



Application for Licence Amendment

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

| | |
|--------------------------|--|
| Licence Number | L8008/2004/3 |
| Licence Holder | FQM Australia Nickel Pty Ltd |
| ACN | 135 761 465 |
| File Number | DER2014/000631 |
| Premises | Ravensthorpe Nickel Operations Lot 1269 South Coast Highway Ravensthorpe WA 6346 Legal description – Mining tenements M74/54, M74/108, M74/114, M74/115, M74/116, M74/123, M74,142, M74/144, M74/145, M74/167, M74/168, M74/173, M74/174, M74/175 and G74/08 As defined by the Premises maps attached to the Revised Licence |
| Date of Report | 4 October 2022 |
| Proposed Decision | Revised licence granted |

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

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1. Decision summary

Licence L8008/2004/3 is held by FQM Australia Nickel Pty Ltd (Licence Holder) for the Ravensthorpe Nickel Operations (RNO) (the Premises), located at Lot 1269 South Coast Highway Ravensthorpe, Western Australia.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the operation of the Premises. As a result of this assessment, Revised Licence L8008/2004/3 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the Premises. The Revised Licence has also amalgamated amendment notice 1 and 2 into the licence. The Revised Licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format with redundant conditions removed.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Amendment summary

On 8 June 2022, the Licence Holder submitted an application to the department to amend Licence L8008/2004/3 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Inclusion to the licence of the Shoemaker-Levy operations as per Works Approval W6303/2019/1

Table 1 below outlines the proposed changes to the existing Licence.

Table 1: Proposed throughput capacity changes

| Category | Current throughput capacity | Proposed throughput capacity | Description of proposed amendment |
|----------|-------------------------------------|-------------------------------------|--|
| 5 | 13,900,000 tonnes per annual period | 21,500,000 tonnes per annual period | Inclusion of the Shoemakers-Levy operations to the licence (as assessed under WW6303/2019/1) |

Compliance of works under W6303/2019/1

Works Approval W6303/2019/1 permitted the Licence Holder to construct and commission the Shoemaker-Levy crushing plant (with a throughput of 21,500,000 tonnes per annual period) and associated infrastructure. Compliance documentation required under W6303/2019/1 has been received and assessed by DWER. Deviations/changes from the original designs assessed under the works approval have noted and been considered as outlined below.

A compliance report for the construction of the saline turkey's nest dam and the mine service area at Shoemaker-Levy was received by DWER on 23 June 2021. Assessment of compliance with conditions 1, 2 and 3 of the works approval relating to the construction phase

was confirmed on 25 April 2022. Assessment of the compliance documentation noted the following deviations from the original designs:

The capacity of the turkey's nest dam was increased from 2,000 m³ to 4,000 m³. Due to the low permeability of the structure and its design, there was deemed to be no increase in risk to emissions or discharges from the change.

A compliance report for the construction of the saline water pipeline and associated transport corridor was received by DWER on 12 January 2022. Assessment of compliance with conditions 1, 2 and 3 of the works approval relating to the construction phase was assessed on 26 April 2022.

A compliance report for the construction of the primary crushing plant and overland conveyor system was received by DWER on 12 January 2022. Assessment of compliance with conditions 1, 2 and 3 of the works approval relating to the construction phase was confirmed on 2 June 2022. Assessment of the compliance documentation noted the following deviations from the original designs:

The environmental compliance report showed a change to design, where no water sprays were installed to service ore stockpiles. Instead, a high-capacity water truck will be in permanent attendance and be used to apply dust suppression, as required. The change was considered minor and deemed to not have any noticeable impact to the risk of discharges of dust from the stockpiles as using water trucks is an industry standard.

2.3 Part IV of the EP Act

The RNO 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 509 was for the mining and processing of up to 4 million tonnes per annum of nickel ore from Bandalup Hill, 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 operated the RNO project up until 2009. In February 2010, FQM Australia Nickel Pty Ltd acquired the RNO project 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 regulatory conditions relevant to this licence amendment through the inclusion of the Shoemaker-Levy ore body operations.

Conditions of MS 633 include the following:

- Surface Water Management and monitoring plan;
- Groundwater Management and monitoring plan;
- Dust Management Plan;
- Waste Management and Waste Minimisation Plan;
- Environmental Management Plan;
- Demonstrated compliance with all the plans;
- Facilitate stakeholder groups such as the Ravensthorpe Nickel Project Community Liaison Committee and the Jerdacuttup RNO Working Group;
- Maintain a community complaints register; and
- Demonstrate compliance to MS 633 conditions.

2.4 Consolidation of Licence

As part of this amendment package, the department has consolidated the licence by incorporating changes made under the Amendment Notices as summarised in Table 2.

Table 2: Licences consolidated in this amendment

| Instrument | Issued | Summary of approval |
|--------------|------------|---|
| L8008/2004/1 | 14/05/2005 | Licence granted |
| L8008/2004/3 | 26/04/2016 | Notice of Amendment of Licence Expiry Dates |
| L8008/2004/3 | 03/02/2017 | Amendment Notice 1 to change the date of completion for Improvement program IR1 from 31 December 2016 to 30 June 2018. |
| L8008/2004/3 | 27/09/2019 | Amendment Notice 2 to include controlled surface water discharge points, TSF1B lift and modification to groundwater monitoring bores BH08-08 and BH08-16. |

The obligations of the Licence Holder have not changed in consolidating the licence. The department has not undertaken any additional risk assessment of the Premises related to previous Amendment Notices.

In consolidating the licence, the CEO has:

- updated the format and appearance of the Licence;
- revised licence condition's numbers, and removed any redundant conditions and realigned condition numbers for numerical consistency; and
- corrected clerical mistakes and unintentional errors.

The full consolidation of licence conditions as they relate to this Revised Licence are detailed in Section 5.1. Previously issued Amendment Notices will remain on the department's website for future reference and will act as a record of the department's decision making.

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 *Guidance Statement: Risk Assessments* (DER 2017).

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 operations were assessed in W6303/2019/1 and detailed in Table 3 below. Table 3 also details the control measures the Licence Holder shall implement to assist in controlling these emissions, where necessary.

Table 3: Licence Holder controls

| Emission | Sources | Potential pathways | Proposed controls |
|----------|--|-----------------------|--|
| Dust | Operation of crushing facility Operation of overland conveyor | Air/windborne pathway | Managed under Part IV Ministerial Statement MS633 – Commitment 27 and 28, Dust Management Plan (DMP). Potential dust emissions from stockpiles will be contained through the use of a dedicated water truck. |

| Emission | Sources | Potential pathways | Proposed controls |
|--|---|---|--|
| | ROM mine stockpiles | | 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 . |
| Noise | Operation of crushing facility Operation of overland conveyor ROM mine stockpiles | Air/windborne pathway | Noise will be managed to comply with Part 7 of the Mines Safety and Inspection Regulations 1995 (i.e. a peak noise limit of 140 dB(lin) and 8 hour noise exposure of 85 dB(A)) as required by DMIRS. 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 LA1 and LA10. |
| Stormwater containing hydrocarbons by spills and leaks, and sediment from earth moving activities. | Bulk fuel facility Washdown facility Workshop facility | Soils and vegetation at site of spill and along flow path of contaminated stormwater. | Managed under Part IV Ministerial Statement MS633 – Commitment 7, Surface Water Management and Monitoring Plan (SWMMP). All fuel tanks will be self-bunded and designed to meet AS1940:2016 and shall hold a dangerous goods authorisation. 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. |
| Saline water | Saline water pipeline | Soils and vegetation at site of spill and along flow path of saline water. | Managed under Part IV Ministerial Statement MS633 – Commitment 7, Surface Water Management and Monitoring Plan (SWMMP). The saline water pipeline is fitted with flow detection devices as well as alarm triggers if flow pressure drops. Spills will be contained in V drains and roadside bunds and cleaned-up immediately. An incident reporting system is in place to identify recurring issues with pipeline integrity. |

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors, and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies provided for under state legislation.

Table 4 below provides a summary of potential human and environmental receptors that may be impacted because of activities upon or emission and discharges from the prescribed premises (*Guidance Statement: Environmental Siting* (DER 2016)).

Table 4: Sensitive human and environmental receptors and distance from prescribed activity

| Human receptors | Distance from prescribed activity |
|---|---|
| Residential Premises | Located greater than 5.8km south-west of crusher location. |
| Environmental receptors | Distance from prescribed activity |
| Threatened Ecological Communities and Priority Ecological Communities | Priority 3 proteaceae-dominated Kwongkan shrub land is located within the premises boundary. |
| Groundwater | Exploratory drilling program at Shoemaker Levy mine encountered groundwater at approximately 100m below ground level. |
| Bandalup Creek | Located 8km south-west of RNO project site |
| Jerdacuttup River | <p>Located ~ 30km south-east of RNO project site.</p> <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 Japan-Australia Migratory Bird Agreement treaty.</p> |
| Biological Component | Distance from prescribed activity |
| Threatened/Priority Flora | <ul style="list-style-type: none"> • <i>Kunzea similis</i> - this species is known to occur in two major 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 Biodiversity Conservation Act 2016 (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 | <p>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 operating footprint:</p> <ul style="list-style-type: none"> • Mallee-fowl – (Schedule 1) • Carnaby’s black 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) |

3.2 Risk ratings

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

All assessment of risk from activities on site were undertaken in W6303/2019/1.

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

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 5.

The Revised Licence L8008/2004/3 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Category 5, 31, 52 and 54 activities.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 5. Risk assessment of potential emissions and discharges from the Premises during operation

| Risk Event | | | | | Risk rating ¹ C = consequence L = likelihood | Licence Holder's controls sufficient? | Conditions ² of licence | Justification for additional regulatory controls |
|--|---|--|--|---------------------------|--|---------------------------------------|---|--|
| Source/Activities | Potential emission | Potential pathways and impact | Receptors | Licence Holder's controls | | | | |
| Operation | | | | | | | | |
| Operation of crushing facility; Operation of overland conveyor; and ROM mine stockpiles. | Dust | Air/windborne pathway causing impacts to health and amenity | Resident greater than 5.8km from crusher Flora and Fauna in mine boundary | Refer to Section 3.1.1 | No human receptors Flora and Fauna management controlled by MS633 conditions. | Yes | Conditions 2.4.2 and 2.4.3 | Not required. |
| | Noise | | Resident greater than 5.8km from crusher | | No human receptors Mine site noise will be managed by DMIRS approval under the provisions of Mining Act. | | N/A | |
| Bulk fuel facility; Washdown facility; and Workshop facility. | Sediment and hydrocarbon laden stormwater | Overland runoff potentially causing ecosystem disturbance or impacting surface water quality | Seasonal minor creeks 8km from operations Threatened flora and fauna within mine boundary | | Surface water managed under Part IV Ministerial Statement MS633 – Commitment 7, <i>Surface Water Management and Monitoring Plan</i> (SWMMP). | | Include new containment facilities into Table 1.3.1 (Condition 1.3.2) | |

| Risk Event | | | | | Risk rating ¹ C = consequence L = likelihood | Licence Holder's controls sufficient? | Conditions ² of licence | Justification for additional regulatory controls |
|-----------------------|--------------------|--|--|---------------------------|---|---------------------------------------|---|--|
| Source/Activities | Potential emission | Potential pathways and impact | Receptors | Licence Holder's controls | | | | |
| Saline water pipeline | Saline water | Overland runoff potentially causing ecosystem disturbance or impacting surface water quality | Seasonal minor creeks 8km from operations Threatened fauna in mine boundary | Refer to Section 3.1.1 | Surface water managed under Part IV Ministerial Statement MS633 – Commitment 7, Surface Water Management and Monitoring Plan (SWMMP). <u>No overall risk</u> | Yes | Include new containment facility into Table 1.3.1 (Condition 1.3.2) Include seawater pipeline to Table 1.3.2 “visual inspection of pipeline integrity – daily” (Condition 1.3.4) | Not required. |

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

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

4. Consultation

Table 6 provides a summary of the consultation undertaken by the department.

Table 6: Consultation

| Consultation method | Comments received | Department response |
|---|------------------------------|---------------------|
| Local Government Authority (Shire of Ravensthorpe) advised of proposal 7/07/2022 | No comments received | N/A |
| Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal 7/07/2022 | | |
| Department of Jobs, Tourism, Science and innovation (JTSl) advised of proposal 7/07/2022 | | |
| Licence Holder was provided with draft amendment on 2/09/2022 | Commends received 21/09/2022 | See Appendix 1 |

5. Conclusion

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

5.1 Summary of amendments

Table 7 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 7: Summary of licence amendments

| Condition no. | Proposed amendments |
|-------------------------------|--|
| Front page of licence | Increase in throughput from 13,900,000 tonnes per annual period to 21,500,000 tonnes per annual period on the front page of the licence. |
| Condition 1.3.2 - Table 1.3.1 | Inclusion of Shoemakers-Levy mine infrastructure to the list of containment infrastructure to be maintained. Update the Map Reference to reflect the change of Schedule 1 maps 2a and 2b. |
| Condition 1.3.4 Table 1.3.2 | Include Seawater pipelines as infrastructure to be inspected. |

| | |
|--------------------------|---|
| 2.4.2 | Include condition to ensure a high-capacity water truck is available at all times to limit fugitive dust emissions from the Shoemakers-Levy stockpiles. |
| 2.4.3 | Include condition to ensure the dust suppression water sprays at the Shoemakers-Levy primary crusher are maintained and operated to minimise fugitive dust. |
| Schedule 1: Figure 1 | Replaced to include the Shoemaker-Levy operations. |
| Schedule 1: Figure 2a | Replaces Figure 2 |
| Schedule 1: Figure 2b | Included to show major infrastructure at the Shoemakers-Levy mine site. |

Table 8: Consolidation of licence conditions in this amendment

| Existing condition | Condition summary | Revised licence condition | Conversion notes |
|--------------------|--|---|---|
| N/A | Introduction, Instrument Log and Severance removed | N/A | Instrument Log moved to Licence History. |
| N/A | Inclusion of Amalgamation information and Interpretation | N/A | N/A |
| 1.1.2 | Interpretation and definitions | Interpretation section updated to reflect current policy. | Definition "Licensee" replaced throughout document with "Licence Holder". |
| Table 1.3.1 | Containment infrastructure table | Inclusion of "Limonite Pond" into approved containment infrastructure list. | N/A |
| Table 1.3.2 | Inspection of infrastructure requirements table | Include details for "Limonite Pond" into inspection regime; and Change frequency of inspection to reflect any potential care and maintenance status. | N/A |
| Table 3.2.1 | Point source air emissions monitoring table | Include in the frequency to require monitoring only during operations. | N/A |
| Table 3.3.1 | Land emissions monitoring table | Include in the frequency to require monitoring only during operations. | N/A |
| Table 3.4.1 | Process monitoring table | Include in the frequency to require monitoring only during operations. | N/A |
| Table 3.5.1 | Ambient air monitoring table | Include in the averaging period monitoring dates for both operations and care and maintenance. | N/A |

| Existing condition | Condition summary | Revised licence condition | Conversion notes |
|--------------------|---|---|---|
| Table 3.5.2 | Ambient groundwater monitoring table | Include bores associated with the Limonite Pond into monitoring regime. | N/A |
| 4.1.2 | Annual Audit Compliance Report | Include a 60-day limit for the submission of an Annual Audit Compliance Report. | Forms accessed at www.dwer.wa.gov.au |
| Table 4.2.1 | Annual Environmental Report table | Include in the parameter to require monitoring only during operations. | N/A |
| Table 4.3.1 | Notification requirements table | Include in the Notification requirement to require monitoring only during operations. | N/A |
| Amendment Notice 2 | Licence Holder to submit to DWER, a report in relation to 'Mine Drainage – North' before 31 March 2020. | N/A | Condition was not added to the licence amendment as the report has been received by DWER. |

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. Licence L8008/2004/3, *FQM Australia Nickel Pty Ltd*, DWER issued 1 September 2016.
5. Works Approval W6303/2019/1, *FQM Australia Nickel Pty Ltd*, DWER issued 19 August 2019.
6. Environmental Protection Authority (EPA) April 2003, Section 46 Report and Recommendation Bulletin 1093, *Ravensthorpe Nickel Operations Pty Ltd*, Perth, WA.
7. Minister for Environment 5 September 2003, Statement number 633, Statement to Amend Conditions, *Ravensthorpe Nickel Project, Bandalup Hill Shire of Ravensthorpe*, Perth Western Australia.

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

| Condition | Summary of Licence Holder's comment | Department's response |
|-----------------|--|-----------------------|
| Premises detail | A number of tenements included to the licence to include the Shoemaker-Levy mine site. | Changes made |
| Schedule 1 Maps | Maps 2a and 2b were replaced with more up to date maps and map 2c was included. | Changes made |
| Table 1.3.2 | A number of changes were made to specific containment infrastructure to reflect the changing operational use of each pond. | Changes made |
| | Construction information was provided for ponds to ensure they meet required seepage rates. | Changes made |