



Application for Works Approval

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

Works Approval Number W6965/2024/1

Applicant Murrin Murrin Operations Pty Ltd

ACN 076 717 505

File number DER2024/000347

Premises Murrin Murrin Operations
Laverton -Leonora Road, Laverton

Legal description
Parts of Mining tenements M 39/301, 39/342, 39/343, 39/421,
39/424
Lot 57 on deposited Plan 238200
As defined by the coordinates in Schedule 1 of the works
approval

Date of report 23 January 2025

Decision Works approval granted

Alana Kidd

Manager, Green Energy

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 and operation of the premises. As a result of this assessment, works approval W6965/2024/1 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

On 16 July 2024, Murrin Murrin Operations Pty Ltd (the applicant, Murrin Murrin) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works of a new 815 in-pit tailings storage facility (TSF) and pipeline corridor at Murrin Murrin Nickel Cobalt Project (the premises) operating within parts of mining tenements M39/301, M39/342, M39/343, M39/421 and M39/424. The premises is located within the Shire of Laverton, approximately 52 km west southwest of the town of Laverton.

The premises relates to the category 5 processing or beneficiation of metallic or non-metallic ore categories and assessed design capacity of 5,000,000 tonnes per year under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6965/2024/1. 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 works approval W6965/2024/1.

Murrin Murrin is proposing to construct a new in-pit TSF for additional storage of tailings for the continued operations of the nickel and cobalt mine, and processing facility. The proposed 815 in-pit TSF will have a material discharge rate of 4,620,000 tonnes per year and design capacity of 2,910,000 tonnes with a storage life of 7.5 months. An access track and pipeline corridor consisting of decant and tailing pipelines are proposed to be constructed to connect the TSF to the evaporation ponds and process plant respectively.

2.3 Premises overview

The premises operates under existing licence L7276/1996/12 and was commissioned in 1999 to mine and process up to 5 million tonnes of nickel laterite ore per year, producing nickel and cobalt briquettes. The operation uses open-pit mining techniques and processes the ore using high pressure acid leach technology to recover the nickel and cobalt from the laterite ore.

Ore from the Murrin Murrin run of mine (ROM) stockpile is fed into the primary crusher (consisting of a ROM bin and sizer) and then slurred in a ball mill with water to produce a feed slurry for the high-pressure acid leach (HPAL) circuit. The HPAL circuit leaches the nickel and cobalt from the ore slurry. The resulting solution is then washed in a counter current decant (CCD) circuit to separate the leach solution from the waste residue. The pressure leach solution is then further processed in the refinery area and the waste residue is partially neutralised and discharged to TSFs.

The existing TSFs at Murrin Murrin consists of ten in-pit TSFs and one paddock style TSF consisting of two cells (north and south cells). The north and south cell and 4 of the in-pit TSFs have reached capacity. Six in-pit-TSFs are active, and there are three proposed future TSFs that include the

proposed 815 in-pit. Supernatant from the TSFs is then decanted and discharged to four evaporation ponds.

2.3.1 Construction and infrastructure

The 815 TSF is an existing mined pit for conversion to tailing's storage, thus minimum earthworks are required. The existing pit has an indicative tailing storage volume of 3.64 million metres cubed of tailings. Murrin Murrin has proposed a series of earthworks for construction of the proposed pipeline corridor. The following construction activities proposed are:

- strip topsoil from the pipeline corridors and scour sump areas and stockpile topsoil;
- excavate scour sumps (12 m x 12 m x 2.5 m deep) 360 metres cubed;
- build 0.6 m high earthen bund on both sides of pipeline corridor;
- grade and apply sheeting material to a 5 m wide access track adjacent to pipeline corridor;
- install tailings pipework including a decant pipeline 3 km in length and a tailings deposition pipeline 400 m in length;
- install pumps on access ramps for water recovery;
- install decant return pipework; and
- install two additional seepage detection bores.

2.3.2 Operation

Tailings are currently produced from the existing processing operations. Tailings will be transported from the existing process plant to the proposed 815 in-pit TSF via proposed large diameter steel or HDPE pipe. Tailings will be deposited into the proposed 815 in-pit TSF from movable discharge point(s) (spigots) at one end of the pit to progressively develop and push the supernatant pond at the opposite pit side and close to the pit access ramp(s). The pit access ramp will be utilised as part of water recovery operations. Pontoon-mounted pump(s) will be deployed and moved up the pit access ramp when the tailings and water levels rise within the pit, to recover water from the facility and return it to the processing plant for re-use.

At the completion of sequential deposition of tailings, each line to the distribution point will be flushed with water until it is clean. Flushing proceeds in the same sequential manner as tailings spigotting. Flushing shall be undertaken so any discharge is directed away from the pit wall and monitored to ensure water does not flow back towards the pit wall and cause any scour or erosion.

The Department of Energy, Mines and Industrial Regulation and Safety (DEMIRS) recommended a minimum operational total freeboard of 500 mm (with no upstream catchment). During operations, supernatant liquor is sent via the proposed decant pipework and manually operated pump to the four onsite existing evaporation ponds.

Hydrogeological and hydrological assessment

Tailings deposited into the proposed 815 in-pit TSF will have relatively similar geochemical properties to tailings deposited into other existing in-pit TSFs, given the orebodies are very similar. Murrin Murrin has indicated that previous testing of tailings liquor from existing mine operations was found to be typically hyper-saline with total dissolved solids (TDS) around 180,000 mg/L and enriched in Iron (Fe), Magnesium (Mg), Manganese (Mn), and Nickel (Ni) (Minara 2023). The Geological Architecture Reports for 815 in-pit TSF (Minara, 2023) indicate that the standing water table is currently modelled about 15 metres from the base of the pit (RL 433 m to RL 435 m). With tailing storage design based on an adopted tailings dry density of approximately 0.8 tonnes per metres cubed.

Murrin Murrin indicated that no artificial liners are proposed as lining of the 815 in-pit TSF. The walls and floors of the proposed in-pit TSF are characterised by extensive magnesite development (magnesium at 8%). It is expected that this material will have a neutralising effect when exposed to

potentially acidic tailings, as magnesium is an acid consuming element. The groundwater quality of the monitoring bores around the existing TSFs adjacent to the proposed 815 in-pit TSF confirm this, as all monitoring bore data undertaken for licence L7276/1996/11 indicates pH levels were above 3.5.

The proposed 815 in-pit TSF, geological report (Tetra Tech Coffey, 2024) identified one major structural feature; a foliated ultramafic unit cuts across the pit. The unit coincides with a zone of deep weathering through the center of the pit, which is interpreted to represent a weathered fault or shear. During mineralisation, shears, joints and contacts provide vital conduits for fluid migration enhancing the chemical mobilisation and leaching processes within the weathering profile. It is possible, such structures may act as zones for potential tailings leakage.

Murrin Murrin has proposed to install two new seepage indication bores of 50 mm diameter. A purpose built 100 mm diameter seepage recovery bore will be constructed between the indication bores and the 815 in-pit TSF, by mid-2025. The existing Trigger Action Response Plan, operating under licence L7276/1996/11 will be used for the proposed TSF, with trigger actions for elevated levels of nickel, cobalt, total dissolved solids and standing water level. Six existing seepage bores are located within the 815 in-pit TSF vicinity. The existing and proposed seepage indication bores are strategically located to ensure spatial coverage while also targeting the main structural features identified in the geological architecture reports, which may serve as primary pathways for seepage migration (Tetra Tech Coffey, 2024) on the perimeter of the proposed 815 in-pit TSF before operation commences.

The 815 in-pit TSF is surrounded by existing roads and trenches that limit water flowing into the pit.

2.3.3 Environmental commissioning and time limited operations

Murrin Murrin has not requested environmental commissioning but requested time limited operations to allow operations whilst submitting a licence amendment application to L7276/1996/12.

2.4 Part IV of the EP Act

The site related to four Ministerial Statements (MS) granted by the Minister of Environment under Part IV of the EP Act are summarised in Table 1.

Table 1: Ministerial Statements

Date Granted	Ministerial statement (MS)	Management relating to TSF
6 June 1996	MS 418 Nickel-Cobalt Ore Mining Processing Murrin Murrin, 60 km east of Leonora	Requirement to design and operate TSF(s) to ensure that the tailings dam do not result in unacceptable impacts to groundwater regime (Commitment 12). Prior to construction and operation of tailings dam to ensure detailed assessment of tailings characteristics, investigation of hydrogeology of tailings dam for aquifer characteristics, groundwater flow and quality, rise of groundwater levels (Commitment 13)
5 May 1997	MS 444 Nickel-Cobalt Ore Mining Processing Alternative Sites Murrin Murrin, 60 km east of Leonora	Groundwater monitoring program up and down gradient of tailing dam prior to construction. (Commitment 14)
6 May 1997	MS 445 Nickel-Cobalt Ore Mining and Processing First proposal Murrin Murrin 60 km east of Leonora	
31 May 1999	MS 506 Murrin Murrin Nickel-Cobalt Project Stage 2 Expansion, 60 km east of Leonora	Requirement to design and operate TSF(s) to ensure that the tailings dam do not result in unacceptable impacts to groundwater regime (Commitment 12). Prior to construction and operation of tailings dam to ensure detailed assessment of tailings characteristics, investigation of hydrogeology of tailings dam for aquifer characteristics, groundwater flow and quality,

		<p>rise of groundwater levels (Commitment 13)</p> <p>Groundwater monitoring program up and down gradient of tailing dam prior to construction. (Commitment 14)</p> <p>Condition 5 - Tailings storage facility – central thickened discharge, requirements to protect beneficial uses of groundwater, vegetation, surface water quality and fauna.</p>
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The delegated officer has regard to the commitments of MS 418, 444, 445 and 506 including the environmental management commitments of the statement for construction and operation of tailings dam to Ministerial Statements allowing the continued utilisation of in-pit tailings disposal subject to appropriate hydrological assessment and groundwater monitoring programs.

2.5 Other relevant approvals

2.5.1 Planning approvals

The Shire of Laverton have not provided the department with advice on development application and other planning requirements.

2.5.2 Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)

DEMIRS advised on 2 December 2024 that mining proposal and mine closure plan has been accepted geotechnically on 29 November 2024, that included the proposed 7 series, 8 series and 815 in-pit tails.

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 decision report are detailed in Table 2 below. Table 2 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 2: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction works of sumps, pipelines and other infrastructure, vehicle	Air / windborne pathway	Construction materials dampened if dust is generated. Haul roads watered via water cart as required.
Noise			N/A
Contaminated / sediment		Overland flow to surface	Existing stormwater infrastructure including diversion drains, and

Emission	Sources	Potential pathways	Proposed controls
laden stormwater	movement	water and contamination of soils and groundwater	trenches.
Operation			
Inpit TSF overtopping and breach of walls	Operation of Inpit TSF	Direct infiltration to ground and overland runoff to local drainage areas.	<p>Freeboard maintained to DEMIRS design requirements - designed to be capable of temporarily storing rainfall from a 1:100-year Annual Exceedance Probability (AEP), 72-hour storm event plus a minimum pit wall freeboard of 0.5 m (vertical height between the stormwater and minimum pit rim levels).</p> <p>Routine inspections of freeboard, decant pumps, pit wall integrity (cracks), spigots and associated infrastructure, and location and size of decant water pond every 12 hours.</p> <p>Water balance collated each day from water discharge to the TSF and water withdrawn to process and evaporation ponds.</p> <p>Discharge points locations are movable to progress tailings beach development and supernatant pond formation to optimize water recovery.</p> <p>Valves on each discharge pipe to manually open and close pipe as required.</p> <p>Inpit TSF designed to meet Australian National Committee on Large Dams (ANCOLD, 2019), 'Guidelines on Tailings Dams Planning, Design, Construction, Operation and Closure'.</p> <p>Deposition of tailings at low velocity from a ring main using multiple spigots (discharge points).</p> <p>Flushing undertaken so discharge is directed away from pit wall and monitored to ensure water does not flow back towards the pit wall and cause scour or erosion.</p> <p>Supernatant pond kept no greater than 20% to 25% of the tailings surface area (under normal conditions) to reduce seepage.</p> <p>During high rainfall events inspections frequency will be increased monitoring the freeboard and supernatant pond.</p> <p>Incident reporting for any overtopping and defects to TSF pit walls.</p>
Leaks, ruptures of pipeline of tailings and supernatant wastewater		Direct infiltration to ground and groundwater	<p>Automatic telemetry flow through pipelines</p> <p>Pipe will be large diameter steel or high density polyethylene (HDPE).</p> <p>Bunded pipeline corridor will be 10 meters wide incorporating 5 metre wide pipeline corridor and 5 metre wide track.</p> <p>Automatic shut off valves to stop spills.</p> <p>Bunding around tailings and return water pipelines, bunding have minimum height of 0.6 metres.</p> <p>Pipelines spills will be contained in the scour sump 360 metres cubed.</p> <p>Routine inspection for leaks and ruptures and general condition of pipelines (tailings delivery and water return), pumps, valves failures and condition of road every 12 hours.</p> <p>Pipelines and scours built to engineered design drawings to ANCOLD 2019.</p>
Seepage of tailings through base		Direct infiltration of tailings	Four seepage indication monitoring bores sampled monthly for six months then quarterly for water quality parameters as specified in

Emission	Sources	Potential pathways	Proposed controls
and laterally, into groundwater		seepage	<p>licence L7276/1996/12 (includes two new and two existing).</p> <p>Two new monitoring bores installed and 5 existing bores.</p> <p>Seepage recovery bore installed if required.</p> <p>Supernatant pond kept no greater than 20% to 25% of the tailings surface area (under normal conditions) to reduce seepage.</p> <p>Frequent inspections of tailing line, water return line, discharge point, water recovery system, freeboard and supernatant pond location and size and pit wall every 12 hours.</p> <p>Incident reporting on changes to water quality and groundwater levels.</p> <p>Existing (operating under (L7276/1996/11) Trigger Action Response Plan for TSF where elevated levels of nickel, cobalt, total dissolved solids and standing water level trigger actions.</p> <p>Eight vibrating wire piezometers installed along northern, western and southern sides of pit for monitoring infiltration to ground.</p>
Dust		Air/wind dispersal	<p>Dust suppression activities including watering via water cart and compacting trafficable areas.</p> <p>Rotation of spigot points around the TSP to maintain damp beaches.</p> <p>Use dust suppressants, silt fences and windbreaks as required.</p>
Contaminated stormwater		Direct discharge to land and overland runoff to local drainage areas.	<p>Existing stormwater infrastructure including diversion drains, trenches and routine monitoring.</p> <p>Water balance includes stormwater captured in TSF.</p>
Noise		Air/wind dispersal	NIL

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), 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 3 below provides a summary of potential human and environmental receptors that may be impacted because of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

Table 3: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Residential premises - Leonora town site	50 km west southwest of the proposed inpit TSF
Laverton town site	55 km east northeast of the proposed inpit TSF
Mine campsite	7 km north of the proposed inpit TSF
Mount Margaret townsite	30 km east southeast of the proposed inpit TSF
Environmental receptors	Distance from prescribed activity

Specified Ecosystems Bird and Mammal (Specially protected – conservation dependent)	Located along proposed pipeline and 5 km west of proposed inpit TSF respectively.
Remnant vegetation	Native vegetation within 1 km of the northwest and east, southeast of the proposed inpit TSF and pipeline.
GDE Terrestrial	Located along pipeline and 1.4 km east of proposed inpit TSF.
Surface water	First order streams to Lake Carey 2.4 km to the east of the inpit TSF First order stream to Lake Raeside 2km to the west and southwest and 2.5 km to the northwest of the inpit TSF
Underlying groundwater (non-potable purposes)	1,000 – 3,000 mg/l salts
Rock type – A-bYEG, Eastern Goldfields Super-terrane greenstones Soil type – Bevon System – irregular low ironstone hills with stony lower slopes supporting mulga shrublands	Throughout proposed inpit TSF and pipeline vicinity

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and considers 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 4.

Works approval W6965/2024/1 that accompanies this decision report authorises construction and time limited operations. The conditions in the issued works approval, as outlined in Table 4 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. tailings storage facility. 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 4: Risk assessment of potential emissions and discharges from the premises during construction, and operation

Risk events					Risk rating ¹	Applicant controls sufficient?	Reasoning, justification for regulatory controls	Conditions of works approval
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
Construction								
Construction works of sumps, pipelines, spigots, pumps, service roads and bunding. Vehicle movement including earth moving vehicles	Dust	Air / windborne pathway causing impacts to health and amenity	Mine camp site 7 km north, townsites of Mount Magaret 30 km southeast, Leonora 50 km west southwest and Laverton 55 km east and northeast of the proposed TSF.	Construction material dampened and water carts on haul roads. Refer to Section 3.1	Minimal impact to local amenity C = Slight The risk event will probably not occur in most circumstances L = Unlikely Low Risk	Y	Ground disturbance and vehicle movements associated with the construction works could generate dust emissions which, based on separation distance to the closest sensitive receptors is determined by the delegated officer to be a low risk. The applicant proposed to undertake dampening of materials and using water carts on haul rods to reduce dust emission. The delegated officer applied the applicant's controls, which are considered appropriate to maintain an acceptable level of risk.	Applicant controls
	Noise			No controls	Minimal impact to local amenity C = Slight The risk event may only occur in exceptional circumstances L = Rare Low Risk	Y	The delegated officer considers that the separation distance between the premises construction activities and the closest receptors is adequate to prevent impact from noise emissions from the installation of the infrastructure. The delegated officer noted that the Noise Regulations 1997 regulate noise emissions associated with construction, and the applicant will be required to comply with these during the construction period therefore no additional regulation related to noise emissions has been specified in the works approval.	No controls
	Contaminated / sediment laden stormwater	Overland flow to surface watercourses, infiltration causing contamination of soils, groundwater and GDEs	Terrestrial GDE located along proposed pipeline and 1.4 km east of proposed TSF, surface water first order streams located 2.4 km east, 2 km west and southwest and 2.5 km northwest of the proposed TSF. Underlying groundwater brackish to low saline underlying proposed TSF.	Existing stormwater infrastructure including diversion drains, and trenches. Refer to Section 3.1	Minimal impact to local amenity C = Slight The risk event will probably not occur in most circumstances L = Unlikely Low Risk	Y	Earth and construction work disturb ground cover and expose soil, allowing it to be exposed to erosion from rainfall. The applicant has determined that existing stormwater infrastructure including diversion drains and trenches control contaminated and sediment laden stormwater. The delegated officer considered the applicant's controls acceptable to mitigate the risk of sediment-laden stormwater runoff impacting the environment and considered that no further controls were required to manage the risk.	No controls
Operation (including time-limited-operations)								
Operation of the TSF including pipelines	Dust	Air / windborne pathway causing impacts to health and amenity	Mine camp site 7 km north, townsites of Mount Magaret 30 km southeast, Leonora 50 km west southwest and Laverton 55 km east and northeast of the proposed TSF.	Dust suppression activities including watering via water cart and compacting trafficable areas. Rotation of spigot points around the TSP to maintain damp beaches. Use dust suppressants, silt fences and windbreaks as required Refer to Section 3.1	Minimal impact to local amenity C = Slight The risk event will probably not occur in most circumstances L = Unlikely Low Risk	Y	The delegated officer considered the applicants controls including dust suppression activities, compacting trafficable areas, spigot management, dust suppressants, silt fences and windbreaks and considered the controls to be sufficient to manage the risk of dust emission from operating the TSF. Furthermore, the delegated officer considered the existing licence L7276/1996/12 condition 2.4.1 fugitive dust emissions and considered that this condition encompassed the applicants proposed dust emission controls. Therefore the delegated officer considered the risk to be low and further dust emission conditions where not required.	Existing licence L7276/1996/12 conditions sufficient.
	Noise	Air / windborne pathway causing impacts to health and amenity		No controls	Minimal impact to local amenity C = Slight The risk event may only occur in exceptional circumstances L = Rare Low Risk	Y	The delegated officer considers that the separation distance between the premises operation activities and the closest receptors is adequate to prevent impact from noise emissions from the operation of the infrastructure. The delegated officer noted that the Noise Regulations 1997 regulate noise emissions associated with construction, and the applicant will be required to comply with these during the construction period therefore no additional regulation related to noise emissions has been specified in the works approval.	No controls
	TSF overtopping	Overland runoff potentially causing ecosystem disturbance to GDE, contaminating soils or impacting surface and ground water quality	Seasonal minor creek 500m north-east Threatened fauna (closest 240m south-east)	Freeboard to DEMIRS standards, 12 hourly inspection of infrastructure, water balance calculated each day, TSF designed to ANCOLD standards, supernatant pond kept to 20% of tailings surface area, incident reporting, operational management for flushing and spigot discharges to avoid erosion/ scouring. Refer to Section 3.1	Mid-level on site impacts, low level local scale impacts. C = Moderate The risk event will probably not occur in most circumstances L = Unlikely Medium Risk	Y	The delegated officer considered the applicant's proposed controls including managing freeboard height, inspections of infrastructure, daily water balance, tailing design standards, reporting and operational management procedures and considered the controls to be sufficient to manage the risk of overtopping of the TSF. The delegated officer applied the applicant's controls, and determined the risk as medium, and considered the applicant's controls to be appropriate to maintain an acceptable level of risk.	Applicant controls
	Seepage of tailings through		Terrestrial GDE located along proposed pipeline and 1.4 km	Monitoring bores, sampling program for monitoring, 12 hourly inspections of key	Mid-level on site impacts, low level	Y	The delegated officer considered the applicant's proposed TSF seepage controls including post construction monitoring, inspections of infrastructure,	Applicant controls

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Reasoning, justification for regulatory controls	Conditions of works approval
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
	base into groundwater and integrity breach of walls		east of proposed TSF, surface water first order streams located 2.4 km east, 2 km west and southwest and 2.5 km northwest of the proposed TSF. Underlying groundwater brackish to low saline underlying proposed TSF.	infrastructure, management of supernatant pond to no greater than 20% of tailings surface area, incident reporting. Refer to Section 3.1	local scale impacts. C = Moderate The risk event could occur at some time. L= Possible Medium Risk		management of pond tailings surface area, existing Trigger Action Plan and reporting, and the nature of the tailings seepage water quality and geological structural feature (a foliated ultramafic unit cuts across the pit) as outline in section 2.3.2, and considered the risk of seepage from the tailings wastewater and contaminating to groundwater to be medium. Furthermore, the delegated officer considered the quarterly water quality monitoring conditions in existing licence L7276/1996/12 and considered that baseline from the existing network to be sufficient. Based on this the delegated officer considered the applicants controls to be sufficient to manage the risk and determined to condition the requirement of groundwater monitoring quarterly for the two new and 5 existing bores during construction and time limited operations to affirm baseline water quality parameters of the underlining groundwater quality to be used for future informative seepage management. Furthermore, the delegated officer considered the applicants controls were essential to mitigate the risk and were conditioned.	Monitoring Preconstruction and construction monitoring required for groundwater bores monthly for a minimum of 6 months prior to time limited operations.
	Leaks, ruptures of pipeline of tailings and supernatant wastewater			Telemetered flow through pipelines, banded pipeline corridor, spills drain to sumps, 12 hourly inspections of infrastructure, pipeline build to ANCOLD standards. Refer to Section 3.1	Mid-level on site impacts, low level local scale impacts. C = Moderate The risk event will probably not occur in most circumstances L= Unlikely Medium Risk	Y	The delegated officer considered the applicant's proposed controls including telemetered flow through pipelines, banded pipeline corridor, spills drain to sumps, inspections of infrastructure, pipeline construction design standards, reporting and operational management procedures and considered the controls to be sufficient to manage the risk of leaks rupture of the pipeline of supernatant and tailings wastewater. The delegated officer applied the applicant's controls, and determined the risk as medium, and considered the applicant's controls to be appropriate to maintain an acceptable level of risk.	Applicant controls
	Contaminated stormwater			Existing stormwater infrastructure including diversion drains, trenches and routine monitoring. Water balance includes stormwater captured in TSF. Refer to Section 3.1	Minimal impact to local amenity C = Slight The risk event will probably not occur in most circumstances L = Unlikely Low Risk	Y	The applicant has determined that existing stormwater infrastructure including diversion drains, trenches and routine monitoring and proposed water balance management of the TSF will control contaminated and sediment laden stormwater from impacting on the environment. The delegated officer considered the applicant's controls acceptable to mitigate the risk of sediment-laden stormwater runoff impacting the environment. To maintain the low risk the delegated officer determined to condition the applicant's controls.	Applicant controls

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

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 30 October 2024	None received	N/A
Shire of Laverton advised of proposal on 29 October 2024 and 2 December 2024	The Shire of Laverton have not replied.	The delegated officer notes this information.
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advised of proposal 29 October 2024 and 2 December 2024	DMIRS replied on 2 December 2024 advising that a mine proposal and mine closure plan had been approved for the TSF.	The delegated officer notes this information
Department of Planning, Lands and Heritage (DPLH) advised of proposal on 29 October 2024 and 2 December 2024.	DPLH have not replied.	The delegated officer notes this information.
Applicant was provided with draft documents on 13 December 2024	Comments were received from the applicant on 20 December 2024 and 16 January 2025. Refer to Appendix 1	Refer to Appendix 1

5. Decision

The delegated officer determined to grant a works approval to construct the 815 in-pit tailings storage facility to allow continued storage of tailings for continued operations of the premises nickel and cobalt mine and processing facility. The delegated officer considered construction and time limited operation of the tailings storage facility and determined that the facility was acceptable.

Based on the risk assessment the delegated officer considered the key risks were associated with TSF seepage, overtopping and rupture and leaks of infrastructure. The delegated officer determined construction and operation controls were required to ensure the level of risk was maintained, including an expanded seepage groundwater monitoring regime.

The delegated officer considered that once the in-pit TSF has been constructed, it is operational and provided 180 calendar days to operate under time limited operations. The delegated officer considered this was sufficient time for the applicant to submit a licence amendment to continue operations of the in-pit TSF.

6. 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. The applicant will be required to apply for a licence amendment (L7276/1996/12) whilst in time-limited operations to

authorise continued operation of the inpit TSF.

References

1. Australian National Committee on Large Dams (ANCOLD, 2019a), 'Guidelines on Tailings Dams Planning, Design, Construction, Operation and Closure'.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
5. Minara Resources (Minara, 2023a), '*Geological Architecture Report for Pit 0815 – Murrin Murrin North Potential Tailings Storage Facility*', Perth Western Australia
6. Tetra Tech Coffey (2020b), '*MMO, Geotechnical Assessment of 17 Series In-Pit Tailings Storage Facility*', ref. 754-PERGE272398-Murrin Murrin In-Pit TSF Design Rev1, Perth, Western Australia.

Appendix 1: Summary of applicant’s comments on risk assessment and draft conditions

Condition	Summary of applicant’s comment	Department’s response
Decision Report		
Section 2.3.1 Construction and infrastructure	Applicant provided details on the pipelines indicating that the decant pipeline line was 3 km in length and the tailings deposition pipeline 400 m in length.	This information was updated in the decision report.
Section 2.3.2 Operation	The applicant provided the following information and proposed to use its existing Trigger Action Response Plan for the proposed inpit TSF where elevated levels of nickel, cobalt, total dissolved solids and standing water levels trigger actions. The applicant intends to install recovery bores within the next four months.	This information was updated in the decision report including Table 2 applicant controls.
Section 3.1.1 Table 2 Proposed applicant controls	The applicant indicated that the valve on the discharge pipe(s) to open and close the pipe are manual. The telemetry flow through the pipelines is automatic.	This information was updated in the decision report.
Section 2.2,2.4, 2.3 and 3.2	Applicant indicated that there are four typos in the decision report.	The typos were corrected and updated in the decision report.
Works Approval		
Condition 4 Table 2 Groundwater construction	The applicant has indicated that the timeframe requiring the construction of the groundwater monitoring wells within 100 days if issue of the works approval does not allow for operational flexibility due to availability of drilling contractors or hydrogeologist. The applicant request that this is changed to require that at least one monitoring event within the groundwater monitoring wells prior to discharge or a timeframe of 180 days once the works approval has been issued.	The delegated officer considered the applicants requirement for operational flexibility and agrees to update the period from 100 to 180 days once the works approval has been issued.
Condition 7 sampling requirements	The applicant has requested that the condition is reworded as follows as sampling does not require NATA accreditation. <i>“The works approval holder must ensure that analysis undertaken of all non-continuous sampling pursuant to Conditions 5, and 12, is undertaken by a holder of a current accreditation from the National Association of Testing Authorities (NATA) for the methods of analysis relevant to the corresponding analytical parameter.”</i>	The delegated officer has considered the requested and noted that sampling has been removed from the condition. The condition has been updated to reflect the intention that both NATA and Australian Standards are adhered to for analysis and sampling respectively. This is: <i>The works approval holder must ensure that all non-continuous sampling and analysis undertaken pursuant to Conditions 5, and 12, is undertaken by a holder of a current accreditation from the National Association of Testing Authorities (NATA) for the methods of analysis and undertake all sampling to</i>

Condition	Summary of applicant's comment	Department's response
		<i>Australian Standards relevant to the corresponding analytical/sampling parameter.</i>
Condition 10 Table 4 Time limited operations Item 2 (l)	The tailings engineer has specified a supernatant pond to a maximum of 25% of the tailings surface area, however, the works approval specifies 20%. The applicant requests the works approval reflect the area specified by the tailings engineer of 20 to 25% under normal operating conditions.	The delegated notes this and will update the works approval.
Schedule 1 Figure 4	The applicant indicated that Figure 4 outlining discharge points and spigots design details is a generic diagram and is not specific for 815 inpit TSF and should be removed, the existing Figure 3 of the works approval details appropriate discharge point and spigot designs.	The delegated officer notes this and will update the works approval.