly to ensure pumping of sumps is done so in a manner that prevents overtopping.
		Infiltration of seepage from seepage collection sumps	Seepage collection sumps will be constructed with a low permeable soil layer beneath the sump.

Emission	Sources	Potential pathways	Proposed controls
		Pipeline rupture in seepage return water system	N/A
Tailings	Deposition of tailings into beneficiation TSF	Overflow of TSF	*From original assessment and existing conditions:* • Level gauge boards and / or automated level sensors for monitoring water levels; • Twice daily of inspections of tailings' facilities and monthly review of water balance; • Freeboard – 1:5 wet season plus 1:100 Annual Exceedance Probability (AEP), 72 hr flood; • Spillway – 1:100,000 AEP, critical floor plus 1:10 AEP wave run-up or Probable Maximum Flood (PMF); • TSF Operations Maintenance and Surveillance Manual that provides inspection procedures and protocols to be prepared as part of the TSF detailed design phase. The manual is prepared to meet the *Guidelines on the Development of an Operating Manual for Tailings Storage (DME, 1998);* • Mandatory annual geotechnical audit for all TSFs prepared in accordance with DEMIRS *Tailings Storage Facility Audit Guide* (DMIRS, 2017). *New controls:* • Freeboard to be maintained and inspected daily; • Supernatant to be recovered and directed to process plant; • TSF will not be used to store surplus water.
Decant water	Return decant water	Pipeline rupture	*From original assessment and existing conditions:* • Tailings and return water pipelines are HDPE; • Tailings lines are installed in bunded piping corridor to contain any spillage with spillage ponds are provided at low points; • Inspections (once per shift) to detect leaks and tailings line pressure continuously monitored with alarms for high pressure; • A slurry pipeline located at the higher end of the catchment will transverse a river crossing – any potential breaches and direct discharge spills into the rover at the crossing area will be addressed by an elevated pipe bridge and double sleeves pipes in this area only; • Remainder of the route will be bunded corridors to direct spillage to spillage containment ponds or into the TSFs; • Spillage containment ponds are designed for 12 hours of flow from the largest pipe and unlined; and • Designated, constructed crossing points to be installed for vehicles.

Emission	Sources	Potential pathways	Proposed controls
Dewater	From turkey's nest	Overtopping – discharge into the environment	*From original assessment and existing conditions:* • Overflow pipe to convey water to the nearest drainage lines; • A spreader pipe from the discharge point to manage flow into the creek to reduce inundation downstream of the discharge point; • Rock pitching at the discharge point to disperse kinetic energy and protect bed and banks adjacent to the discharge point; and • Water quality monitoring
	From turkeys nest	Seepage through	*From original assessment and existing conditions:* • Turkey's nests are HDPE lined.
	Dewater pipeline	Pipeline rupture	• Dewatering pipelines constructed with HDPE; • Manual shut-offs; and • Frequent inspection of pipeline integrity (weekly/monthly).
Contaminated stormwater / spillage	Ore processing facility	Direct discharge to land / contaminated stormwater	*From original assessment and existing conditions:* • Equipment located over slabs with bunding that will contain spillage of process slurries and liquors; • Tanks containing process slurries and/or liquors are located within concrete bunds sized to capture 110% volume of largest tanks; • Tanks containing reagents classed as dangerous goods are bunded in accordance with the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations and Australian Standard AS 3780. • Infrastructure and piping inspected on a daily basis; • Spill Response Procedure related to spill containment, clean up and disposal; • Self-bunded diesel tank and heavy-duty spill grates in the refueling bay connected to an adjacent drainage sediment pond for water collection • Separation of uncontaminated stormwater from ore processing areas through intercepting surface water runoff using bunding and open drains with culverts beneath roads; • Stormwater runoff directed to the sedimentation pond via open gravity swale drains. The sedimentation pond will be designed for runoff from the 5 day 85 percentile rainfall event (i.e. 23.5 mm rainfall) without discharge in accordance with the Best Practice Erosion and Sediment Control (International Erosion Control Association Australasia 2008); *Controls specified in this application:* • Sumps and bunds in processing plant maintained to ensure containment of processing materials; • System of diversion drains and stormwater ponds is implemented around the processing plant to effectively channel clear water away from the facility, preventing flooding and ensuring the processing plant remains

Emission	Sources	Potential pathways	Proposed controls
			protected; and • Processing plant general area will drain towards stormwater ponds.
Dust	ROM pad / stockpiles	Air / windborne	*From original assessment and existing conditions:* • Sprinklers systems on ROM pad stockpiles • Covers; and • Water sprays using a water cart.
Dust	Surface of TSF	Air / windborne	• Wet deposition of tailings; and • Active spigots cycled to maintain moist surface;

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Works Approval Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 5 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental siting* (DWER 2020)).

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

Human receptors	**Distance from prescribed activity**
Gifford Creek Station homestead	Approximately 15 km SSW from processing plant and 13 km SSW from TSF.
Environmental receptors	**Distance from prescribed activity**
Priority Ecological Community (PEC): P1 Gifford Creek, Mangaroon, Wanna calcrete groundwater assemblage type on Lyons palaeodrainage on Gifford Creek, Lyons and Wanna Stations. This area is a PEC because it has a diverse stygofauna community located within the Lyons palaeodrainage channel.	Underlying the premises
Priority Flora: 11 Priority Flora species (including six significant range extensions) according to EPA Report 1642.	Located within and surrounding the premises. The EPA Report noted that vegetation surveys to date have not necessarily met its guidance and standards, and more targeted and detailed and targeted surveys are a requirement of MS 1110
Lyons River, Frasers Creek and associated tributaries / drainage lines	Lyons River – approximately 9 km SW of the TSFs Frasers Creek – passes approximately 1.5 to 2 km along the western side of the TSF and ore processing facility. A creek or tributary of Frasers Creek transects between the northern perimeter of the TSF and south of the processing facility.

3.2 Risk ratings

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

Where the Works Approval Holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Works Approval Holder'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 Works Approval Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 6.

The Revised Works Approval W6209/2019/1 that accompanies this Amendment Report authorises construction and time-limited operations. The conditions in the Revised Works Approval have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence 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. category 5 and category 6. A risk assessment for the operational phase has been included in this Amendment 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 operation

Risk Event						**Risk rating[1]** **C = consequence** **L = likelihood**	**Works Approval Holder's controls sufficient?**	**Conditions[2] of works approval**	**Justification for additional regulatory controls**
Source/Activities	**Potential emission**	**Potential pathways**	**Potential impact**	**Receptors**	**Works Approval Holder's controls**				
Construction									
Surface water management at processing facility	Fugitive dust	Air / windborne pathway	Human health impacts	Nearest dwelling is Gifford Creek homestead (approx. 13 km SSW of TSF)	N/A – No credible pathway for risk given the distance to sensitive receptor.				
Earthworks associated with construction of the Beneficiation TSF			Flora / fauna impacts from exposure to dust	Surrounding vegetation	N/A	**C =** Slight **L =** Rare **Low Risk**	N/A	N/A	The delegated officer considers that the risk of dust emissions within duration of construction activities to impact vegetation will be low and has determined that no additional regulatory controls are required.
Commissioning and Time-limited Operations (for category 5 TSF)									
Processing and concentrating of REE ores	Fugitive dust	Air / windborne pathway	Impacts to vegetation and wildlife	Surrounding vegetation, surface water systems and wildlife	Refer to section 3.1.1	**C =** Slight **L =** Unlikely **Low Risk**	Y	Condition 11 and 18: operational requirements	The delegated officer considers the Work Approval Holder's control to apply dust suppression to ROM pad and stockpiles is sufficient to mitigate this risk.
			Human health impacts	Nearest dwelling is Gifford Creek homestead (approx. 13 km SSW of TSF)					
	Noise				N/A – No credible pathway for risk given the distance to sensitive receptor.				
	Light								
	Loss of containment related emissions (e.g. spills, overflows, ruptures) including contaminated stormwater runoff	Direct discharge and infiltration through soils	Impacts to groundwater, surface water ecosystems and vegetation	Surface water, groundwater and soils, vegetation	Refer to section 3.1.1	**C =** Moderate **L =** Unlikely **Medium Risk**	Y	Condition 1: stormwater management infrastructure Condition 11 and 18: operational requirements	It is noted that this is the only change to the operations of the facility from the original assessment that approved time-limited operations. The delegated officer considers that the Licence Holder's requested amendments and proposed controls are appropriate to mitigate and managed this risk event.
Dewatering activities	Mine dewater	Seepage from Turkeys nest	Contamination and deteriorating the quality of local groundwater and surface water	Groundwater aquifers	Refer to section 3.1.1	**C =** Slight **L =** Rare **Low Risk**	Y	Condition 1: requirement to line turkey's nest	Production bore water quality from Frasers Pit and Bald Pit (as discussed in DWER, 2020)[2], indicate the quality was slightly alkaline pH (8 to 8.5), fresh to slightly brackish salinity (1000 to 12000 mg/L TDS) and of sodium chloride type. Considering the expected water quality of the dewater and the requirements to line the turkey's nest, the delegated officer considers no additional regulatory controls are required.

[2] W6209/2019/1 Decision Report (dated: 17/06/2020)

Risk Event						Risk rating[1] C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways**	**Potential impact**	**Receptors**	**Works Approval Holder's controls**				
Operation of beneficiation TSF	Seepage	Pipeline rupture	Contamination and deteriorating the quality of local surface water and vegetation	Surface water systems (nearby creeks, tributaries and drains) Surrounding vegetation	N/A	**C =** Slight **L** = Unlikely **Medium Risk**	Y	Condition 1: construction of dewatering pipelines	Considering the expected water quality of the mine dewater (DWER, 2020) and the proposed controls, the delegated officer considers no additional regulatory controls are required.
		Overflow of mine dewater	Direct discharge to surface water drainage lines	Surface water systems (nearby creeks, tributaries and drains)	Refer to section 3.1.1	**C =** Slight **L =** Rare **Low Risk**	Y	Condition 1: controlled water Condition 21: surface water monitoring	The overflow of mine dewater during times of heavy rainfall or reduced water use was considered in the original assessment. Noting the expected water quality and existing conditions, the delegated officer considers that dewater discharge during commissioning will not have a significant impact on the chemical and biological water quality of the surface or groundwater, and water discharging from turkey's nests will be diluted via respective rainfall event. It is noted that during commissioning, the Works Approval Holder intends to undertake testing of turkey's nest capacity.
	Dust	Air / windborne pathway	Human health impacts & flora / fauna impacts from exposure to dust	Nearest dwelling is Gifford Creek homestead (approx. 13 km SSW of TSF) Surrounding vegetation, surface water systems and wildlife	Refer to section 3.1.1	**C =** Slight **L =** Unlikely **Low Risk**	Y	N/A	Based on the characterisation of the tailing, the beneficiation TSF is defined as non-radioactive with an average radionuclide concentration of approximately 0.8 Bq/g. Therefore, the delegated officer considers that this emission can be managed through the Works Approval Holder's proposed controls for depositing tailings in a manner to reduce dust lift off.
		Seepage through embankment and base of TSF (particularly given the changes to liner design)	Contamination and deteriorating the quality of local groundwater and impacting PEC	Groundwater aquifers Surface water systems (nearby creeks, tributaries and drains)	Refer to section 3.1.1	**C =** Moderate **L =** Unlikely **Medium Risk**	N	Condition 2: seepage abatement controls Condition 11 and 17: operational requirements Condition 20 and 24: water balance monitoring Condition 21: GW monitoring **<u>Condition 22: decant water monitoring</u>** Condition 23: Tailings characteristic monitoring	The delegated officer has assessed the changes to the design and whether they have any implications to the existing assessment of the operation of this facility. The delegated officer has accepted the changes to the specifications to the liner thickness for the reasons provided in section 2.2.1. As part of this amendment, the delegated officer has reinstated previous specified actions included in the original assessment of the TSFs including decant water monitoring. The delegated officer will also condition the Works Approval Holder's proposed controls and recommendations from the technical advice obtained during the assessment to conduct additional tailings characterisation monitoring during steady state operations to inform future assessments.
			Mounding of local groundwater to adversely impact native vegetation	Nearby vegetation	Refer to section 3.1.1	**C =** Moderate **L =** Unlikely **Medium Risk**	Y	Condition 2: seepage abatement controls Condition 20 and 24: water balance monitoring Condition 21: GW monitoring	Given the existing Works Approval conditions designed to reduce seepage from the facility and the current distance to groundwater in bores around the TSF (as discussed in section 2.2.8), it is unlikely that this activity will cause inundation in root zone of nearby vegetation. The delegated officer considers that no additional regulatory controls are required, noting that current groundwater monitoring requires ongoing measurements for standing water levels.
		Overtopping of seepage collection sumps	Contamination and deteriorating the quality of local groundwater and surface water	Groundwater aquifers Surface water systems (nearby creeks, tributaries and drains) Surrounding vegetation	Refer to section 3.1.1	**C =** Minor **L =** Unlikely **Medium Risk**	Y	Condition 11 and 17: inspection of seepage collection	The Works Approval Holder's proposed control to regularly inspect the seepage collection sumps will be conditioned, noting that this inspection should involve, maintaining the sump capacities and ensuring that the mobile pumps are in working order.
		Infiltration of seepage from seepage collection sumps			Refer to section 3.1.1	**C =** Minor **L =** Unlikely **Medium Risk**	Y	Condition 2: requirement for construction of seepage collection sumps	The Works Approval Holder's proposed control to construct the seepage collection sumps with a low permeable material will be conditioned.
		Pipeline rupture in seepage return water system			N/A	**C =** Slight **L =** Unlikely **Low Risk**	N/A	N/A	The delegated officer considers that due to the short distance of the pipeline to return seepage water back to the decant water, and that it will occur wholly over the footprint of the TSF, that the risk is low, and no additional regulatory controls are required.

Risk Event						Risk rating[1] C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions[2] of works approval	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways**	**Potential impact**	**Receptors**	**Works Approval Holder's controls**				
	Tailings	Overtopping of TSF	Contamination and deteriorating the quality of local groundwater and surface water and vegetation	Groundwater aquifers Surface water systems (nearby creeks, tributaries and drains) Surrounding vegetation	Refer to section 3.1.1	**C =** Moderate **L =** Rare **Medium Risk**	Y	Condition 2: installation of level gauge board and/or automated level sensors Condition 2: installation of a spillway Condition 11 and 17: daily inspection of freeboard	The delegated officer considers that the Works Approval Holder's proposed controls and existing conditions are sufficient in managing the risk of overtopping.
		Pipeline rupture			Refer to section 3.1.1	**C =** Moderate **L =** Unlikely **Medium Risk**	Y	Condition 1: pipeline installation requirements Condition 11 and 17: daily inspection of pipeline integrity	Whilst the pipeline crossing over a surface water line is considered a **major** risk event in the case of spillage, the Works Approval Holder's proposed controls and existing conditions are sufficient in managing this risk, and therefore no additional regulatory controls will be imposed.
	TSF decant pond	Ingestion and/or contact with TSF with decant of alkaline, saline, elevated REEs, fluoride and molybdenum concentrations	Bird deaths or internal injury	Birds attracted to TSF surface due to adjacent surface waters (ephemeral creeks, drainage lines)	N/A	**C =** Moderate **L =** Possible **Medium Risk**	N	**Condition 12 and 25: fauna monitoring**	As identified in the original Works Approval assessment, the delegated officer considers there is a possible risk of impacts to bird species that frequent the area that will encounter the TSF decant pond. It is considered that consumption or direct contact with the alkaline quality of the decant may damage soft tissues of birds. Due to this risk, the delegated officer has reinstated the existing conditions including daily bird observations, and a desktop assessment to determine whether additional ongoing management controls are required to prevent or reduce the likelihood of this risk event.

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

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

4. Consultation

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

Table 7: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (10/12/2024)	None received	N/A
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advised of proposal 11 December 2024.	DEMIRS provided comment on 9 January 2024 to confirm that the Mining Proposal and Mine Closure Plan (Registration ID 123915) has been assessed and approved by DEMIRS. DEMIRS advised that this proposal allowed for changes in the project layout and an increase in overall disturbance, including the updated design for the beneficiation TSF. The DEMIRS internal Geotechnical team has reviewed the updated detailed design and had no further comments. DEMIRS advised that the proponent must be ensure that any amendments to the Works Approval or tenements must align with approved activities in the recent Mining Proposal and any additional changes that were not presented to DEMIRS prior to approval will require a new Mining Proposal submission.	Noted.
Works Approval Holder was provided with draft amendment on 11 February 2025.	Refer to Appendix 1.	Refer to Appendix 1.

5. Conclusion

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

Removal of redundant categories

Sewage facility

The delegated officer considers this administrative in nature and accepts the request to remove these aspects.

Beneficiation TSF

Construction

The delegated officer has accepted the requested changes to the design of the facility and has

assessed and approved a commissioning and time-limited operations phase based on the updated design.

The delegated officer has determined that due to the duration of the works approval that only the Starter embankment and Stage 2 lift (embankment height to 338 m RL) will be approved under this works approval. The delegated officer considers the subsequent stages be assessed and approved by future amendments to either the current operating licence, or additional works approval.

Commissioning and Time-limited operations

The delegated officer notes that the risk ratings for certain risk events have been reviewed for this assessment specifically for the operation of the Beneficiation TSF which in the original assessment of the Works Approval it was determined that the tailings stream for this TSF will be a lower risk than that going to the Hydromet TSF.

The delegated officer has re-instated time limited operations for the Beneficiation TSF for a duration of 180 days.

Commissioning phase category 6 dewatering and category 5 processing plant

The delegated officer has accepted a commissioning phase for all items of infrastructure on the works approval.

Extension of instrument expiry

The delegated officer has determined that due to the delay in construction for the items of infrastructure on the works approval, particularly the Tailings Storage Facilities, that approving the additional five years will ensure that the Works Approval Holder is able to continue construction under this current approval and that there is no additional risk as a result of this.

5.1 Summary of amendments

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

Table 8: Summary of works approval amendments

Condition no.	Proposed amendments
Cover page	Updates to cover page include: • Amendment to extend the duration of the Works Approval; • Inclusion of additional tenements to 'prescribed details'; and • Removal of reference to category 85.
Interpretation section	Updated in accordance with department's changes to standard instrument template.
Throughout instrument	Changes throughout the instrument: • Updates to condition and table numbering due to inclusion / removal of conditions;
Condition 1, Table 1	Updated the design and construction / installation requirements for the Ore processing facility to remove the requirements for: • 'sedimentation pond fitted with pumping systems to recover spills'; and • 'perimeter of the processing facility bunded with granite to diver uncontaminated stormwater away from the facility'; and Instead specify the general intent for the stormwater management infrastructure to diver uncontaminated away from the facility.
	Removal of construction requirements for: • *'Ore processing facility sewage treatment plant and irrigation area'*; and

	• *'Groundwater monitoring bores'*; and Move the construction requirements for tailings and return water pipelines to Table 2 with all TSF infrastructure.
Condition 2, Table 2	Updates to the design of the Beneficiation TSF: • Specify heigh of starter embankment; • Requested amendments to the liner thickness; • DWER initiated amendment to fix the wording regarding the hydraulic conductivity as previous specification was incorrectly worded; • Conditioning the Works Approval Holder's control to construct seepage sumps with a low permeability material; • Addition of tailings and return water pipelines from Table 1; • Specify maximum embankment height of Stage 2 embankment raise; • Addition of references to new Figures that demonstrate the design specification of the TSF including but not limited to, underdrainage infrastructure, embankment construction and raises.
Previously condition 9	Removal of commissioning conditions regarding the WWTP.
Previously condition 10	
Previously condition 11	Condition replaced with updated commissioning report submission (new condition 13)
Previously condition 12	Removal of conditions that authorise time-TLO for the WWTP.
Previously condition 13	
Previously condition 16	Removal of condition for monitoring during TLO for the WWTP
New condition 9	New conditions to initiate the commencement of commissioning for all items of infrastructure.
New condition 10	
New condition 11	Operational requirements for all infrastructure during commissioning phase.
New condition 12	Reinstatement condition regarding fauna observations during commissioning and time limited operations phase.
New condition 14	Specifying requirements for environmental commissioning report.
New condition 15	New conditions to initiate the commencement of time limited operations for all items of infrastructure.
New condition 16	
New condition 17	Operational requirements for all infrastructure during time limited operations phase.
Condition 19, Table 6	Remove treated sewage wastewater as an authorised discharge at the sprayfields.
New condition 19	Requirement for TSF water balance monitoring during time limited operations
New condition 21	Requirement for decant water monitoring during time limited operations.
New condition 22	Requirement for tailings characterisation monitoring.
New condition 23	Requirement to conduct comparison between water balance monitoring (conducted under condition 20) and modelled water balance.
New condition 24	Requirement to conduct desktop assessment of potential impacts to fauna from exposure to both TSFs.
Condition 26	Updates to condition to: • Add requirements to submit monitoring results conducted under time limited operations as part of the time limited operations report; and • Add requirements to submit records of daily observation of fauna (as conducted under

	condition 12)
Condition 28	Requirement for Works Approval Holder to maintain all information from monitoring programmes conducted under time limited operations.
Definitions	Delete definition for “EN 14181:2014” as it is not referenced in the instrument. Inclusion of additional definitions for AEP and PMF.
Figures	Added captions to all figures for easy referencing throughout conditions.
Figure 1	Updated Figure 1 to show changes to prescribed premises boundary.
Figure 3, 4 and 5	Updated and addition of new figures to show updated surface water management infrastructure.
-	Removal of figure showing ore processing facility sewage treatment plant as this will no longer be constructed under this works approval.
Figure 6	Updated figure to show revised location of monitoring equipment.
Figure 7	Updated figure to showing revised TSF design and prescribed premises boundary.
Figure 8	Update figure to show location of surface water monitoring locations.
Figure 9	Updated Figure to show groundwater bore locations.
Figure 10	Updated Figure to clearly show location of pipelines – dewatering, tailings and decant return pipelines.
Figures 11, 12 and 13	New figures to show the updated design features to beneficiation TSF.
Schedule 2, Table 6	Removing category 85 activities from this table of infrastructure works.
Schedule 3, Table 7	Table removed as this refers to the monitoring that was previously required for the WWTP.
Table 11	Amended the frequency of the monitoring events, noting the delayed construction of the TSFs, but have retained the monthly monitoring once TSF deposition has commenced.
Table 12	Added footnote to advise that surface water sampling is to be conducted at the specified frequency unless there is no adequate surface water to sample.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. Environmental Protection Authority (EPA) 2019, *Yangibana Rare Earths Project, Report 1642*.
5. GHD 2019, *Yangibana TSF Design Development Preliminary Design Report YGB-31-100-ENG-CIV-REP-0001*.
6. GHD 2024, *Yangibana Beneficiation TSF Design Development, 10-year TSF Detailed Design Report*
7. Hastings Technology Metals Limited (Hastings) 2024, *Yangibana Rare Earths Project, Surface Water Management Plan*, Document No: YB-0-0000-HE-EN-PLN-00013, revision 6.

Appendix 1: Summary of Works Approval Holder's comments on risk assessment and draft conditions

Item	Condition / Section	Summary of Works Approval Holder's comment	Department's response
1.	Cover page – Duration	The Works Approval Holder confirmed that the requested extension is for 5 years (until 16/06/2030).	Noted.
2.	Table 1 – Putrescible landfills	The Works Approval Holder has advised that the construction of further landfill bunkers at Bald Hill and / or Frasers will still be required and therefore are requesting that the landfill construction requirements to remain in this Works Approval.	The department has accepted the Works Approval Holder's request to retain category 64 landfill construction conditions on the works approval. It is noted that the approval to operate these landfills and relevant operational requirements are all conditioned on the licence L9336/2022/1.
3.	Table 1, item 2: discharge of dewater from Fraser Pit and Bald Hill Pit	The Works Approval Holder has provided additional information regarding the dewatering pipelines: • dewatering pipelines will be constructed with HDPE; and • given the water quality of the dewatering discharge, any spills from the pipeline will not reduce quality of local surface water. Further information was provided on 14 February 2025, where the Works Approval Holder advised that that: • pipelines will be designed to accommodate the flows and pressures, and will have a manual shut off in the event of pipe failure; and • pipelines will be periodically inspected for integrity.	The department has updated the requirements for the dewatering pipelines to include these additional construction specifications as proposed by the Works Approval Holder.
4.	Table 4, item 1 (d): ore processing facility	The Works Approval Holder has identified grammatical error.	Noted, this error has been corrected.
5.	Table 7, monitoring point reference: Beneficiation TSF decant pond	The Works Approval Holder has advised that it is possible to sample directly from the decant water pond, as access will be available via the decant causeway, irrespective of the pond's level in the TSF. The Works Approval Holder has advised that decant water can be sampled using a telescopic sampler.	Noted, the department has added the monitoring point to reference from the decant causeway.
6.	Figure 1: prescribed premises boundary	The Works Approval Holder has advised that this Figure has not been updated and requests that it is amended the most recent version.	Noted, this was an error during drafting. The department will update for the final.
7.	Figure 2: processing plant site layout	Upon the department's request the Works Approval Holder has provided an updated Figure.	N/A.
8.	Figure 3: processing plant surface water management	The Works Approval Holder has advised that this Figure has not been updated and requests that it is amended the most recent version.	Noted, this was an error during drafting. The department will update for the final.
9.	Figure 4: stormwater drainage lines	The Works Approval Holder has advised that this Figure has not been updated and requests that it is amended the most recent version.	Noted, this was an error during drafting. The department will update for the final.
10.	Figure 6: location of tailings and return water pipelines	Upon the department's request the Works Approval Holder has provided an updated Figure.	N/A.
11.	Figure 7: location of surface water and groundwater monitoring sites	The Works Approval Holder has advised that this Figure has not been updated and requests that it is amended the most recent version.	Noted, this was an error during drafting. The department will update for the final.
12.	Figure 8: dewatering discharge locations	Upon the department's request the Works Approval Holder has provided an updated Figure.	N/A.
13.	Schedule 3, Table 11: Groundwater monitoring requirements	The Works Approval Holder has advised that they have reviewed the parameters of Table 11 and accepted the suite of parameters as these are the same as the previous works approval (i.e. not amended through this assessment). The Works Approval Holder provides the following comments regarding the frequency of the monitoring: 1. That quarterly monitoring has been conducted since installation of bores with the understanding that monthly sampling will commence in the future in line with the construction schedule and to align for the minimum 12 months baseline prior to TSF deposition; and 2. That Frasers well will continue to be monitored quarterly (to align with wide groundwater monitoring program), however will increase the frequency to monthly once TSF is operational.	The department's response to these changes are listed below: 1. This change is accepted, noting that due to delayed construction of TSF, several baseline monitoring events have already occurred, and even at a quarterly basis, the Works Approval Holder is likely to achieve the 12 minimum samples prior to deposition; and 2. This change is accepted, noting that quarterly monitoring prior to deposition into TSFs will provide adequate time, and baseline data. The department has amended the wording for the frequency of the monitoring events in Table 11.
14.	Schedule 3, Table 12: Surface water monitoring requirements	The Works Approval Holder has advised that they have reviewed the parameters of Table 12 and accepted the suite of parameters as these are the same as the previous works approval (i.e. not amended through this assessment). The Works Approval Holder does not that the frequency of the surface water monitoring locations is dependent on the availability of sufficient surface water to be sampled, which may be significantly influenced by seasonal rain/drought cycles. It is noted that in the spring 2024, with the lack of winter rainfall, the Lyons River Poll was observed to dry up completely.	The department considers that limitations due to availability of surface water to sample is justified and has added a footnote to advise that sampling should be undertaken as specified as long as there is adequate water to sample.
15.	AR Section 2, Table 1	The Works Approval Holder has provided updated timeframes for the timing of activities.	Noted, Table 1 has been updated to reflect these.

Item	Condition / Section	Summary of Works Approval Holder's comment	Department's response
16.	AR Section 2.2.1 and 2.2.2 – Commissioning durations	The Works Approval Holder has provided comments on the commissioning for the processing plant and the TSFs: 1. Commissioning period of 12 months is required for the processing plant to allow for the plant's ramp-up phase, addressing any upset conditions that may arise during commissioning and ramp-up, process optimisation and potential equipment issues. Discharge from the process plant will commence with water commissioning which will include commissioning of the tailings pumps and the pipeline to the TSF; and 2. Due to the comments above, commissioning of the TSF is required to align with the duration of the processing plant, in order to accept any discharge as a result of this processing plant commissioning. In addition to that, the construction of the TSF will conclude 12 months prior to the expected commissioning date of the processing plant (as detailed in the updated timeframes of works provided in Table 1 of the AR). Due to this, the Works Approval Holder is requesting a 24-month commissioning period for the TSF, to allow for the 12 months post construction (and prior to processing plant commissioning) and 12 months of commissioning parallel to the processing plant.	The department's response to the following comments / requests are: 1. The department accepts this justification from the Works Approval Holder, noting that 12 months is an appropriate time to allow for the processing plant to ramp-up to full operational capacity; and 2. Whilst the department accepts the 12 month period for TSF (to align with that of the processing plant), the department considers that there is potential risk of a 12 month gap between final construction of TSF and first use due to wearing of the clay liner and material deterioration. Whilst the department understands that there may be constraints in timing for these activities, to ensure that the facility is still fit for purpose following the duration of time between construction and first use, that the Works Approval Holder is required to ensure that the infrastructure and seepage controls remain fit for purpose.
17.	AR Section 2.2.4, Landfill	The Works Approval Holder advised that that Fraser's landfill has been constructed in accordance with all requirements of the condition. They have advised that the landfill bunker is surrounded by the pit bund and furthermore, there is an area of topsoil and/or rock storage surrounding the landfill. The Works Approval Holder considers that these measures are sufficient to meet the intent of the condition to ensure that no material will be released off time. It was also noted that the specific landfill cell was only used for 1 week with a small volume (2.8 tonnes) over this duration.	The department considers that the pit bund and areas of topsoil /rock surrounding the landfill, as described by the Works Approval Holder, meets the intent of the requirement which is the ensure that potentially contaminated stormwater will not be released off-site.
18.	AR Section 2.2.6, Extension of Works Approval duration	The Works Approval Holder has confirmed the requested extension of works approval duration for an additional 5 years.	Noted and updated.
19.	AR Section 3.3.1, Table 4: Works Approval Holder controls and Table 6: Risk Assessment – seepage collection sumps	The Works Approval Holder has advised that there is no provision for permanently installed pumps in the seepage collection ponds in the current design. These ponds will be noted during routine inspections with seepage being returned to the TSF using mobile pumps and piping as and when required.	The department has noted these comments made from the Works Approval Holder and has conditioned the inspections of the seepage sumps to prevent overtopping and general maintenance of sump
20.	AR Section 3.3.1, Table 4: Works Approval Holder controls – pipeline rupture in seepage returns water system	In response to department query regarding pipelines from the seepage sump to the decant pond, the Works Approval Holder has not advised of any additional controls at the pipelines systems.	Noted. The department does not consider that this changes the risk assessment.
21.	AR Section 3.3.1, Table 4: Works Approval Holder controls – dewatering pipeline and Table 6: Risk Assessment	The Works Approval Holder has confirmed that the dewatering pipelines will be constructed in the same manner as the tailings and decant water pipelines (i.e. with HDPE) and that due to the quality of the water to pass through the dewatering pipelines, the risks associated with these activities are limited to erosion and scour only. Further information was provided on 14 February 2025, where the Works Approval Holder advised that that: • pipelines will be designed to accommodate the flows and pressures, and will have a manual shut off in the event of pipe failure; and • pipelines will be periodically inspected for integrity.	The department has noted the additional information provided by the Works Approval Holder and conditioned the proposed controls for the construction and installation of the pipelines.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY			
Application type			
Amendment to an existing works approval	☒	Current works approval number	W6209/2019/1 (associated licence L9336/2022/1)
Date application received		10 October 2024	
Compliance reporting			
Has the required compliance report(s) been received?		Yes ☒ No ☐ N/A ☐	**Environmental Compliance Report – Landfill construction (Bald Hill landfill)** HPCM No: FA263457 Date received: 08/03/2022 Compliance demonstrated? Yes ☒ No ☐
Applicant and premises details			
Applicant name/s (full legal name/s)		Hastings Technology Metals Limited	
Does the following information in the application form match those listed in the current ASIC company extract?		Applicant name/s (full legal names): Yes ☒ No ☐	Trading name (if applicable): Yes ☐ No ☐ N/A ☒
		Australian Company Number (ACN): Yes ☒ No ☐	Registered business address: Yes ☒ No ☐
Has the applicant demonstrated occupancy (proof of occupier status)?		Yes ☒ No ☐	For new tenements applicant has provided proof of occupier: L09/69 – expiry: 30/06/2037 L09/93 – expiry: 07/01/2042 L09/95 – expiry: 23/03/2042
Premises name		Yangibana Rare Earths Project	
Premises location		Approximately 270 km east-northeast from town of Carnarvon and 150 km northeast of Gascoyne Junction.	
Local Government Authority		Shire of Upper Gascoyne	
Application documents			
HPCM file reference number		Instrument (folder): DER2019/000040 Application (subfolder): DER2019/000040~3	
Key application documents (supporting information provided in addition to the application form)		Works approval supporting document: • Yangibana Project Soil Assessment [3B attachment (A2316715) page 94]; • Baseline Radiation Report [3B attachment page 146]; • Yangibana Consolidated Flora and Vegetation Summary [3B attachment p239]; • Yangibana Project Biological Assessment – Terrestrial Fauna [3B attachment p320]; • Yangibana Rare Earths Project Surface Water Assessment [3B attachment page 494]; • Yangibana Mine Site – Surface Water Modelling [3B attachment page 564]; • Yangibana Beneficiation TSF Design Development 10-year TSF Detailed Design Report [3B attachment page 614]; • TSF Design Development – Pre-construction Report [3B attachment page 1448]; • Surface Water Management Plan [3B attachment page 1666]; • Commissioning Plan [3B attachment page 1715]	
Scope of application/assessment			
Summary of proposed activities and/or changes to existing operations		As discussed in section 2.2 of the Amendment Report.	

Category number/s (activities that cause the premises to become a prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed or existing production or design capacity[1]	Proposed changes to the existing production or design capacity[1] (amendments only)
Category 5: Processing or beneficiation of metallic or non-metallic ore	Existing 1,100,000 tonnes per annual period	No change
Category 6: mine dewatering	Existing 60,000 tonnes per annual period	No change WA holder advised that no change to these activities under this amendment.
Category 64: Class II or III putrescible landfill site	Existing 3, 487 tonnes per annual period	Requesting to remove this category as conditions for this infrastructure (construction and operation) were moved onto the operating licence (L9336/2020/1) as part of May 2024 licence amendment.
Category 85: sewage facility	Existing 34 cubic metres per day	Requesting to remove this category

Are there any outstanding Notices of Amendment that need to be amended in the works approval / licence (if applicable)?	Notice of amendment of licence expiry dates (2016) Yes ☐ No ☒ Notice of amendment of licence reporting requirements (2022) Yes ☐ No ☒ Amendment Notices Yes ☐ No ☒	
Are there any unresolved DWER referred amendments from Regulatory Assurance to Industry Regulation relating to this premises?	Yes ☐ No ☒	
Category specific checklists		
Are there any of DWER's prescribed premises category checklists (application form annexes) relevant to the scope of the application?	Yes ☒ No ☐	TSF checklist
Does the application include a completed version of the relevant prescribed premises category checklist(s)?	Yes ☒ No ☒ N/A ☐	
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 ☐ No ☒	N/A
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☒ No ☐	Ministerial statement No: 1110 EPA Report No: 1642
Is the proposal a Major Project or subject to a State Agreement Act?	Yes ☒ No ☐	Major Project – lead agency status
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☒ No ☐	Reference No: 2016/7845 (granted 2 April 2020) *Project determined to be controlled act under EPBC Act with conditions relating to flora, water and subterranean fauna*.
Has the applicant obtained approval for their Mining Proposal?	Yes ☒ No ☐ N/A ☐	Reg ID: 123915 Status: Approved
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☐ N/A ☒	*Mining Act 1978 applies*.
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☐ No ☒	Clearing approved under MS.

Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	Clearing approved under MS.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☒ No ☐	Licence/permit No: GWL183285 and GWL203347
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☒ No ☐	Name: Gascoyne Groundwater Area Gascoyne River and Tributaries Pilbara Surface Water Area Type: Proclaimed Groundwater Area/Surface Water Area Has Regulatory Services (Water) been consulted? Yes ☐ No ☒ N/A ☐ Regional office: Mid-West Gascoyne
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	
Is the Premises subject to any other Acts or subsidiary regulations	Yes ☒ No ☐	*Environment Protection and Biodiversity Conservation Act 1999* *Land Administration Act 1997* *Rights in Water and Irrigation Act 1914* *Dangerous Goods Safety Act 2004* *Mining Act 1978* *Radiation Safety Act 1975* *Part IV of EP Act 1986*
Is the Premises within an Environmental Protection Policy (EPP) Area or State Environmental Policy (SEP) Area	Yes ☐ No ☒	
Is the Premises subject to any EPP or SEP requirements?	Yes ☐ No ☒	
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☐ No ☒	