



Application for Works Approval

Division 3, Part V *Environmental Protection Act 1986*

Works Approval Number W6303/2019/1

Applicant FQM Australia Nickel Pty Ltd

ACN 135 761 465

File Number DER2018/001042

Premises Ravensthorpe Nickel Operation
Lot 1269 South Coast Highway
Ravensthorpe WA 6346

Legal description -
G74/8, L74/54, M74/108, M74/142, M74/167 and M74/168

Date of Report 08 April 2020

Status of Report Final

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1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
AS1940:2016	Australian Standard for the storage and handling of flammable and combustible liquids.
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the <i>Public Sector Management Act 1994</i> and is responsible for the administration of the <i>Environmental Protection Act 1986</i> along with other legislation.
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of, and during this Review
Licence Holder	FQM Australia Nickel Pty Ltd
m ³	cubic metres

Minister	the Minister responsible for the EP Act and associated regulations
MS 633	Ministerial Statement (MS 633)
mtpa	million tonnes per annum
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
Occupier	has the same meaning given to that term under the EP Act.
PM	Particulate Matter
PM ₁₀	used to describe particulate matter that is smaller than 10 microns (µm) in diameter
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Risk Event	As described in <i>Guidance Statement: Risk Assessment</i>
tph	Tonnes per hour
UDR	<i>Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)</i>
µg/m ³	micrograms per cubic metre
µg/L	micrograms per litre

2. Purpose and scope of assessment

The Applicant (FQM Australia Nickel Pty Ltd) (FQMAN) operates the Ravensthorp Nickel Operation (RNO), under the *Environmental Protection Act 1986* (EP Act) Part V Licence **L8008/2004/3** for Categories 5, 31, 52 and 54. Ore reserves at RNO include three nickel laterite deposits; Halleys, Hale-Bopp and Shoemaker-Levy.

RNO was placed into care and maintenance in October 2017. FQMAN is now undertaking activities to facilitate recommencement of operations at RNO. Whilst the majority of ore in the southern mine pits of Halleys and Hale-Bopp has been exhausted, the Shoemaker-Levy site has yet to be mined. As part of recommencement of operations, FQMAN plans to mine and crush ore at the Shoemaker-Levy mine area.

The prescribed premises area covered by licence L8008/2004/2 includes the Halle-Bopp and Halleys pits and existing infrastructure such as a processing plant, tailings storage facilities, evaporation ponds and power station, all located south of the Shoemaker-Levy operations. This infrastructure will also be utilised by the Shoemaker-Levy operations. Once this works approval has been completed, the Shoemaker-Levy operations and the transport corridor will be included onto the existing licence.

2.1 Application details

FQMAN submitted an application for a works approval on 19 September 2019 for construction of new infrastructure at the Shoemaker-Levy site.

The proposed works include:

- A new crushing plant with a capacity of 21.5 mtpa;
- An infrastructure corridor that includes an overland conveyor and saline water pipeline;
- Turkey's nest dam for storing saline water; and
- A mines service area that includes a workshop, washdown facility and bulk fuel facility.

2.2 Premises details

The works approval location and existing licence boundary details are shown in Figure 1 below. The Shoemaker-Levy mine development envelope is shown in yellow and the infrastructure transport corridor linking the works approval area and the licence area is shown in blue. A more detailed view of the construction area is shown in Figure 2 below.



- Legend
- Tenement Boundary
 - Heath on Karriente of the Ravensthorpe area PEC (P3) DPaW-classified
 - Proterozoic Dominated Nwongkan Oriblandis of the Southeast Coastal Floristic Province of Western Australia (TEC (Endangered) - EPBC Act, PEC (P3) - DPaW-Classified)
 - Existing RNO Operations
 - Infrastructure Corridor Development Envelope
 - Shoemaker-Levy Development Envelope
 - Infrastructure Corridor
 - Shoemaker-Levy Site Layout
 - Mine Services Area
 - RCM Pad Area
 - Fir Area
 - Crushing Plant

ATTACHMENT 2A
Shoemaker-Levy
Project Site Map

Figure 1: Works approval area and transport corridor boundaries

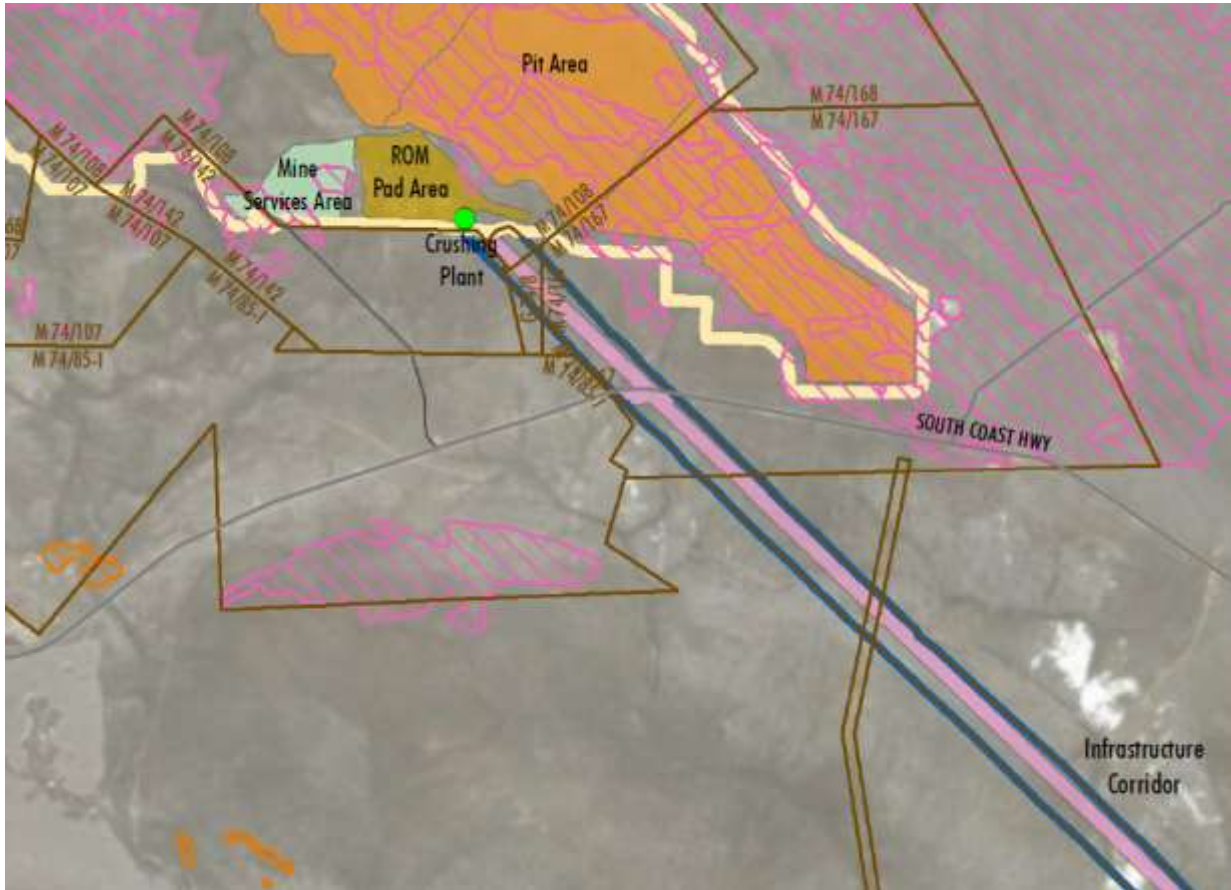


Figure 2: Detailed works approval locations

Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
Works Approval Application Form_FQMAN Crusher_V2 (signed)	19/09/2019 (DWERDT202596)
FQMAN Works Approval Supporting Doc V3	19/09/2019 (DWERDT202596)
Re: Works Approval Application - Shoemaker-Levy Project – clarification of legal applicant	25/09/2019 (A1826512)
Re: Shoemaker-Levy Works Approval – additional information	26/09/2019 (A1826774)
Shoemaker-Levy Works Approval addendum letter	2/10/2019 (A1828490)
Application for a Works Approval W6303/2019/1, Request for Further Information; Umwelt Environmental & Social Consultants, 20 December 2019	20/12/2019 (DWERDT238526)

3. Overview of Premises

3.1 Establishment of the Shoemaker-Levy Operations

3.1.1 Primary Crushing Facility at Shoemaker-Levy

A primary crushing facility with a processing capacity of 21.5 mtpa will be constructed at the Shoemaker-Levy ore reserve. The proposed crushing facility at Shoemaker-Levy will be similar to the existing facilities at RNO. The location of the following infrastructure is detailed in Figure 2 above. The key facilities required to be constructed/installed at the Shoemaker-Levy site are:

- 400 tonne ROM bin with apron feeder;
- Vibrating grizzly;
- Jaw crusher (potential); and
- Multiple sizers.

3.1.2 Overland Conveyor

The overland conveyor will be installed in the transport corridor, which was approved under Ministerial Statement MS 633. The conveyor will be approximately 9km long and transport ore from the Shoemaker-Levy crusher to the RNO processing facility. The conveyor will be designed with a nominal feed rate of 2,500 tonnes per hour (tph).

The conveyor will cross over the South Coast Highway by means of a fully enclosed overpass to contain any potential ore spillage onto the highway. The remaining sections of the conveyor will be uncovered and dust suppression will be managed with saline water sprays.

3.1.3 Saline Water Supply

Saline water is supplied to the existing RNO processing facility by a FQMAN owned and operated seawater pipeline originating at the coastline. A high density polyethylene (HDPE) pipeline will be installed along the length of the transport corridor, within a purposely built v-drain to capture any potential spills. Saline water with a salinity range of approximately 50,000 to 100,000 mg/L total dissolved solids will be supplied to the Shoemaker-Levy project.

Saline water will be transported via the HDPE pipeline to Shoemaker-Levy into the following onsite storage units:

- A lined 2,000 m³ turkey's nest dam adjacent to the mine service area; and
- A 100 m³ header tank adjacent to the crushing facility.

3.1.4 Mine Services Area

The proposed mine services area will contain infrastructure including a bulk fuel storage, workshop and a vehicle wash down bay.

The bulk storage facility will consist of self-bunded tanks with a maximum capacity of 1,000 m³. The diesel will supply the fleet via a fast fill refuelling station.

The site workshop will be for repairs and maintenance to site vehicles. The workshop will be sited on an impervious concrete slab that drains to a dedicated sump. The sump will be regularly inspected and if needed, emptied by a licensed contractor and disposed of off-site.

The vehicle wash down bay will be constructed within the mine service area. The facility will be concrete bunded and all wash down water and solids will be contained within a dedicated sump. The sump will be regularly emptied by a licensed contractor and disposed of off-site.

3.1.5 Commissioning

Construction of the Shoemaker-Levy crushing facility will include a three staged commissioning approach:

1. Pre-commission equipment by undertaking checks as per the original manufacturer requirements. Checks will include an assessment of all equipment to determine whether it has been correctly installed and aligned, including testing of all electrical circuits.
2. Dry commissioning by running equipment in a phased manner. All crushing facility and conveyor infrastructure will be run without ore or water. Adjustments will be made so that all components run as designed. The saline water pipeline and bulk fuel facilities will be pressure tested.
3. Wet commissioning by introducing ore material and water to running equipment. Ore material will be put through the crusher in increasing quantities. Individual components will be adjusted as needed until the desired performance levels are achieved and the proposed production quantity and quality is reached. The overland conveyor and saline water pipeline will be commissioned at the same time as the crushing facility. Commissioning will include processing ore up to the maximum design capacity of 2,500 tph.

3.2 Infrastructure

The Shoemaker-Levy facility infrastructure, as it relates to Category 5 and 73 activities, is detailed in Table 3 and with reference to the Site Plan (attached in the Issued Works Approval).

Table 3 lists infrastructure associated with each prescribed premises category.

Table 3: Shoemaker-Levy facility infrastructure

	Infrastructure	Site Plan Reference
Prescribed Activity Category 5		
Primary crushing facilities at Shoemaker-Levy, designed to achieve a throughput of 21.5 mtpa		
1	Run of Mine (ROM) pad	Figures 1 & 2
2	Fixed Primary Crusher including: <ul style="list-style-type: none"> •400 tonne ROM bin; •Multiple sizers; •vibrating grizzly; and •jaw crusher (potential). 	
3	Overland conveyor from Shoemaker-Levy to existing RNO facility	
Prescribed Activity Category 73		
Construction of the Shoemaker-Levy mine services area containing the bulk fuel facility		
1	Fast fill refuelling station	Figure 2
2	1,000 m3 self-bunded diesel storage tank	
Directly related activities		

	Infrastructure	Site Plan Reference
Saline water supply from RNO to Shoemaker-Levy		
1	Saline water pipeline (within transport corridor)	Figure 2
2	Lined 2,000 m ³ turkey's nest dam (at mine services area)	
3	100 m ³ head tank (at crushing facility)	

3.3 Exclusions to the Premises

Operations and activities which are not regulated by DWER and hence are not within the scope of this assessment include, but not limited to:

- mining of ore;
- waste Rock Dumps; and
- explosives magazine storage.

4. Legislative context

4.1 Part IV of the EP Act

4.1.1 Background

The development of the Ravensthorp Nickel Project was authorised by the Minister for Environment (Minister) under Part IV of the EP Act upon issue of Ministerial Statement (MS) 509 on 4 June 1999. The MS was for the mining and processing of up to 4 million tonnes per annum of nickel ore from Bandalup Hill approximately 35 kilometres east of Ravensthorpe, producing 30,000 tonnes per annum of nickel metal and 2,200 tonnes per annum of cobalt sulfide over a period of 20 years.

Development of the RNO project commenced in 1998 under the ownership of Comet Resources. In 2002 BHP Billiton purchased the project and developed and operated RNO up until 2009. In February 2010, FQMAN acquired RNO from BHP Billiton.

MS 509 was superseded by MS 633 on 5 September 2003 to include the three ore bodies (Halley's, Hale-Bopp and Shoemaker-Levy) and increase the throughput of mining and processing ore to 10 million tonnes per year. MS 633 includes conditions relevant to this works approval and the licence for the premises (L8008/2004/3).

Condition 2-1 requires the proponent to implement the environmental management commitments to meet the following objectives that are relevant to this application:

- Develop a Surface Water Management and Monitoring Plan which will address:
 - Integrity of the water supply pipeline;
 - Diversions of the Bandalup and Burlabup creeks;
 - Runoff and water shadow effects from project earthworks;
 - Storm water runoff from the processing plant; and
 - Storage and handling of chemicals and reagents.
- Implement the Surface Water Management and Monitoring Plan and demonstrate compliance with the plan via an Annual Environmental Report.

- Prepare a Groundwater Management and Monitoring Plan, which will include:
 - Installation of a groundwater monitoring network (down hydraulic gradient) around the tailings storage facility, evaporation ponds and process plant;
 - Installation of groundwater observation monitoring bores down hydraulic gradient of any groundwater abstraction bores; and
 - A process for annually monitoring and reporting on groundwater levels and quality which exist within the lease boundaries.
- Implement the Ground Water Management and Monitoring Plan and demonstrate compliance with the plan via an Annual Environmental Report.
- Actively facilitate the continuation of the Ravensthorpe Nickel Project Community Liason Committee and the Jerdacuttup RNO Working Group during construction and ongoing operation of the Project.
- Prepare and Implement a Dust Management Plan to ensure that dust levels generated by the Project do not adversely impact on the ecological function of health and amenity of the community. This plan will include ambient monitoring proposals to verify that dust levels comply with the relevant standards or guidelines.
- Maintain a complaints register to record any noise-related complaints from the public.
- Develop a Waste Management and Waste Minimisation Plan, including:
 - Measures to minimize waste generated by the activities on the premises;
 - Training for all employees; and
 - Provision of adequate waste storage containers.
- Implement the Waste Management and Waste Minimisation Plan and demonstrate compliance with the plan via an Annual Environmental Report.
- Prepare and implement an Environmental Management Plan for the project operation phase. The plan will address the following:
 - Land disturbance;
 - Water;
 - Flora;
 - Fauna;
 - Waste;
 - Air quality;
 - Noise;
 - Rehabilitation;
 - Heritage;
 - Incident management;
 - Complaint management;
 - Fire management site induction; and
 - Performance reporting.

4.2 Other relevant approvals

4.2.1 Department of Main Roads WA (MRWA)

The proposed conveyor crosses the South Coast Highway within the infrastructure corridor between Shoemaker-Levy and the main RNO processing site. Impacts from construction of the South Coast Highway crossover are assessed under MRWA assessment reference number D19#1011926.

4.2.2 Department of Mines, Industry Regulation and Safety (DMIRS)

FQMAN submitted a mining proposal to DMIRS on 11 October 2019 to assess the establishment and rehabilitation of the Shoemakers-Levy mine and associated infrastructure, including the conveyor corridor. The application is currently being assessed under ID 83089. The Mining Proposal will need to be approved by DMIRS before any construction under this works approval can commence.

4.2.3 Federal Legislation

Federal assessment of the Shoemaker-Levy project has been completed under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). Application 2001/172 was approved in December 2003 and is effective until December 2045.

4.3 Part V of the EP Act

4.3.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

The guidance statements which inform this assessment are:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessments (February 2017)*

4.3.2 Works approval and licence history

Table 4 summarises the works approval and licence history for the premises. Once the construction and commissioning of W6303/2019/1 has been completed and compliance documents have been received by the CEO, the Applicant will need to apply to amend L8008/2004/2 prior to operation of the Shoemaker-Levy facility.

Table 4: Works approval and licence history

Instrument	Issued	Nature and extent of works approval, licence or amendment
W3911/2004/1	5/04/2004	Works approval to establish RNO
R1670/2004/1	25/08/2004	Registration for a category 85: sewage facility and category 89: putrescible landfill site
L8008/2004/1	14/05/2005	Licence issue for RNO
W4397/2007/1	7/02/2008	Works approval to establish evaporation ponds

W4452/2008/1	20/10/2008	Works approval to upgrade beneficiation plant
W4463/2008/1	21/11/2008	Works approval to modify evaporation ponds
L8008/2004/2	14/05/2010	Licence re-issue
W4715/2010/1	2/08/2010	Works approval for the construction of two new buffer ponds
W4767/2010/1	25/10/2010	Works approval to upgrade the existing tailings storage facility (TSF)
W4873/2011/1	21/03/2011	Works approval for the construction of the sands rejects storage facility
W4937/2011/1	30/05/2011	Works approval for the installation of diesel-powered generators
W5364/2013/1	18/03/2013	Works approval for TSF expansion
L8008/2004/3	14/05/2013	Licence re-issue
W5754/2014/1	26/01/2015	Works approval for the construction of Evaporation Pond 20
W6303/2019/1	08/04/2020	Works approval for the establishment of the Shoemaker-Levy site and associated infrastructure.

4.3.3 Clearing

The extent of clearing is defined and approved by MS 633.

5. Consultation

The works approval application was advertised on the Department's website and in the *West Australian* newspaper on 21 October 2019.

6. Location and siting

6.1 Siting context

The Premises is located approximately 25 kilometres (km) east of the town of Ravensthorpe and 550km south east of Perth. The regional location is shown in Figure 3 below.

The surrounding land use is predominately broad acre farming.

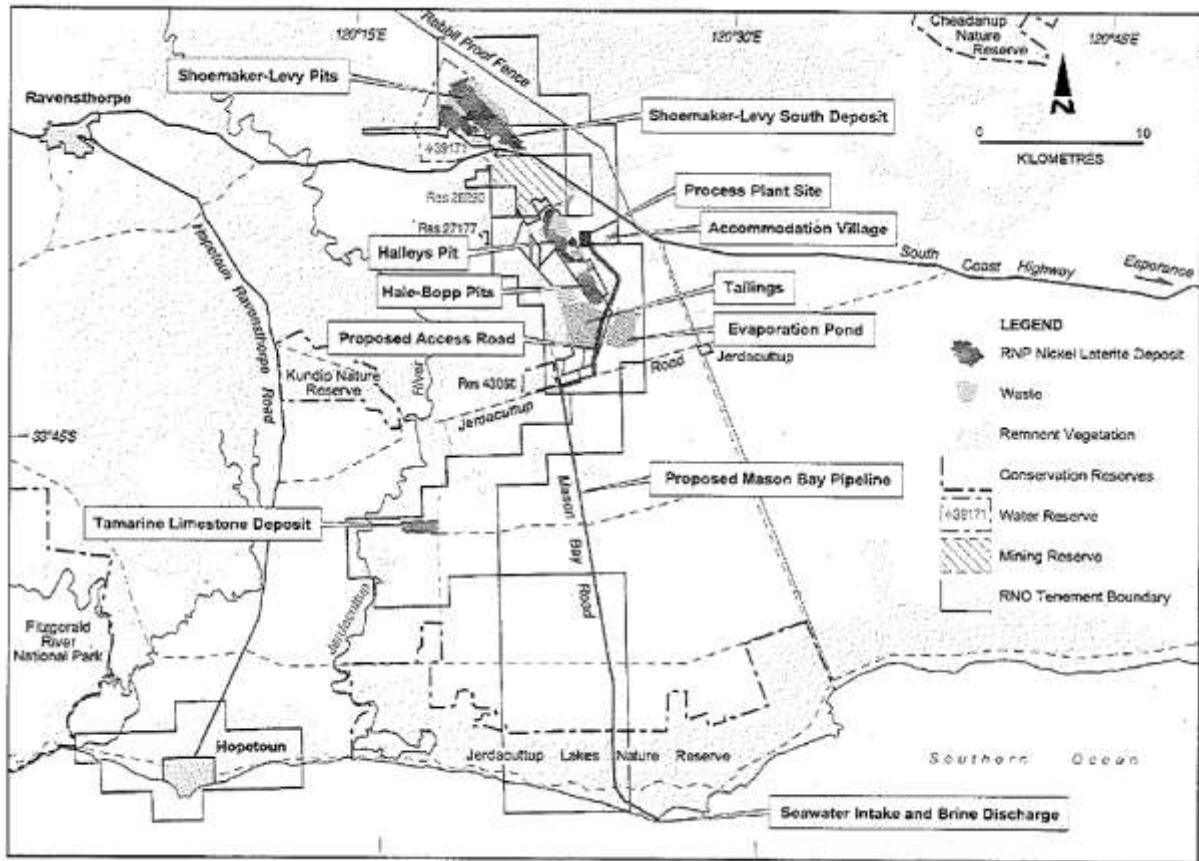


Figure 3: Ravensthorpe Nickle Operations regional location

6.2 Residential and sensitive Premises

The distances to residential and sensitive receptors are detailed in Table 5.

Table 5: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Residential Premises	Private residence located approximately 5.8km to the south west of the proposed crusher location.

6.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The distances to specified ecosystems are shown in Table 6. Table 6 also identifies the distances to other relevant ecosystem values which do not fit the definition of a specified ecosystem.

The Shoemaker-Levy site and infrastructure corridor are within the Bandalup Corridor, a continuous corridor of remnant vegetation linking the Fitzgerald River National Park and the Great Western Woodlands. The Bandalup Corridor is a buffer zone of the Fitzgerald Biosphere Reserve as designated by the United Nations Educational, Scientific and Cultural Organisations (UNESCO). Biosphere reserves are internationally recognised sites which aim to conserve biodiversity, whilst accommodating sustainable development and economic activity (Umwelt, 2019).

Table 6 has also been modified to align with the *Guidance Statement: Environmental Siting*.

Table 6: Environmental values

Specified ecosystems	Distance from the Premises
Regional Parks	Approximately 13 km to the south west of the Shoemakers-Levy site is Regional Park 9 in the Albany district.
Nature Reserves	Reserve 27177 for conservation of flora and fauna is located approximately 5 km south of the Shoemaker-Levy site. Reserve 43060 for conservation of flora and fauna is located approximately 6 km south west of the Shoemaker-Levy site.
Threatened Ecological Communities and Priority Ecological Communities	The site falls within the buffer zone of a priority 3 <i>Proteaceae</i> -dominated Kwongkan shrub land.
Biological component	Distance from the Premises
Threatened/Priority Flora	<ul style="list-style-type: none"> <i>Kunzea similis</i> - this species is known from only two populations, with over 99.5% of the known plants of this species occurring on Bandalup Hill, which is the site of the Halleys and Hale-Bopp orebodies. Listed as "Critically Endangered" under the <i>Biodiversity Conservation Act 2016</i> (Western Australia) 2018. <i>Eucalyptus purpurata</i> – This species is known to occur in four locations on the eastern flank of the Hale-Bopp orebody. It is classified Threatened (Declared Rare Flora) – Extant Taxa. <p>In addition, there are 25 other flora species of conservation significance within the RNO project footprint. For these species, the impacts are deemed to be of negligible to medium significance either due to their wider distribution, lack of direct impacts or inclusion within the conservation area (EPA Bulletin, April 2003).</p>
Threatened/Priority Fauna	A requirement of MS 633 was to develop and implement a Fauna Management Plan (FMP). This was finalised in 2004. The FMP identified the following eight (8) threatened or priority fauna within the RNO

	<p>operating footprint:</p> <ul style="list-style-type: none"> • Malleefowl – (Schedule 1) • Canaby's Cockatoo - (Schedule 1) • Western Whipbird - (Schedule 1) • Square-tailed Kite – (Priority 4) • Heath Mouse - (Schedule 1) • Western Mouse – (Priority 4) • Western Brush Wallaby – (Priority 4) • Sothern Brown Bandicoot – (Priority 4)
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6.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 7.

Table 7: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Bandalup Creek	Approximately 8km south-west of the RNO site.	A tributary to the Jerdacuttup River.
Jerdacuttup River	Approximately 30km south-east of the RNO site	<p>The Jerdacuttup River is a priority river system because much of its foreshore vegetation is rated "pristine".</p> <p>The river system and lakes are also highly valued for their Aboriginal Heritage and community recreation.</p> <p>The lakes associated with the Jerdacuttup River are important to many migratory bird species, including trans-equatorial migrants protected under the <i>Japan-Australia Migratory Bird Agreement</i> treaty.</p>
Groundwater	Drill data used to define the mine resource at RNO did not encounter groundwater until approximately 100m below the surface.	Groundwater usage in the Ravensthorpe region is limited due to the lack of major aquifer and high salinity levels.

7. Risk assessment

7.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

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. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out through Table 9.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Tables 8 and 9 below.

Table 8. Identification of emissions, pathway and receptors during construction and commissioning

Source/Activity	Potential emissions	Potential receptors	Potential pathway	Potential impacts	Consequence	Likelihood	Risk	Reasoning	Regulatory controls (Refer to conditions of the granted Works Approval)
Category 5: Construction of a primary crushing facility; Infrastructure corridor; Turkey's nest dam; and Mine services area.	Dust	Nearest residential dwelling is 5.8km south-west of the RNO premises.	Air / wind dispersion	Health and amenity	Minor	Rare	Low	Distance to closest sensitive land use is sufficient to see a minimal impact from dust emissions.	<p>None specified in the works approval.</p> <p>The general provisions of the EP Act apply with respect to the causing of pollution and environmental harm.</p> <p>Company implements a Dust Management Plan as required under MS633. The dust management plan encompasses the entire mining project. The written object of the Dust Management Plan reads "To ensure that dust levels generated by the Project do not adversely impact on ecological function or the health and amenity of the community".</p>
	Noise	Nearest residential dwelling is 5.8km south-west of the RNO premises.	Air / wind dispersion	Health and amenity	Minor	Rare	Low	Distance to closest sensitive land use is sufficient to see a minimal impact from noise emissions.	<p>The separation distance between the Shoemaker-Levy site and sensitive residents means the impact from noise emissions at receptors will be minimum.</p> <p>Modelling for previous operations at the site for impacts at a previous sensitive receptor 3km west of the premises showed a noise level of 28 dB(A) at L_{A1} and L_{A 10}.</p> <p>The general provisions of the EP Act apply with respect to the causing of pollution and environmental harm.</p>

Source/Activity	Potential emissions	Potential receptors	Potential pathway	Potential impacts	Consequence	Likelihood	Risk	Reasoning	Regulatory controls (Refer to conditions of the granted Works Approval)
	Stormwater containing hydrocarbons by spills and leaks, and sediment from earth moving activities.	Soils and vegetation at site of spill and along flow path of contaminated stormwater.	Direct discharge and path of flow	Contamination of soils with hydrocarbons. Increased sediment loads impacting health and viability of terrestrial and riparian vegetation.	Moderate	Rare	Medium	The possibility of a hydrocarbon spill during construction is low, but would have a marked impact on the surrounding vegetation.	The surrounding vegetation is predominately of Priority 3 conservation status. All construction and commissioning will be undertaken to comply with the company's <i>Surface Water Management Plan</i> and <i>Hazardous Materials Management Plan</i> , which are required under MS633. The Surface Water Management Plan has been designed to comply with the requirements of MS633 and was updated in 2007 to include the then-proposed Shoemaker-Levy project.

Table 9: Identification of emissions, pathway and receptors during operation

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts			
Category 5: Processing or beneficiation of metallic or non-metallic ore	Operation of crushing facility; Operation of overland conveyor; ROM mine stockpiles.	Dust	Nearest residential dwelling is 5.8km south-west of the RNO premises.	Air / wind dispersion	Health and amenity	No	Maximum Ground Level Concentration for PM10 particles from the Shoemaker-Levy project over a 1 day averaging period outside of the project's leases was modelled to be 5.5 µg/m ³ . Managed under Part IV Ministerial Statement MS633 – Commitment 27 and 28, Dust Management Plan (DMP).

Risk Events					Continue to detailed risk assessment	Reasoning
Sources/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
		Noise	Nearest residential dwelling is 5.8km south-west of the RNO premises.	Air / wind dispersion	Health and amenity	No Modelled noise emissions at the (now demolished) "Gnamma" residence (2.5-3 km west of the proposed Shoemaker-Levy crushing facility) were 28 dB(A) at L _{A1} and LA ₁₀ (Herring Storer Acoustics, 2000). Noise will be managed to comply with Part 7 of the <i>Mines Safety and Inspection Regulations 1995</i> (i.e. a peak noise limit of 140 dB(lin) and 8 hour noise exposure of 85 dB(A)) as required by DMIRS.
	Bulk fuel facility; Washdown facility; Workshop facility.	Stormwater containing hydrocarbons by spills and leaks, and sediment from earth moving activities.	Soils and vegetation at site of spill and along flow path of contaminated stormwater.	Direct discharge and path of flow	Contamination of soils with hydrocarbons. Increased sediment loads impacting health and viability of terrestrial and riparian vegetation.	No All fuel tanks will be self-bunded and designed to meet AS 1940:2016 requirements. All hydrocarbon wastes are to be contained within concrete bunded facilities. Spill kits to be installed and maintained at the facility, and spills to be controlled, contained and cleaned up as soon as practicable. An incident reporting system is in place to identify recurring issues. Managed under Part IV Ministerial Statement MS633 – Commitment 7, Surface Water Management and Monitoring Plan (SWMMP).

Risk Events					Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway		
	Saline water pipeline	Saline water	Soils and vegetation at site of spill and along flow path of saline water.	Direct discharge and path of flow	Vegetation deaths due to contact with saline water	<p>No</p> <p>The saline water pipeline is fitted with flow detection devices as well as alarm triggers if flow pressure drops.</p> <p>Spills will be contained in roadside bunds and cleaned up immediately.</p> <p>An incident reporting system is in place to identify recurring issues.</p> <p>Managed under Part IV Ministerial Statement MS633 – Commitment 7, Surface Water Management and Monitoring Plan (SWMMP).</p>

7.2 Consequence and likelihood of risk events

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 10 below.

Table 10: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 11 below.

Table 3: Risk criteria table

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		The following criteria has been used to determine the consequences of a Risk Event occurring:		
			Environment	Public health* and amenity (such as air and water quality, noise, and odour)
Almost Certain	The risk event is expected to occur in most circumstances	Severe	<ul style="list-style-type: none"> onsite impacts: catastrophic offsite impacts local scale: high level or above offsite impacts wider scale: mid-level or above Mid to long-term or permanent impact to an area of high conservation value or special significance[^] Specific Consequence Criteria (for environment) are significantly exceeded 	<ul style="list-style-type: none"> Loss of life Adverse health effects: high level or ongoing medical treatment Specific Consequence Criteria (for public health) are significantly exceeded Local scale impacts: permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	<ul style="list-style-type: none"> onsite impacts: high level offsite impacts local scale: mid-level offsite impacts wider scale: low level Short-term impact to an area of high conservation value or special significance[^] Specific Consequence Criteria (for environment) are exceeded 	<ul style="list-style-type: none"> Adverse health effects: mid-level or frequent medical treatment Specific Consequence Criteria (for public health) are exceeded Local scale impacts: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	<ul style="list-style-type: none"> onsite impacts: mid-level offsite impacts local scale: low level offsite impacts wider scale: minimal Specific Consequence Criteria (for environment) are at risk of not being met 	<ul style="list-style-type: none"> Adverse health effects: low level or occasional medical treatment Specific Consequence Criteria (for public health) are at risk of not being met Local scale impacts: mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	<ul style="list-style-type: none"> onsite impacts: low level offsite impacts local scale: minimal offsite impacts wider scale: not detectable Specific Consequence Criteria (for environment) likely to be met 	<ul style="list-style-type: none"> Specific Consequence Criteria (for public health) are likely to be met Local scale impacts: low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	<ul style="list-style-type: none"> onsite impact: minimal Specific Consequence Criteria (for environment) met 	<ul style="list-style-type: none"> Local scale: minimal to amenity Specific Consequence Criteria (for public health) met

[^] Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting*.

* For public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines*. "onsite" means within the Prescribed Premises boundary.

7.3 Acceptability and treatment of Risk Event

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment table 12 below:

Table 4: Risk treatment table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DWER may refuse application.
High	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled.	Risk Event is acceptable and will generally not be subject to regulatory controls.

8. Determination of Works Approval conditions

The conditions in the issued Works Approval in Attachment 1 have been determined in accordance with the *Guidance Statement: Setting Conditions*.

Table 13 provides a summary of the conditions to be applied to this works approval.

Table 13: Summary of conditions to be applied

Condition Ref	Grounds
Environmental Compliance Condition 1, 2 and 3	Environmental compliance is a valid, risk-based condition to ensure appropriate linkage between the licence and the EP Act.
Infrastructure and Equipment Table 3	This condition is valid, risk-based and contain appropriate controls.
Information 4 and 5	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the works approval under the EP Act.

9. Applicant's comments

The Applicant was provided with the draft Decision Report and draft issued Works Approval on 03 March 2020. The Applicant informed that they do not have comments on the draft documents requested the works approval to be issued.

10. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

Based on this assessment, it has been determined that the Issued Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Tim Gentle
MANAGER – RESOURCE INDUSTRIES
REGULATORY SERVICES

Delegated Officer
under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	Licence L8008/2004/3 – RNO Licence	L8008/2004/3	accessed at www.der.wa.gov.au
2.	Application form: Works Approval – FMQ Australia Nickel Pty Ltd Works Approval Supporting Doc	Application form	DWER records (DWERDT202596)
3.	Shoemaker-Levy Works approval - additional information – Noise Impact assessment and Acoustic assessment	N/A	DWER records (A1826774)
4.	Response to Shoemaker-Levy works approval application RFI	N/A	DWER records (DWERDT238526)
5.	Ministerial Statement 633	MS 633	accessed at www.epa.wa.gov.au
6.	DER, July 2015. <i>Guidance Statement: Regulatory principles.</i> Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
7.	DER, October 2015. <i>Guidance Statement: Setting conditions.</i> Department of Environment Regulation, Perth.	DER 2015b	
8.	DER, November 2016. <i>Guidance Statement: Risk Assessments.</i> Department of Environment Regulation, Perth.	DER 2016b	
9.	DER, November 2016. <i>Guidance Statement: Decision Making.</i> Department of Environment Regulation, Perth.	DER 2016c	

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

Condition	Summary of Licence Holder comment	DWER response

Attachment 1: Issued Works Approval W6303/2019/1
