



Application for Works Approval

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

Works Approval Number	W6578/2021/1
Applicant	FQM Australia Nickel Pty Ltd
ACN	135 761 465
File number	DER2021/000358
Premises	Ravensthorpe Nickel Operations Legal description - Part of Mining Tenements M74/175, M74/115 and M74/116 JERDACUTTUP WA 6346 As defined by the premises maps attached to the issued works approval
Date of report	25 October 2021
Decision	Works approval granted

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

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

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, Works Approval W6578/2021/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary and overview of premises

FQM Australia Nickel Pty Ltd (the Applicant) currently holds Licence L8008/2004/3 under Part V of the *Environmental Protection Act 1986* (EP Act) for the Ravensthorpe Nickel Operations (the Premises), for prescribed premises categories 5, 31, 52 and 54.

On 16 June 2021, the applicant submitted an application for a works approval to the department under section 54 of the EP Act.

The application is to undertake construction works and time limited operations relating to Category 5: Processing or beneficiation of metallic or non-metallic ore; combined stage 2 and 3 (referred to herein as Stage 3) embankment raise to an existing paddock style tailings storage facility (TSF) 2 located at the Premises. The Premises is located within the Shire of Ravensthorpe, approximately 3.6 kms west and 28 kms southeast of the Jerdacuttup and Ravensthorpe Townships respectively.

The premises relates to the categories and assessed production capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6538/2021/1. 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 W6538/2021/1.

2.3 Legislative context and other approvals

2.3.1 Part IV of the EP Act

Ministerial statement (MS 633) was published on 5 September 2003 and provides regulatory requirements for the mining and processing of an average of 10 million tonnes per annum nickel ore from the Halley's, Hale-Bopp and Shoemaker- Levy deposits to produce 220,000 tonnes per annum of nickel-cobalt hydroxide over a period of approximately 20 years. The footprint of the tailings storage facility area was assessed under MS 633. There are no changes to the footprint area, only an embankment raise proposed to TSF2. Therefore, an assessment has been conducted for the construction and time limited operations of the Stage 3 embankment raise under this assessment which has resulted in the grant of W6578/2021/1.

2.3.2 Mining Proposal

A mining proposal has been submitted to the Department of Mines, Industry Regulation and Safety seeking approval for a change to the design of the previously approved TSF2 (Registration ID:56253) Stage 3 embankment raise from upstream construction to downstream construction (Golder, 2021). The applicant currently only has approval for upstream raises to TSF2, therefore the mining proposal has been submitted to address this change for raises to

TSF2 to be constructed using the downstream method only (Golder 2021).

2.4 Premises description

The Premises uses a conventional open-cut mining method for the mining of up to 12 million tonnes per annum (Mtpa) of nickel laterite ore from the Halley's, Hale-Bopp and Shoemaker-Levy deposits to produce a mixed nickel-cobalt hydroxide product. The nickel content in the mined ore is upgraded through a beneficiation process, followed by a series of treatments utilising pressure and atmospheric acid leach technology and solution purification techniques to produce a product that contains approximately 45% nickel. The product is bagged and placed into containers before being transported via road to the Ports of Esperance before being exported for further processing. The Premises has an expected mine life of at least 20 years of operations.

Tailings from the process plant are deposited into two above ground engineered Tailings Storage Facilities (TSF) at the Premises, being TSF1 and TSF2 which are located south of the process plant (Figure 1). TSF1 was originally constructed as a single cell in 2007, before being subdivided into two smaller storage cells (East and West) in 2011 through the construction of a central embankment with a causeway from the northern embankment. TSF2 was constructed immediately south of TSF1 in 2013 to make use of the southern embankment of TSF1 as a common wall. Between the period of 2013 to 2017, the TSF's operated as two separate facilities with tailings deposition alternating between TSF1 (east cell), TSF1 (west cell) and TSF2. The Premises was placed into care and maintenance in October of 2017, following a period of low nickel prices. Production at the mine resumed in April 2020 with tailings deposition recommencing into TSF1 east and west cells.

The Premises is authorised to process up to 13,900,000 tonnes of ore annually under operating licence L8008/2001/3 and during the 2020-2021 annual period approximately 5,756,699 (dry) tonnes of ore were produced requiring on site disposal to TSF1 east and west cells (FQM Australia Nickel Pty Ltd, 2021). The Applicant is authorised to discharge 4.56 Mtpa tailings in total to TSF1 and TSF2.

The Applicant is proposing to construct a downstream embankment raise to TSF2 to manage additional tailings storage requirements and to extend the life of the facility. Section 2.5.1 below discusses in further detail the proposed construction works associated to the embankment raise of TSF2.

2.5 Description of Proposed Activity

The Applicant is authorised under L8008/2001/3 to raise the embankment height of TSF2 using the upstream construction method to a final crest elevation of RL 124.5m (to Stage 2). Downstream construction is currently taking place to the east, west and south perimeter lines as part of the Stage 1 perimeter embankment raise to RL 123.7 m of TSF2. Construction works are scheduled to be finalised by July 2021 which will provide storage capacity until the end of April 2022. It is noted that the starter embankment raise (pre-Stage 1) of TSF2 was constructed to a height of RL 120.7, being 0.7 m higher than the Stage 1 elevation specified in the Licence, however, is lower than the permitted Stage 2 elevation of RL 124.5 m.

A change to the preferred construction methodology means the Stage 2 raise that was approved under L8008/2004/3 will not proceed due to technical challenges with upstream raising of embankments over soft, unconsolidated tailings as encountered at the Premises. The Applicant is instead proposing to combine the current Stage 3 and construct the perimeter embankment to TSF2 to RL 126.7m, which comprises of a 3m downstream embankment raise above the Stage 1 crest elevation. The proposed embankment raise will accommodate an additional 4 mtpa of storage capacity for tailings generated by the processing plant over 12 months, bringing the total volumes of tailings stored in TSF2 to 12.39 mt. The construction works for the 3m embankment raise is proposed to be completed within a timeframe of approximately

six months. TSF1 will remain operational during the construction of the TSF2 Stage 3 embankment raise. The Applicant is currently establishing a plan for tailings management for the life of mine of the Premises beyond the TSF2 Stage 3 embankment raise.

Regulatory requirements for the construction and time limited operations of the Stage 3 embankment raise (up to RL 126.7 m) will be managed via works approval W6578/2021/1. An amendment to L8008/2001/3 is required following the time limited operations of the Stage 3 embankment raise.

2.5.1 Proposed construction works

2.5.1.1 Embankment raises

The eastern, southern and a portion of the western embankments of TSF2 are required to be raised for the Stage 3 raise. The downstream embankment raise will be constructed using mine waste materials sourced from the Hale-Bopp mine which will be placed and compacted in layers that are up to 500mm in thickness until the desired the required maximum crest height of RL 126.7m is met. A cut-off trench will be excavated along the proposed extension of the northern end of the western embankment and will be tied to the trench of the existing embankment as a measure to reduce shallow seepage. The cut-off trench will then be backfilled using clayey mine waste materials that have a low permeability. After the final layer of the raise has been placed and compacted, the embankment crests will have a 2% slope towards the internal crest to allow surface water runoff and tailings spillage to drain into the TSF basin. Safety windrows will be constructed to a height of 0.5m along both edges of the embankment crest. Breakthroughs will be installed along the safety windrows at approximately 50m intervals. Vibrating wire piezometers (VWPs) will be installed along the southern embankment within the foundation materials to monitor piezometric water levels.

2.5.1.2 Tailings delivery and return water pipelines

The existing tailings delivery pipeline comprises of a valved ring main system that extends from the East and West cells of TSF1. Perimeter lines along the eastern, southern and western embankments were installed as part of the Stage 1 embankment raise of TSF2 to RL 123.7m. The northern perimeter deposition pipeline will be installed as part of the Stage 3 perimeter embankment raise. Spigots will be installed at approximately 60m intervals along the distribution pipelines. PVC dropped pipes will be installed along the upstream batter of the embankments which will connect to the spigots. The dropper pipes are proposed to be used to help to control discharge and protect the upstream slope of the embankment against erosion.

Decant water that is recovered from TSF2 via the centrally located decant structure is either pumped to the evaporation ponds or directed to the process plant for re-use. The existing decant access causeway will be required to be raised as part of the Stage 3 construction works.

2.5.1.3 Stormwater management

The Applicant notes that there are no significant changes or additional stormwater control mechanisms associated to the proposed embankment raise to TSF2. A small external catchment is located to the west of TSF2. The stormwater diversion drain that is located along the western flank of TSF2 will be reinstated to provide protection from stormwater runoff and potential erosion impacts. The construction of the Stage 3 embankment raise includes a 2% inward crossfall on the crest which will direct surface water runoff into the TSF basin.

2.5.1.4 Seepage control infrastructure

A seepage collection system will be constructed along the southern flank of TSF2 as part of the Stage 3 embankment raise. As discussed further under Section 3.3.3, the Applicant has committed to constructing this seepage control infrastructure to reduce the risk of seepage of

contaminated water through the base and embankments of TSF2. The seepage collection system will comprise of a 1m to 3m deep collection trench that will be graded towards a sump. The sump will be equipped with a pump that will collect seepage from tailings and return to the basin of the TSF or to the evaporation ponds.

2.5.2 Operation of TSF 2 at RL 126.7m

Once the construction works for each stage of the proposed embankment raise to TSF2 are completed, tailings will be deposited sub-aerially along the perimeter embankment through spigot outlets that are sequentially opened in a cyclical manner around the facility. Tailings slurry will be transported from the process plant to TSF2 via a High-density Polyethylene (HDPE) pipeline. Following the completion of the embankment raise, tailings are proposed to be discharged for approximately 12 months. The design of TSF2 allows for a normal operating decant pond equivalent to approximately 10% of the tailings beach area. The target decant pond size is achieved through the existing decant return water system that is used during operation which comprises of turret pumps connected to the pumps suction hose. The maximum allowable decant pond in the facility (for a short period) is 20% of the tailings beach area.

The TSF2 embankment raise has been designed with an operational freeboard of 300mm that will be maintained at all times within the TSF cell. The cells will be inspected on a daily basis including:

- Tailings pipelines;
- Return water lines;
- Embankment freeboard;
- Tailings decant/supernatant ponds; and
- Evaporation ponds.

The Applicant will be authorised to undertake time limited operations for tailings to be deposited into TSF2 Stage 3 provided that relevant requirements of this works approval (W6578/2021/1) are met. Ongoing operation of TSF2 Stage 3 will require licence L8008/2004/3 to be amended.

As discussed under Table 1 of Section 3.1.1 of this report, the Applicant has proposed to install a seepage collection system and additional monitoring and recovery bores as controls for managing seepage impacts and increasing groundwater levels as a result of tailings deposition. These regulatory controls have been included as a condition on the works approval. The Applicant will need to apply for an amendment to Licence L8008/2004/3 to include these controls on the Licence following the submission of the Environmental Compliance Report associated to the works approval.

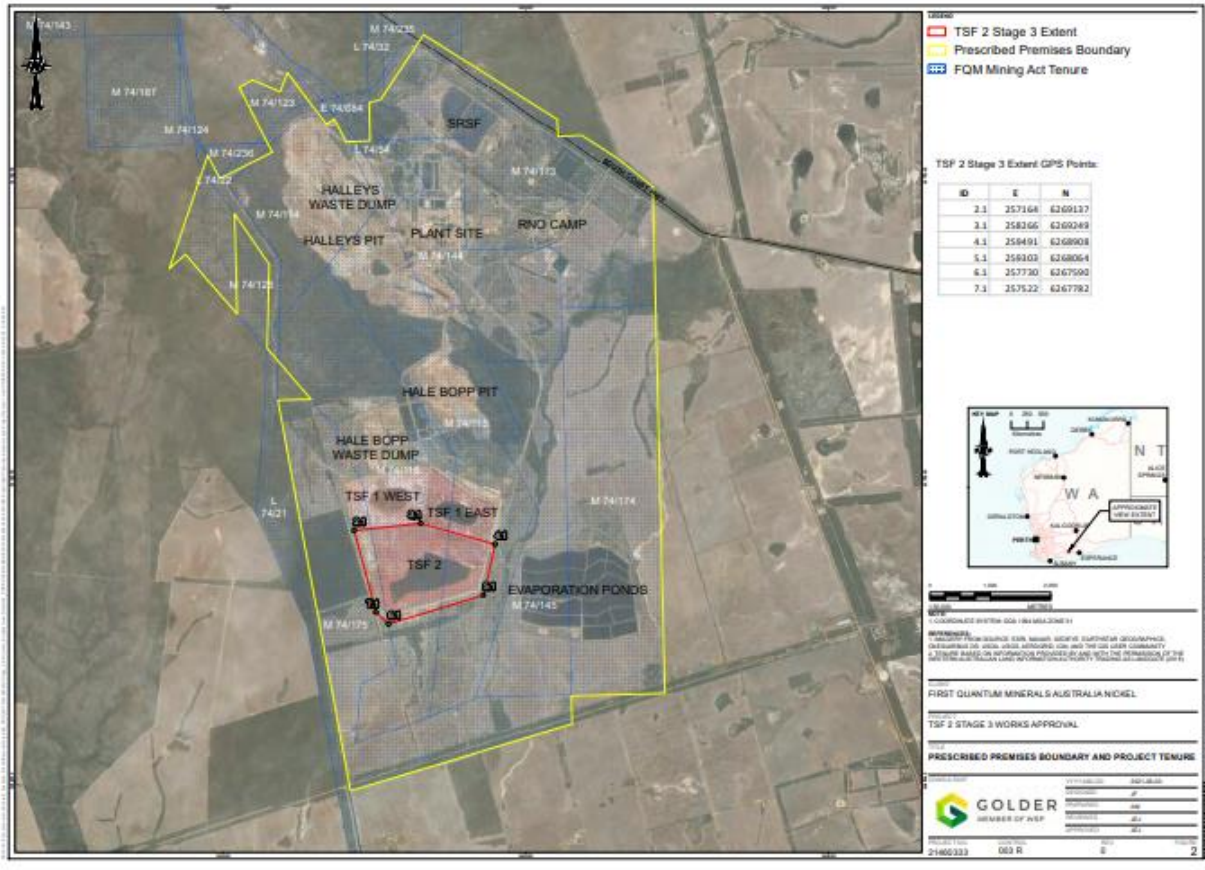


Figure 1: Location of TSF2 in relation to other infrastructure at the Premises

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, time limited operations and operation which have been considered in this decision report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Earthworks, construction,	Air / windborne	The applicable controls from the existing licence that are suitable for managing the risks

Emission	Sources	Potential pathways	Proposed controls
	mobilisation and positioning of infrastructure associated with Stage 3 TSF2 embankment lift	pathway	<p>associated with dust emissions during construction of TSF2 (Stage 3) embankment raise include:</p> <ul style="list-style-type: none"> • Existing Condition 2.4.1 for the visual inspection of the TSF's for fugitive dust emissions when the meteorological station located at the site (DDG 04) measures an average wind speed equal to or more than 15 metres per second between 0900 hours and 1600 hours for more than 30 consecutive minutes); • Existing condition 3.5.1 for the monitoring of ambient air quality of particulate matter (Total Insoluble Solids) at the monitoring locations specified in Table 3.5.1; and • Existing condition 3.6.1 for the meteorological monitoring to be undertaken at DDG04 to collect data on wind speed, wind direction and air temperature to determine the requirements of condition 2.4.1. <p>In addition to the above controls required by the licence, the applicant has also proposed the following controls to minimise dust emissions during the construction phase of TSF2 Stage 3 (Golder, 2021):</p> <ul style="list-style-type: none"> • Water truck maintained on site for dust suppression; • Vehicle speeds restricted on unsealed roads; • Ground disturbance activities will not be undertaken during periods of high winds; • Roads and trucks shall be maintained and graded as required; and • Daily inspections of construction areas will be undertaken to ensure the dust control measures proposed above are being implemented and are effective.
Noise	<p>Earthworks, construction, mobilisation and positioning of infrastructure associated with Stage 3 embankment lift</p> <p>Vehicle movements on unsealed roads</p>	Air / windborne pathway	Noise managed as per the <i>Environmental Protection (Noise) Regulations 1997</i> .

Emission	Sources	Potential pathways	Proposed controls
Time-limited Operations and Operations			
Dust (dry tailings)	Deposition of tailings into TSF 2 (Stage 3)	Air / windborne pathway	<p>The applicable controls from the existing licence that are suitable for managing the risk of dust liftoff from tailings deposition during operation include:</p> <ul style="list-style-type: none"> • Existing Condition 2.4.1 for the visual inspection of the TSF's for fugitive dust emissions when the meteorological station located at the site (DDG 04) measures an average wind speed equal to or more than 15 metres per second between 0900 hours and 1600 hours for more than 30 consecutive minutes). <p>The applicant has also proposed the following controls to manage dust lift-off from the surface of TSF2 (Golder, 2021):</p> <ul style="list-style-type: none"> • Tailings deposited onto TSF2 are to be maintained in a wet to moist condition; • Wet tailings are deposited in sequences to maintain wet beach; • Tailings to remain saturated near the surface following deposition to the TSF for an extended period of time (years) which will maintain a moist tailings beach and reduce the potential for dust lift-off; • Surface of tailings storage is below the crest of the embankments to minimise wind exposure; • TSF2 will be visually monitored for dust emissions by conducting daily inspections (shift-based); and • Observations during daily inspections will be recorded and reported appropriately.
Seepage of leachate from TSF	Deposition of tailings into TSF 2 (Stage 3)	Seepage of leachate through base and embankments of TSF2 into soil and groundwater.	<p>The applicable controls from the existing licence that are suitable for managing the risks associated with seepage following construction of TSF2 (Stage 3) embankment raise:</p> <ul style="list-style-type: none"> • Existing condition 1.3.4 for the: <ul style="list-style-type: none"> - daily visual assessment of the tailings decant/supernatant ponds to determine the pond size and location; - daily visual integrity of the tailings delivery and return water pipelines to TSF2; - maintain a record of all inspections undertaken; and - corrective action to taken to mitigate

Emission	Sources	Potential pathways	Proposed controls
			<p>adverse environmental consequences as soon as practicable if inspections identify that an appropriate level of environmental protection has not been maintained.</p> <ul style="list-style-type: none"> Existing condition 1.3.8 for the annual assessment of standing water levels and groundwater quality in groundwater monitoring bores surrounding TSF2 against previous modelled predictions to detect groundwater mounding due to seepage in the vicinity of TSF2; and Existing condition 3.5.1 for the monitoring of groundwater wells at the locations specified in Table 3.5.2 to monitor changes to standing water levels and groundwater quality in response to tailings deposition to TSF2. <p>The applicant has also proposed the following controls to manage seepage impacts and increasing groundwater levels (Golder, 2021):</p> <p>Seepage recovery:</p> <ul style="list-style-type: none"> A seepage collection system comprising of collection trenches along the southern embankment and sumps has been incorporated into the design of TSF2 (Stage 3) to manage potential shallow seepage water and contaminated run-off from the downstream slope of the embankment; Cut-off trenches have been constructed at the starter embankment of TSF2 and will be constructed along the extension of the western embankment to intercept shallow seepage; and Installation of four additional monitoring bores and two recovery bores. <p>Monitoring:</p> <ul style="list-style-type: none"> Routine daily and monthly visual inspections of TSF2 to ensure the design strategy of the embankment raise is being implemented and identify any maintenance requirements of TSF2 that require attention; Daily visual inspections (shift-based) to ensure the integrity of TSF2 perimeter embankments is maintained by checking for any evidence of seepage, cracking, instability, erosion or depressions; Daily visual inspections (shift-based) to monitor tailings deposition including

Emission	Sources	Potential pathways	Proposed controls
			<p>location of open spigots, flow rate at spigots, beach formation, beach freeboard, beach erosion and low points;</p> <ul style="list-style-type: none"> • Daily visual inspections (shift-based) to detect if any local native fauna have been potentially impacted; • Fauna incidents that have been identified during inspections as a result of the TSF2 operation will be documented and measures will be implemented to prevent future incidents from occurring; and • Monthly inspections conducted to check tailings characteristics, tailings beach development, decant pond level and location, decant and return water system operation, tailings and return water pipelines and surveillance of all monitoring installations.
Tailings or decant return water with elevated metals and metalloids	Deposition of tailings into TSF 2 (Stage 3)	<p>Direct discharge to land - overtopping of TSF2 (Stage 3)</p> <p>Overland runoff of salts, metals and metalloids during significant rainfall events</p>	<p>The applicable controls from the existing licence that manage the risk of overtopping of TSF2 are outlined below:</p> <ul style="list-style-type: none"> • Existing condition 1.3.3 requires the maintenance of a 300mm operational freeboard for TSF2 as measured from the bottom of the spillway of TSF2 to the tailings beach; • Existing condition 1.3.4 for the daily visual assessment of the tailings decant/supernatant ponds to determine the pond size and location; • Existing condition 1.3.2 requires that the integrity of the 300mm clay liner of TSF2 is maintained in an intact and unperforated state with a seepage rate of 10-9 m/s or less; and • Existing condition 1.3.8 for the annual assessment of standing water levels and groundwater quality in groundwater monitoring bores surrounding TSF2 against previous modelled predictions to detect groundwater mounding due to seepage in the vicinity of TSF2 which will prevent overtopping. <p>The applicant has also proposed the following controls to manage the risk of the overtopping of TSF2 (Golder, 2021):</p> <ul style="list-style-type: none"> • TSF2 (Stage 3) has been designed to accommodate extreme rainfall events without overtopping whilst maintaining the 300mm operational freeboard wave run up

Emission	Sources	Potential pathways	Proposed controls
			<p>from 1:10 AEP wind;</p> <ul style="list-style-type: none"> • Daily visual inspections (shift-based) to ensure the integrity of TSF2 perimeter embankments is maintained by checking for any evidence of seepage, cracking, instability, erosion or depressions; • Daily visual inspections (shift-based) to monitor tailings deposition including location of open spigots, flow rate at spigots, beach formation, beach freeboard, beach erosion and low points; and • Monthly inspections conducted to check tailings characteristics, tailings beach development, decant pond level and location, decant and return water system operation, tailings and return water pipelines and surveillance of all monitoring installations.
Stormwater contaminated with tailings and tailings liquor	Deposition of tailings into TSF 2 (Stage 3)	Direct discharge to land to soil and surface water via runoff during rainfall events.	<p>The applicable controls proposed by the applicant to manage the risk associated to stormwater runoff are outlined below:</p> <ul style="list-style-type: none"> • The existing diversion drain along the western flank of the TSF will be reinstated to provide protection from stormwater runoff and potential erosion impacts to TSF 2; • A natural sediment trap will be constructed at the discharge point of the reinstated stormwater diversion drain; and • TSF2 (Stage 3) has been designed to ensure all embankment crests will have a 2% inward crossfall to direct surface water runoff into the TSF basin.
Tailings or decant return water with elevated metals and metalloids	Transport of tailings and decant return water via pipelines between TSF and processing plant	<p>Seepage through the soil profile to groundwater from pipeline leak/rupture.</p> <p>Overland runoff of salts, metals and metalloids during significant rainfall events</p>	<p>The applicable controls from the existing licence that manage the risk associated with a pipeline failure between the processing plant and TS2 are outlined below:</p> <ul style="list-style-type: none"> • Existing condition 1.3.1 of the Licence requires that all pipelines containing tailings and decant return water are to be: <ul style="list-style-type: none"> - equipped with telemetry systems to detect leaks or failures; - equipped with automatic cut-outs in the event of a pipe failure, or - provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections; and

Emission	Sources	Potential pathways	Proposed controls
			<ul style="list-style-type: none"> Licence condition 1.3.4 requires the visual integrity of tailings pipelines and return waterlines to be inspected on a daily basis; <p>In addition to the above, the applicant has proposed the following control for managing the risk of potential pipeline failure:</p> <ul style="list-style-type: none"> Routine daily and monthly visual inspections of TSF2 to ensure the design strategy of the embankment raise is being implemented and identify any maintenance requirements of TSF2 that require attention

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 2 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 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Jerdacuttup Town	<ul style="list-style-type: none"> 6.6 kms south east of the eastern border of the TSF2 footprint area.
Rural Residential Premises	<ul style="list-style-type: none"> 3.6 kms south west of the western border of the TSF2 footprint area. 3.6 kms south of the southern border of the TSF2 footprint area. 5.9 kms south east of the southern border of the TSF footprint area.
Environmental receptors	Distance from prescribed activity
Remnant native vegetation	Located to the east, south and west of the TSF2 footprint area.
Threatened Ecological Community (TEC)	The remnant vegetation that is located to the east, south and west of the TSF2 footprint area has been mapped as the 'Proteaceae dominated kwongan shrublands of the southeast coastal floristic province of Western Australia' (Kwongan shrublands) TEC. The closest occurrence of the TEC is located approximately 60m to the west of the TSF 2 Stage 3 extent. This ecological community is listed as Priority 3 by DBCA and as threatened under the Commonwealth <i>Environment Protection and Biodiversity</i>

	<i>Conservation Act 1999</i> (EPBC Act).
Conservation significant fauna species	<p>According to the Department of Biodiversity, Conservation and Attractions (DBCAs) database, a confirmed record of the threatened fauna species Chuditch (<i>Dasyurus geoffroii</i>) is recorded approximately 800 m west of the TSF 2 footprint area. No fauna surveys have been undertaken in the TSF2 footprint area due to all infrastructure being located on previously cleared land. However, Stantec conducted a fauna survey in 2019 and identified ten conservation significant fauna species within the greater project area including:</p> <ul style="list-style-type: none"> • Carnaby's Black Cockatoo (<i>Calyptorhynchus latirostris</i>); • Malleefowl (<i>Leipoa ocellata</i>); • Chuditch (<i>Dasyurus geoffroii</i>); • Heath Mouse (<i>Pseudomys shortridgei</i>); • Western Mouse (<i>Pseudomys occidentalis</i>); • Western Whipbird (<i>Psophodes nigrogularis oberon</i>); • Quenda (<i>Isoodon fusciventer</i>); • Western Brush Wallaby (<i>Notamacropus irma</i>); • Peregrine Falcon (<i>Falco peregrinus</i>); and • Eula's Planthopper (<i>Budqinmaya eulae</i>).
Conservation significant flora species	<p>According to the DBCA database, one threatened (T) flora species and three priority (P) listed flora species occur within one kilometre of the TSF2 footprint area including:</p> <ul style="list-style-type: none"> • 2 x records - <i>Beyeria cockertonii</i> (T) 610m and 640 m from the western border of the TSF2 area; • 2 x records - <i>Goodenia phillipsiae</i> (P4) – 916 metres and 920 m from the western border of TSF2 footprint area; • One record - <i>Micromyrtus navicularis</i> (P3) – 700 m from the western border of TSF2 footprint area; and • <i>Grevillea punctata</i> (P3) – 615 m from the western border of TSF2 footprint area. <p>Six species of conservation significance were recorded within the larger project area during previous flora survey's including:</p> <ul style="list-style-type: none"> • <i>Acrotriche orbicularis</i> (T); • <i>Beyeria cockertoni</i> (T); • <i>Conostylis lepidospermoides</i> (T, Endangered); • <i>Eucalyptus purpurata</i> (T); • <i>Hibbertia abyssus</i> (T, Critically endangered); and • <i>Kunzea similis</i> subsp. <i>Mediterranea</i> (T).
Surface Water Lines	The closest surface water lines to the TSF2

	<p>footprint area are:</p> <ul style="list-style-type: none"> • Burlabup Creek – 1.1 kms south east of the southern border of TSF2 footprint; • Gnamma Creek – 2.3 kms east of the eastern border of TSF 2 footprint; and • Bandalup Creek – 6 kms north west of the border of TSF2 footprint. <p>Both Burlabup and Bandalup Creeks discharge into the Jerdacuttup River located approximately 8.2 kms east of the TSF2 footprint area. The Burlabup Creek’s catchment includes the TSF2 footprint area. The Gnamma Creek drains the eastern side of the catchment, joining Burlabup Creek south of the Jerdacuttup North Road.</p>
<p>Conservation areas</p>	<p>The closest conservation areas to the TSF2 footprint area are:</p> <ul style="list-style-type: none"> • Reserve R43060 vested with the Conservation Commission of WA for the purpose of ‘Conservation of flora and fauna’ located approximately 1.6 kms south west of the TSF2 footprint area border; and • Reserve R49742 – vested with Conservation Commission of WA for the purpose of a ‘Conservation Park’ located approximately 3.1 kms north west of the border of the TSF2 footprint area.
<p>Aboriginal Sites and Heritage Places</p>	<p>The closest Aboriginal Heritage site to the TSF2 footprint area is the Registered Aboriginal Site known as ‘Gnamma Hole’ (ID 18950).</p>
<p>Groundwater</p>	<p>Groundwater beneath the TSF is mostly saline to hypersaline, although across the site fresh groundwater does occur.</p> <p>Groundwater salinity (TDS) at the TSFs exceeds 10,000 mg/L in most bores (Golder, 2021a).</p> <p>The groundwater table is typically at elevations between 90 to 120 m AHD and flows to the southwest. Historical land clearing for agriculture in the area has resulted in regional groundwater having elevated salinity levels; in turn surface water systems in the area are also saline. Land use south of TSF2 is farmland.</p> <p>Due to the high salinity groundwater is generally not suited for livestock or irrigation purposes.</p> <p>Groundwater monitoring results provided by the applicant demonstrate that groundwater levels surrounding TSF2 were between 6.30 to 20.64 mbgl in July 2021 (FQM Australia Nickel Pty Ltd, 2021a).</p>

3.2 Risk ratings

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

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works approval W6578/2021/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 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 TSF2 (combined stage 2 and 3) i.e deposition into TSF2 (combined stage 2 and 3). 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 3: Risk assessment of potential emissions and discharges from the premises during construction, time limited operations and operation

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Source: TSF 2 (Stage 3) embankment lift. Activities: Construction works, earthworks, mobilisation and positioning of infrastructure. Light vehicle/mobile equipment movements	Dust	Pathway: Air / windborne dispersion Impact: Health and amenity	Three rural residential premises are located 3.6 kms south west, 3.6 kms south and 5.9 kms south east of the TSF2 footprint area.	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1 and Table 1 outlines the design and construction requirements for the TSF2 (Stage 3) embankment raise. Conditions 7 and 8 require an Environmental Compliance report to be submitted once construction of each staged embankment raise has been completed.	Ensure TSF2 (Stage 3) embankment raise has been constructed as proposed. An Environmental Compliance report confirms the infrastructure as proposed (including emission controls) has been constructed.
		Pathway: Air/windborne dispersion Impact: Ecosystem disturbance and impacts to conservation significant flora species, threatened fauna species, and a potential TEC due to smothering of vegetation.	Remnant native vegetation that may be representative of the Kwongkan shrublands TEC is located to the east, west and south of the TSF2 footprint area border, with the closest mapped occurrence being within 60 metres. Threatened flora species (closest record is Beyeria cockertonii recorded 610 metres west of the TSF2 footprint area). Threatened fauna species Chuditch	Refer to Section 3.1	C = Minor L = Possible Medium Risk	Y	Condition 1 and Table 1 outlines the design and construction requirements for the TSF2 (Stage 3) embankment raise. Conditions 7 and 8 require an Environmental Compliance report to be submitted once construction of each staged embankment raise has been completed.	Ensure TSF2 (Stage 3) embankment raise have been constructed as proposed. An Environmental Compliance report confirms the infrastructure as proposed (including emission controls) has been constructed.

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Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
			(<i>Dasyurus geoffroi</i>) recorded 800 metres west of the TSF2 footprint area.					
	Noise	Pathway: Air / windborne dispersion Impact: Health and amenity	Three rural residential premises are located 3.6 kms south west, 3.6 kms south and 5.9 kms south east of the TSF2 footprint area. Threatened fauna species Chuditch (<i>Dasyurus geoffroi</i>) recorded 800 metres west of the TSF2 footprint area.	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	N/A	It is not expected that sensitive receptors will be significantly impacted by noise emissions during construction given the distance from the premises. The general provisions of the EP Act and the <i>Environmental Protection (Noise) Regulations 1997</i> are considered sufficient in regulating noise emissions.
Operation (including time-limited-operations)								
Category 5: Processing or beneficiation of metallic or non-metallic ore								
Source: TSF 2 (combined stage 2 and stage 3) Activity: Deposition of tailings into TSF2	Dust lift off (dry tailings)	Pathway: Air/windborne dispersion Impacts: Reduced native vegetation health or native vegetation death that may represent habitat for threatened fauna. Potential for dust to be deposited on	Remnant native vegetation that may be representative of the Kwongkan shrublands TEC is located to the east, west and south of the TSF2 footprint area border, with the closest mapped occurrence being within 60 metres. Threatened flora species (closest record is <i>Beyeria</i>	Refer to Section 3.1	C = Minor L = Possible Medium Risk	Y	N/A	The Delegated Officer considers that the existing regulatory controls on the Licence and additional controls proposed by the Applicant as outlined in section 3.1 are sufficient in managing dust emissions that may occur as a result of dust lift-off from the surface of TSF2.

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Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
		native vegetation representative of a TEC and impact upon conservation significant flora taxa recorded in proximity to TSF2 footprint area.	cockertonii recorded 610 metres west of the TSF2 footprint area. Threatened fauna species Chuditch (<i>Dasyurus geoffroi</i>) recorded 800 metres west of the TSF2 footprint area.					
	Seepage of leachate from TSF	<p>Pathway: Seepage of leachate from base and embankments of TSF2 into soil and groundwater.</p> <p>Impacts: Mounding of groundwater table causing vegetation stress or deaths due to increased salinity within root zones of vegetation. Reduced quality or contamination of groundwater/soils.</p>	<p>Surface water bodies in proximity to the TSF2 footprint area (closest being Burlabup Creek located 1.1 kms south east).</p> <p>Remnant native vegetation that may be representative of the Kwongkan shrublands TEC is located to the east, west and south of the TSF2 footprint area border, with the closest mapped occurrence being within 60 metres.</p> <p>Threatened flora species (closest record is <i>Beyeria cockertonii</i> recorded 610 metres west of the TSF2 footprint area).</p>	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	Y	<p>Condition 1 and Table 1 outlines the design and construction requirements for the TSF2 (Stage 3) embankment raise.</p> <p>Condition 2 and Table 2 Requires the construction of four additional monitoring bores for monitoring standing water levels surrounding TSF2.</p> <p>Condition 4 and Table 3 Requires the installation of two production bores for the recovery of seepage from the discharge of tailings to TSF2.</p> <p>Condition 6 and Table 4 Requires evaporation ponds 12, 13 and 16 at the Premises to be repaired and operational by 31 March 2022 and evaporation pond 9 to be repaired and operational by 31 December 2022.</p> <p>Conditions 7 and 8 Require an Environmental</p>	<p>The management of the seepage and groundwater around TSF2 is the primary means of reducing the impact of seepage from the TSF on the surrounding native vegetation, TEC and conservation significant flora.</p> <p>A detailed risk assessment of the risk event has been conducted under Section 3.3 of this report. The risk assessment identified through the analysis of SWL data obtained from monitoring bores surrounding TSF2 and the predictions of prior groundwater modeling that groundwater mounding is occurring in the vicinity of TSF2 and will continue to rise due to seepage from tailings deposition.</p> <p>The proposed embankment raise is predicted to increase groundwater levels surrounding TSF2 which will increase the likelihood of seepage impacting on nearby environmental receptors. To reduce the risk of rising SWL's</p>

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Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
							<p>Compliance report to be submitted once construction of the Stage 3 embankment raise has been completed.</p> <p>Conditions 9 and 10</p> <p>Time limited operations (TLO) commencement and duration requirement for the Stage 3 embankment raise to TSF2.</p> <p>Condition 11 and Table 5</p> <p>Infrastructure and design requirements for the embankment raises during TLO.</p> <p>Conditions 12 and 13</p> <p>Compliance reporting requirements for TLO.</p> <p>Conditions 14 to 16</p> <p>Standard record and general reporting requirements.</p>	<p>due to seepage, the Applicant has proposed a number of controls which are outlined in section 3.1. The primary contingency measure to manage increasing SWL's is the installation of a seepage collection system which is a construction and operational requirement conditioned on the works approval. In addition, two production bores are to be installed to control seepage from the facility. These bores are to be used for recovery of seepage to manage potential groundwater mounding as a result of discharge of tailings to TSF2 (Stage 3).</p> <p>The requirement to repair the four damaged evaporation ponds that are currently offline will also help to reduce the risk of seepage.</p> <p>The Delegated Officer considers the existing controls on the Licence and the additional emission control infrastructure for the TSF outlined above will manage the risk of seepage adequately.</p>
	Tailings or decant return water with elevated metals and metalloids	<p>Pathway:</p> <p>Direct discharge to land - overtopping of TSF2 (combined stage 2 and stage 3)</p> <p>Overland runoff of salts, metals and</p>	<p>Surface water bodies in proximity to the TSF2 footprint area (closest being Burlabup Creek located 1.1 kms south east).</p> <p>Remnant native vegetation that may</p>	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	Y	<p>Condition 1 and Table 1 outlines the design and construction requirements for the TSF2 (Stage 3) embankment raise.</p> <p>Condition 2 and Table 2</p> <p>Requires the construction of four additional monitoring bores for monitoring standing water</p>	<p>There is a risk of overtopping of the TSF cell if deposition into the cell exceeds the holding capacities or during a significant rainfall event.</p> <p>The Delegated Officer has taken into account the existing regulatory controls on the licence for managing overtopping and the water balance assessment that</p>

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Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
		<p>metalloids during significant rainfall events</p> <p>Impact:</p> <p>Reduced quality or contamination of soil, and/or sediment.</p> <p>Reduced native vegetation health or native vegetation death.</p>	<p>be representative of the Kwongkan shrublands TEC is located to the east, west and south of the TSF2 footprint area border, with the closest mapped occurrence being within 60 metres.</p>			<p>levels surrounding TSF2.</p> <p><u>Condition 4 and Table 3</u></p> <p>Requires the installation of two production bores for the recovery of seepage from the discharge of tailings to TSF2.</p> <p><u>Condition 6 and Table 4</u></p> <p>Requires evaporation ponds 12, 13 and 16 at the Premises to be repaired and operational by 31 March 2022 and evaporation pond 9 to be repaired and operational by 31 December 2022.</p> <p><u>Conditions 7 and 8</u></p> <p>Require an Environmental Compliance report to be submitted once construction of the Stage 3 embankment raise has been completed.</p> <p><u>Conditions 9 and 10</u></p> <p>Time limited operations (TLO) commencement and duration requirement for the Stage 3 embankment raise to TSF2.</p> <p><u>Condition 11 and Table 5</u></p> <p>Infrastructure and design requirements for the embankment raises during TLO.</p> <p><u>Conditions 12 and 13</u></p> <p>Compliance reporting requirements for TLO.</p>	<p>was developed to ensure there is sufficient storage capacity within the cells to accommodate a 1 in 100 year, 72-hour rainfall event during operation including the maintenance of a 300mm operational freeboard above inflow, and determined these measures adequately manage the risk of TSF2 and TSF3 Cell E overtopping.</p>	

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Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
							Conditions 14 to 16 Standard record and general reporting requirements.	
	Stormwater contaminated with tailings and tailings liquor	<p>Pathway: Direct discharge to land to soil and surface water via runoff during rainfall events.</p> <p>Impacts: Contamination to soil and surface water bodies located in close proximity to the TSF2. Reduced quality of native vegetation representative of the TEC and impact upon conservation significant flora.</p>	<p>Surface water bodies in proximity to the TSF2 footprint area (closest being Burlabup Creek located 1.1 kms south east).</p> <p>Remnant native vegetation that may be representative of the Kwongkan shrublands TEC is located to the east, west and south of the TSF2 footprint area border, with the closest mapped occurrence being within 60 metres.</p>	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1 and Table 1 outlines the design and construction requirements for the TSF2 (Stage 3) embankment raise.	The Delegated Officer considers that the stormwater emission control infrastructure that will be constructed as part of the Stage 3 embankment raise to TSF2 are sufficient for managing the risk associated to stormwater runoff. These regulatory controls have been conditioned on the works approval as a construction requirement.
<p>Source: Tailings and return water pipelines</p> <p>Activity: Transport of tailings and decant return water via pipelines between TSF and processing plant.</p>	Tailings or decant return water with elevated metals and metalloids	<p>Pathway: Seepage through the soil profile to groundwater from pipeline leak/rupture. Overland runoff of salts, metals and metalloids during significant rainfall</p>	<p>Surface water bodies in proximity to the TSF2 footprint area (closest being Burlabup Creek located 1.1 kms south east).</p> <p>Remnant native vegetation that may be representative of the Kwongkan</p>	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	Y	<p>Condition 1 and Table 1 outlines the design and construction requirements for the TSF2 (Stage 3) embankment raise.</p> <p>Conditions 7 and 8 Require an Environmental Compliance report to be submitted once construction of the Stage 3 embankment raise</p>	<p>There is potential for the discharge of tailings slurry or return water to the environment through pipeline failure between the processing plant and TSF2.</p> <p>The Delegated Officer considers that the existing regulatory controls on the Licence and construction/operational requirements for the embankment raise in the works approval will</p>

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Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
		<p>events</p> <p>Impacts:</p> <p>Contamination of soils and deterioration of groundwater quality inhibiting the survival of remnant native vegetation that may be representative of a TEC and impact upon conservation significant flora.</p> <p>Conservation significant fauna gaining access to TSF2 may ingest decant return water or tailings affecting the health of the fauna species. Entrapment and drowning may also occur.</p> <p>Overland flow following a spill event may impact on surface water bodies if not properly contained.</p>	<p>shrublands TEC is located to the east, west and south of the TSF2 footprint area border, with the closest mapped occurrence being within 60 metres.</p> <p>Threatened flora species (closest record is <i>Beyeria cockertonii</i> recorded 610 metres west of the TSF2 footprint area).</p>			<p>has been completed.</p> <p><u>Conditions 9 and 10</u></p> <p>Time limited operations (TLO) commencement and duration requirement for the Stage 3 embankment raise to TSF2.</p> <p><u>Condition 11 and Table 5</u></p> <p>Infrastructure and design requirements for the embankment raises during TLO.</p> <p><u>Conditions 12 and 13</u></p> <p>Compliance reporting requirements for TLO.</p> <p><u>Conditions 14 to 16</u></p> <p>Standard record and general reporting requirements.</p>	adequately regulate the risk of spills or leaks from pipelines.	

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

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

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3.3 Detailed risk assessment for seepage from TSF2

3.3.1 Overview of risk event

Through consideration of the source-pathway-receptor analysis, seepage modelling and analysis of groundwater data described below, there is a risk of tailings seepage to groundwater from the base or embankments of TSF2 due to tailings deposition. Seepage of leachate from tailings is likely to result in further groundwater mounding around TSF2, near surface seepage collecting within the toe drain surrounding the TSF2 perimeter which will continue to groundwater mounding if the water is not continually removed, overland runoff of salts, metals and metalloids during significant rainfall events and elevated TDS, metal and metalloid levels in shallow groundwater surrounding TSF2. Noting the presence of several environmental receptors located in close proximity to TSF2 as discussed in Section 3.1.2, a review of the groundwater modelling and monitoring data has been undertaken to assess the potential environmental impacts associated to the proposed TSF2 embankment lifts and increased volume of tailings to be deposited in TSF2.

3.3.2 Modelling and monitoring data review

3.3.2.1 Seepage modelling

A comparison between pre-mining and 2012 groundwater levels was undertaken as part of Golder's seepage and transport modelling for the TSF Stage 3 development to gain an understanding on the effects of mining and seepage from the TSF to date. The analysis of groundwater level data indicated that the local groundwater table directly below the TSF may have risen approximately by approximately 11m from pre-mining levels as a result of seepage to the underlying aquifer (Golder, 2012). The groundwater mound extends upgradient and downgradient beyond the footprint of the TSF (Golder, 2012). The results from the modelling based on scenario 2 (being the most likely) predicted that groundwater levels in response to seepage from the TSF are expected to rise to a maximum of 1.6m by the end of operations in 2029. Scenario 1 (worst case) predicted groundwater level rises in response to seepage to range between 2m and 6m by the end of operations (Golder, 2012). Water level changes are expected to gradually drop after the end of operations in 2029 back to pre-mining conditions by the year 2100 (Golder, 2012).

3.3.2.1 Groundwater levels

Noting the continued predicted increase of current groundwater levels as forecast by the model and the visual seepage evident to the south of the facility as observed during DWER's most recent compliance inspection on 20 July 2021, an analysis of the groundwater monitoring bores in the vicinity of TSF2 contained within the 2020-2021 Annual Environmental Report (AER) and additional information provided by the Applicant has been conducted (FQM Australia Nickel Pty Ltd, 2021a; FQM Australia Nickel Pty Ltd, 2021b and DWER, 2021). Figure 2 demonstrates the location of groundwater monitoring bores adjacent to TSF2. The SWL data provided from 2017 to 2021 demonstrate that there is an increasing trend in groundwater levels to the south of TSF2, which are likely to continue to rise due to seepage from TSF2 (FQM Australia Nickel Pty Ltd, 2021a). The SWL's in the monitoring bores closest to the perimeter of TSF2 (MB60, MB61, MB62 and RWC43) have seen a significant rise in groundwater levels, with MB60 rising 3.73m to 10.73mbgl, MB61 rising 5.58m to 9.77mbgl, MB62 rising 4.04m to 6.30mbgl and RWC42 rising from 4.26m to 7.82mbgl (FQM Australia Nickel Pty Ltd, 2021a). SWL data infers that groundwater levels begin to decrease moving further away from the facility. This is evident in the SWL data for the regional bores located the greatest distance to the south of TSF2 (RWB01, MB14, RWC35 and MB13) where groundwater levels remain stable (FQM Australia Nickel Pty Ltd, 2021a).

It appears that the significant rising groundwater levels presented in the last 4 years of SWL data are inconsistent with the rises predicted in the seepage modelling. The groundwater levels around TSF are rising at a significantly higher and faster rate than what the prior modelling forecast. These rising groundwater trends are of concern, particularly given the Premises was in Care and Maintenance from October 2017 to April 2020. It is important to note however, that the Applicant was applying seawater onto the TSF during the Care and Maintenance phase as a measure for minimising dust suppression. This practice ceased once operations at Premises resumed, however the seawater intake at the TSF would have considerably contributed to the increasing groundwater levels recorded since 2017. Given this, the prior modelling does not accurately reflect the current scenario given the seawater intake disposal onto the TSF.

It is also important to note that DWER's compliance inspection identified that recovery of TSF decant water is not taking place as it should, as a result of the capacity issues within the evaporation ponds due to five of the evaporation ponds (ponds 9, 12, 13, 15 and 16) being off-line due to damaged liners (DWER, 2021). Therefore, the Applicant has had no option but to leave the water in the facility for longer, increasing the size of the active supernatant pond, increasing the likelihood of seepage from the facility. Evaporation ponds 9, 12, 13, 15 and 16 are the larger cells at the Premises and reduce the capacity of water that can be held. Correspondence received from the Applicant on 26 July 2021 advised that evaporation pond 15 would be repaired on 31 August 2021. It is essential that the remaining four ponds are repaired and are put back online to reduce the risk of seepage occurring from the facility once tailings deposition into TSF2 resumes. As discussed further under section 3.3.3, the Applicant has made a commitment to the repair and re-establishment of retaining the four damaged ponds which will be conditioned on the works approval (DWER, 2021).

Although the seawater intake and the four evaporation ponds being offline would have contributed to rising groundwater levels around TSF2, seepage modelling and SWL data to date still conclude that there is a rising trend in SWL's due to seepage from TSF2. In addition, given groundwater modelling predicts that the rate of movement for groundwater levels to drop to pre-mining levels will take until 2100, it is difficult to estimate how long it will take for groundwater levels to drop following seawater intake. The rate of movement needs to be re-estimated taking into account the seawater intake.

3.3.2.3 Groundwater quality

Groundwater at the TSF complex is mostly saline to hypersaline with TDS levels in most bores exceeding 10,000 mg/L. Bores located to the south of the TSF generally have TDS ranging between 15,000 mg/L to 30,000 mg/L and an average pH of 5.8, which ranges between 5.3 to 6.6 for the April 2021 reading (FQM Australia Nickel Pty Ltd, 2021b).

The Premises existing Licence L8008/2001/3 stipulates under condition 1.3.8 that the Annual Environmental Report (AER) as required by condition 4.2.1, must include an annual assessment of SWL's and groundwater quality in the groundwater bores surrounding TSF2 and evaluate the results against the modelled predictions made in Golder's 2012 seepage and transport modelling report as noted above. A contour map indicating the actual extent and concentrations of the magnesium sulfate plume present at the TSF's must all be included in the AER. Golder were engaged by the Applicant in 2021 to carry out the requirements of condition 1.3.8 of the Licence and provide the annual assessment within the AER for the 2020 to 2021 annual reporting period.

The results from the annual assessment presented in the most recent AER identified only minor changes in both the groundwater level and groundwater chemical parameters during the annual period. Changes in groundwater chemistry appeared to be minimal in most bores, with the exception of MB01 and MB04 which showed a continued increase of magnesium and sulphate concentrations, indicating potential seepage from the TSF (FQM Australia Nickel Pty Ltd, 2021b).

For the 2020 to 2021 reporting period, the majority of bores to the south and east of the TSF (MB61, MB62, MB63, RWC27, and RWC42) had magnesium + sulphate readings of less than 4 g/L (FQM Australia Nickel Pty Ltd, 2021b). The exception was MB04 located east of the TSF, which has an average of just over 7 g/L. The present-day magnesium + sulphate total concentration is less than 5 g/L beyond the immediate TSF. Whilst groundwater level rise in MB01, MB07, MB15, MB61, MB62, RWC42 appears higher than surrounding regional bores, there has been no significant change in groundwater chemistry when compared to previous years (FQM Australia Nickel Pty Ltd, 2021b).

3.2.2 Seepage impacts to sensitive receptors

Tailings slurry and return (decant) water contain soluble metals and metalloids which are toxic to native vegetation and fauna. The increased seepage from TSF2 has the potential to adversely impact a number of sensitive environmental receptors located in close proximity to the facility as outlined in Table 2 of this report. Remnant native vegetation is located to the south, west and east of TSF2 which may be representative of the Kwongkan Shrublands threatened ecological community (TEC). Records of conservation significant flora and fauna have been recorded in the patch of remnant native vegetation located 60 metres west of TSF2. The threatened flora species *Beyeria cockertonii* has been recorded 610m and 640 m from the western border of the TSF2 area.

Should seepage rise to the root zone of adjacent native vegetation (expected to be at least 6mbgl) stress or death of deep-rooted vegetation may result due to impacts from the saline water. As discussed under Section 3.2.2.1 above, the monitoring bores that are located directly adjacent to remnant native vegetation that is mapped as the Kwongkan shrublands TEC located to the south (MB61, MB62 and RWC42) and to the west (MB60) have recorded significant increases in groundwater levels and are likely to continue to increase. Monitoring bores MB62 and RWC42 recorded groundwater levels in July 2021 of 6.30mbgl and 7.82mbgl in July 2021 respectively (FQM Australia Nickel Pty Ltd, 2021a). MB60 which is the only monitoring bore located to the southwest of TSF2 and next to the patch of environmentally significant remnant native vegetation to the west recorded 10.73mbgl in July 2021. Although groundwater levels are not currently higher than 6mbgl where deep-rooted vegetation may occur, they are likely to continue to rise based on increasing trends shown in SWL data which may result in the 6mbgl trigger being exceeded causing impacts to native vegetation and conservation significant flora. Therefore, additional regulatory controls to manage seepage causing groundwater mounding are required to ensure the sensitive receptors discussed above are not impacted.

3.3.3 Applicant's regulatory controls

The Applicant has committed to the following controls which are noted in Table 1: Proposed applicant controls and will be conditioned on the works approval to ensure that rising SWL's as a result of seepage from the TSF2 Stage 3 embankment raise are managed adequately:

- Installation of a Seepage Collection System that includes an interception/collection trench along the southern flank of TSF2 with recovery decant; and
- Installation of four new monitoring bores (MB64, MB65, MB66 and MB67) and two recovery bores (TSFRB01 and TSFRB02) as shown in Figure 2.

The locations of the proposed recovery bores have been positioned to the south of TSF2 where existing TSF monitoring bores are showing an increasing trend in SWL's. The installation of the recovery bores will enable management of SWL's which would likely breach 6mbgl SWL in the near future without this additional regulatory control.

The locations of monitoring bores MB67 and MB66 which are located to the west and southwest of TSF2 respectively, have been selected by the Applicant based on Golder's recommendation to consider installation of additional monitoring points to the west of TSF2 to capture changes in groundwater levels and chemistry. In order to address the potential

migration of the relatively high levels of magnesium sulphate in MB04, the Applicant has positioned MB64 downstream. The positioning of MB65 is to monitor seepage from the south eastern corner of TSF2 and well as to aid in monitoring drawdown effects in the recovery bores.

As discussed under Section 3.3.2.1, the Applicant made a commitment following DWER's compliance inspection to repair the synthetic liners of the four damaged evaporation ponds that are currently offline. This additional regulatory control has been conditioned on the works approval with a requirement that three of the four damaged evaporation ponds (12, 13 and 16) are repaired and back online by 31 March 2022. Evaporation pond 9 will be repaired and operational by 31 December 2022. A water balance model provided by the Applicant demonstrated that there is sufficient capacity in the three evaporation ponds (12, 13 and 16) to hold decant water until evaporation pond 9 is repaired before the end of 2022. In addition, two of the four evaporation ponds will be required to be repaired and operational before tailings can be deposited into TSF2 (Stage 3).

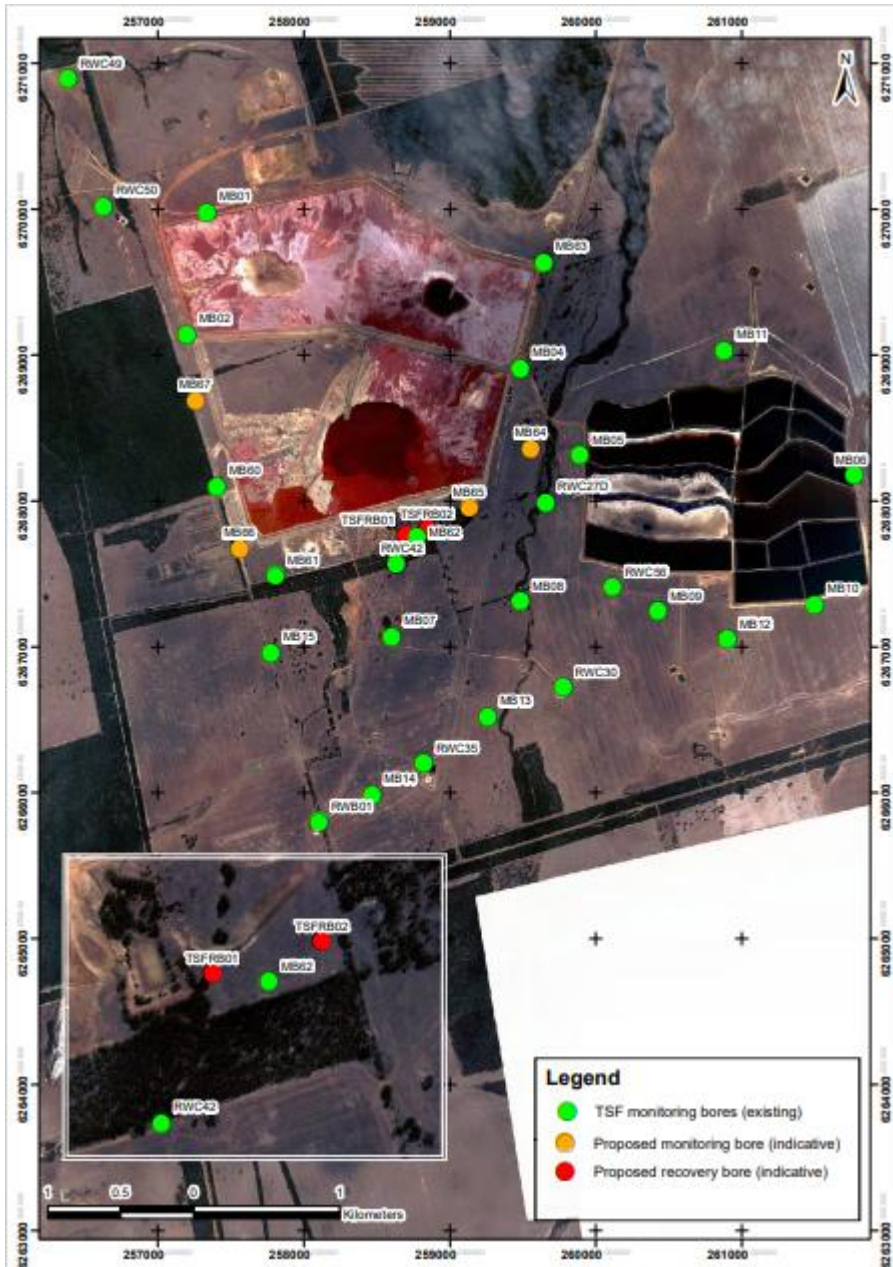


Figure 2: Groundwater monitoring and recovery bores surrounding TSF2

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
<i>Application advertised on the department's website on 25 August 2021</i>	None received	N/A
<i>Local Government Authority advised of proposal on 25 August</i>	None received	N/A

2021		
<i>Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal on 25 August 2021</i>	None received	N/A
<i>Applicant was provided with draft documents on 28 September 2021</i>	Comments from Applicant received on 6 October 2021, 11 October 2021, 12 October 2021 and 13 October 2021.	Refer to Appendix 1.

5. Conclusion

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

References

1. 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. DWER 2021, Compliance Inspection Report for L8008 – Ravensthorpe Nickel Operations. Compliance inspection undertaken 20 July 2021. Department of Water and Environmental Regulation, Western Australia, DWER Reference: A2043060.
5. FQM Australia Nickel Pty Ltd, 2021, clarification on annual throughput from 2021 Annual Audit Compliance Report provided by the applicant for W6578/2021/1, dated 15 September 2021. FQM Australia Nickel Pty Ltd, DWER Reference A2046648.
6. FQM Australia Nickel Pty Ltd, 2021a, updated standing water levels data from 2017 to 2021 provided by the applicant for W6578/2021/1, dated 15 September 2021. FQM Australia Nickel Pty Ltd, DWER Reference A2046602.
7. FQM Australia Nickel Pty Ltd, 2021b Ravensthorpe Nickel Operations Annual Environmental Report Licence L8008/2004/3, 1 May 2020 to 30 April 2021, DWER Reference DWERDT472922.
8. Golder Associates Pty Ltd (Golder) 2012, *Stage 3 Expansion Seepage and Solute Transport Modelling – Ravensthorpe Nickel Operations Tailings Storage Facility*, dated December 2012. Golder Associates Pty Ltd. DWER Reference A1154178.
9. Golder Associates Pty Ltd (Golder) 2021, *Mining Proposal – Ravensthorpe Nickel Operation: Tailings Storage Facility 2 Stage 3 Raise*, dated 1 July 2021, Golder Associates Pty Ltd. DWER Reference A2046784.
10. Golder Associates Pty Ltd (Golder) 2021a, W6578/2021/1 supporting document. Works Approval Application - Ravensthorpe Nickel Operations – Tailings Storage Facility 2 Stage 3, dated October 2021. Golder Associates Pty Ltd. DWER Reference

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

Condition	Summary of applicant's comment	Department's response
Works Approval		
Condition 1 (Table 1) of the Works Approval – Design and construction requirements for TSF 2 embankment raises.	The Applicant advised that spigots will be installed at 60m intervals along the distribution pipelines, not 40m intervals as noted under Item 4, Condition 1 (Table 1) of the Works Approval.	Noted and updated the design and construction requirements under Item 4, Condition 1 (Table 1) of the Works Approval and section 2.5.1.2 of the Decision Report with this information accordingly.
Condition 1 (Table 1) of the Works Approval – Design and construction requirements for TSF 2 embankment raises.	The Applicant noted that the design and construction requirements of the collection sump of the Seepage Collection System should be amended to include evaporation ponds as a return disposal option.	Noted and updated the design and construction requirements under Item 5, Condition 1 (Table 1) of the Works Approval with this information accordingly.
Condition 2 (Table 2) of the Works Approval – Infrastructure requirements – groundwater monitoring well. DWER requested that the Applicant provide labels of the four new groundwater monitoring wells identified in the Map of the monitoring bore locations as shown in Figure 4 of Schedule 1.	The Applicant provided an updated groundwater monitoring bore plan with the proposed four new monitoring bores clearly labelled.	Noted and replaced Figure 4 under Schedule 1 of the Works Approval with the updated Map of monitoring bore locations provided by the Applicant. Updated Condition 2 (Table 2) with the labelled bore locations provided by the Applicant, namely MB64, MB65, MB66 and MB67. Condition 4 (Table 3) has been updated with the labelling for the production bores provided by the Applicant, namely TSFRB01 and TSFR02.
Condition 6 (Table 4) of the Works Approval – Repair and re-establishment of the damaged Evaporation Ponds at the Premises.	The Applicant advised that the repair to evaporation pond 9 is not scheduled to be completed until the end of 2022, therefore the Applicant will not be able to the timeframe specified under condition 6 (Table 4) of the works approval (31 March 2022). The Applicant requested that a separate condition be included in the works approval for the repair of evaporation pond 9 to be completed by 31 December 2021.	DWER requested that the Applicant provide an explanation behind the delay in repairing evaporation pond 9 and to demonstrate through the provision of a water balance calculation that there is sufficient capacity in the four evaporation ponds to hold decant water (including winter rains) until evaporation pond 9 is repaired. The Applicant advised that a water balance model was used to determine how long total evaporation pond capacity can be maintained under various TSF water recovery rates with all ponds back online except evaporation pond 9. The Applicant demonstrated through the water balance modelling that there is sufficient pond capacity for holding decant water within

Works approval: W6578/2021/1

Condition	Summary of applicant's comment	Department's response
		<p>evaporation ponds 12, 13, 15 (recently repaired) and 16 back online at a worst-case scenario (maximum TSF water recovery rate of 4,100m³/day) to August 2023. Given this, the Delegated Officer believes that there is sufficient capacity in the three evaporation ponds (12, 13 and 16) to hold decant water until evaporation pond 9 is repaired before the end of 2022. The Applicant noted that the modelling showing that evaporation pond 9 is not required in 2022 was the key reason for the planned delay in repairs.</p> <p>Condition 6 (Table 4) of the Works Approval has been amended to include a separate condition for evaporation pond 9 which specifies the pond is required to be repaired by 31 December 2022. Sections 3.3.2.1 and 3.3.3 of the Decision Report which discuss the damaged evaporation ponds and the Applicant's commitment to repair the ponds have also been updated to reflect this additional information provided by the Applicant.</p>
<p>Schedule 1, Figure 2 of the Works Approval – TSF 2 Tailings Deposition Pipeline Plan.</p> <p>DWER noted that the TSF 2 'Tailings Deposition Pipeline Plan' is a draft copy and requested that the Applicant provide an updated designed drawing that will be used for the construction of the embankment raise of TSF 2.</p>	<p>The Applicant advised that there is no draft stamp on the Tailings Deposition Pipeline Plan and it is a final copy.</p>	<p>Noted. DWER notes that the comment under Figure 2 was made in error, this should have been noted under Figure 3 'Stormwater and Seepage Management Infrastructure Plan' that has the draft stamp 'not for construction' on the plan. The Applicant provided a final plan (Figure F003) with the draft stamp removed. Replaced Figure 3 (F012) under Schedule 1 in the Works Approval with the final plan (Figure F003) provided by the Applicant. The reference to the design drawings outlined under Item 7 of Table 1, Condition 1 has been updated to reflect the final plan reference (F003).</p>
<p>Schedule 1, Figure 6 of the Works Approval – TSF 2 embankment raise construction.</p> <p>DWER noted that the 'TSF embankment raise construction Plan' has a draft stamp 'not for construction' and requested that the Applicant provide an updated design drawing that will be used for the construction of the embankment raise of TSF 2.</p>	<p>The Applicant provided a final plan (Figure F004) with the draft stamp removed.</p>	<p>Noted and replaced Figure 6 (F013) under Schedule 1 in the Works Approval with the final plan (Figure 004) provided by the Applicant. The reference to the design drawings outlined under Item 1 of Table 1, Condition 1 has been updated to reflect the final plan reference (F004).</p>
<p>Schedule 1, Figure 7 of the Works Approval – TSF 2 embankment raise and Decant Access</p>	<p>The Applicant provided a final plan (Figure F005) with</p>	<p>Noted and replaced Figure 7 (F014) under Schedule 1 in the Works Approval with the final plan (Figure 005) provided by</p>

Condition	Summary of applicant's comment	Department's response
<p>Causeway construction.</p> <p>DWER noted that the 'TSF 2 embankment raise and Decant Access Causeway construction' has a draft stamp 'not for construction' and requested that the Applicant provide an updated design drawing that will be used for the construction of the embankment raise of TSF 2.</p>	<p>the draft stamp removed.</p>	<p>the Applicant. The reference to the design drawings outlined under Items 1 and 2 of Table 1, Condition 1 has been updated to reflect the final plan reference (F005).</p>
<p>Schedule 1, Figure 8 of the Works Approval – VWP Location Plan</p> <p>DWER noted that the 'VMP location plan' has a draft stamp 'not for construction' and requested that the Applicant provide an updated design drawing that will be used for the construction of the embankment raise of TSF 2.</p>	<p>The Applicant provided a final plan (Figure F006) with the draft stamp removed.</p>	<p>Noted and replaced Figure 8 (F015) under Schedule 1 in the Works Approval with the final plan (Figure F006) provided by the Applicant. The reference to the design drawings outlined under Item 6 of Table 1, Condition 1 has been updated to reflect the final plan reference (F006).</p>
<p>Decision Report</p>		
<p>Section 2.5 of the Decision Report – Description of Proposed Activity and Section 2.5.2 of the Decision Report – Operation of TSF 2</p>	<p>The Applicant advised that tailings are proposed to be discharged for approximately 12 months, not 14 months as noted under sections 2.5 and 2.5.2 of the draft Decision Report. The Applicant requested this information in the report be updated.</p> <p>The Applicant requested that the reference to the construction works of the embankment raise being completed in three months be updated to six months for consistency with the Mining Proposal which notes that construction will commence in November 2021 and operations will commence in May 2022.</p> <p>The Applicant requested to remove the text under section 2.5 of the Decision Report stating that "Any future raises (post TSF 2 Stage 3) will utilise upstream construction methods. The Applicant advised that it has been determined by the engineering consultant that the tailings characteristics at the site are unsuitable to support construction of upstream raises in that they do not consolidate and dry out sufficiently to allow for</p>	<p>Noted and updated sections 2.5 and 2.5.2 of the Decision Report with this information accordingly as requested by the Applicant.</p>

Condition	Summary of applicant's comment	Department's response
	implementation of the upstream raising methodology. The Applicant noted that any future rises will be downstream raises.	
Section 2.5.2 of the Decision Report – Operation of TSF 2 at RL 126.7m	The Applicant advised that the reference to the TSF cells being inspected every 12 hours is incorrect and that the inspection of the TSF and Evaporation ponds is undertaken on dayshift only for safety reasons. The Applicant also noted that the wastewater treatment ponds and buffer ponds are not part of the TSF/Evaporation pond arrangement and should be removed from this description.	Noted and amended section 2.5.2 of the Decision Report accordingly with the information provided by the Applicant.
Section 2.5.1.4 of the Decision Report - Seepage control infrastructure	The Applicant advised that due to the recent inclusion and positioning of the recovery bores, the seepage interception system layout has slightly changed. The Applicant noted that section 9.6 of Golder's Design Report document has been updated to include further details of the seepage interception system and an updated design drawing showing the amended layout was provided as an attachment.	Noted and amended Section 2.5.4 of the Decision Report to include the further details provided in respect to the seepage interception system layout. The changes to the wording were that there would only be one trench and sump constructed as opposed to several which would be between 1m to 3m in depth as opposed to 1m deep. The amended design drawing has been updated under Schedule 1, Figure 3 of the Works Approval.
Section 3.1.1 of the Decision Report – Emissions and controls – Time Limited Operations proposed controls for seepage of leachate from TSF.	The Applicant advised that there is no spillway included in the new TSF design which is in line with the latest versions of the statutory TSF design specifications. The Applicant provided a design drawing showing the freeboard calculation used in the most recent TSF audit report.	The operational freeboard that is required to be maintained at 300mm is the major decider of risk for overflowing of the TSF. Given this, the removal of the spillway is not likely to change the risk analysis. It is recommended that the wording of condition 1.3.3 be updated through a Licence Amendment.
Section 3.1.1 of the Decision Report – Emissions and controls – Time Limited Operations proposed controls for stormwater contaminated with tailings and tailings liquor.	The Applicant has requested to include an additional proposed control for managing the risk of stormwater runoff being the construction of a natural sediment trap at the discharge point of the reinstated stormwater diversion drain.	Noted and amended section 3.1.1 of the Decision Report to include this additional regulatory control to manage the risk of stormwater runoff. Condition 1 (Table 1) and condition 11 (Table 5) of the Works Approval have also been amended to include this additional control.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY						
Application type						
Works approval	<input checked="" type="checkbox"/>					
Licence	<input type="checkbox"/>	Relevant works approval number:		None	<input checked="" type="checkbox"/>	
		Has the works approval been complied with?			Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Has time limited operations under the works approval demonstrated acceptable operations?			Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?			Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Date Report received:				
Renewal	<input type="checkbox"/>	Current licence number:				
Amendment to works approval	<input type="checkbox"/>	Current works approval number:				
Amendment to licence	<input type="checkbox"/>	Current licence number:				
		Relevant works approval number:		N/A	<input type="checkbox"/>	
Registration	<input type="checkbox"/>	Current works approval number:		None	<input type="checkbox"/>	
Date application received		16 June 2021				
Applicant and Premises details						
Applicant name/s (full legal name/s)		FQM Australia Nickel Pty Ltd ACN: 135 761 465				
Premises name		Ravensthorpe Nickel Operations				
Premises location		Part of Mining Tenements M74/175, M74/115 and M74/116.				
Local Government Authority		Shire of Ravensthorpe				
Application documents						
HPCM file reference number:		DER2021/000358				
Key application documents (additional to application form):		Supporting Documents (DWERDT465229) including: <i>Works Approval Application – Ravensthorpe Nickel Operations Pty Ltd – Tailings Storage Facility Stage 3 – Application Form and Supporting Documents</i>				
Scope of application/assessment						

Summary of proposed activities or changes to existing operations.

The Applicant is proposing to construct a downstream embankment raise on an existing Tailings Storage Facility (TSF) 2 located at the Ravensthorpe Nickel Operations (RNO). The TSF embankment raise is required to manage the additional tailings storage requirements to extend the life of the facility.

RNO is currently authorised under Prescribed Premises category 5 of Licence L8008/2004/3 to process 13,900,000 tonnes of tailings per annum. There will be no change to the production capacity as a result of the increased tailings storage capacity.

Licence L8008/2004/3 allows for the construction of the TSF2 embankment raises to a crest height of RL 124.5m (for Stage 2) using the upstream method. The construction of the perimeter embankment raise to RL 123.7 m (Stage 1) of TSF2 is currently being completed and works are scheduled to be finalised in July 2021 which will provide storage capacity until the end of April 2022. It is noted that the raise is 0.7 m higher than the Stage 1 elevation specified in the Licence, however is lower than the permitted Stage 2 elevation of RL 124.5 m.

A change to the preferred construction methodology means the Stage 2 raise that was approved under L8008/2004/3 will not proceed due to technical challenges with upstream raising of embankments over soft, unconsolidated tailings as encountered at RNO. The applicant is instead proposing to combine Stage 2 and Stage 3 (footprint area) and complete a downstream embankment raise under this works approval to a construction height of 126m and operating height of 126.7m (3 metre vertical interval raise from the Stage 1 constructed embankment raise). The proposed embankment raise will accommodate up to an additional 4 Mt of tailings storage capacity over 14 months, bringing the total volumes of tailings stored at TSF2 to 12.39 Mt.

*Note – RNO currently operates two TSF's, TSF1 (East and West Cells) and TSF 2. Between 2013 and 2017 the TSF's were operated as two separate facilities alternating between both TSF's. RNO went into Care and Maintenance in October 2017 following a period of low nickel prices. Production at the mine resumed in April 2020 with tailings deposition recommencing into TSF1 East and West Cells.

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

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 5: Processing or beneficiation of metallic or non-metallic ore	13,900,000 tonnes per annum.	<i>Is there a proposed change to the previously assessed production or design capacity?</i>

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	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/>
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significant proposal?		Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>Ministerial statement No: MS633</p> <p>There have been changes to the proposal under Section 45c of the EPA Act in 2008, 2010 and 2019, however none of these changes relate to the TSF's under the works approval assessment.</p> <p>A section 43A was approved on 19 April 2021, however this relates to a revised proposal area for the Shoemaker levy (another deposit area) which is located on the North side of South Coast Highway and does not relate to the TSF under this works approval assessment.</p> <p>*Nickel Production - Up to 50,000 tonnes per annum</p> <p>*As detailed under Schedule 2 of Assessment 1426, commitment 8 requires the implementation of a Groundwater Management and Monitoring Program around the TSF's.</p> <p>EPA Report No: 1199 and 1426</p>
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>Reference No: EPBC 2001/172</p> <p>Approval for mining operation obtained on 24 December 2003 under the EPBC Act (approval until 31 December 2045).</p>
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input type="checkbox"/> No <input type="checkbox"/>	<p>Certificate of title <input type="checkbox"/></p> <p>General lease <input type="checkbox"/> Expiry:</p> <p>Mining lease / tenement <input checked="" type="checkbox"/> Expiry:</p> <p>M74/116 – Mining Tenement Summary Report notes expiry date of term is 07/05/2019, however Mineral Titles Online states 06/05/2040.</p> <p>M74/115 – Mining Tenement Summary Report notes expiry date of term is 07/05/2019, however Mineral Titles Online states 06/05/2040.</p>

		M74/175 – Both Mining Tenement Summary Report and Mineral Titles online state expiry date is 06/01/2025. Other evidence <input type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Approval: Expiry date: If N/A explain why?
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	CPS No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: Licence/permit No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Type: N/A Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Priority: N/A Are the proposed activities/landuse compatible with the PDWSA (refer to WQPN 25)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i> , <i>Environmental Protection (Controlled Waste) Regulations 2004</i> , <i>State Agreement Act xxxx</i>)	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Classification: N/A Date of classification: N/A