Government of Western Australia
Department of Water and Environmental Regulation

# Amendment Notice 3

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|---|---|
| **Licence Number** | L8578/2011/1 |
| **Licence Holder** | Regis Resources Ltd |
| **ACN** | 28 009 174 761 |
| **File Number:** | 2011/003002-1 |
| **Premises** | Garden Well<br><br>M38/343, M38/250, M38/237, M38/352, M38/1249, M38/1250, M38/1257, M38/283, M38/1251, M38/292, M38/630, M38/114, M38/341, L38/201, L38/202, L38/203, L38/204, L38/212, L38/219, M38/1262, M38/1263<br><br>Bandya WA 6440 |
| **Date of Amendment** | 28/3/19 |

**Amendment**

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act) as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Tim Gentle
Digitally signed by Tim Gentle
Date: 2019.03.28 12:11:15 +08'00'

**Tim Gentle**

**Manager - Resource Industries**

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

# Definitions and interpretation

## Definitions

In this Amendment Notice, 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 |
| Amendment Notice | refers to this document |
| AS 4156.6 – 2000 | Australian Standard AS 4156.6 – 2000: Determination of Dust/moisture Relationship for Coal. |
| Category/ Categories/ Cat. | categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations |
| CEO | means Chief Executive Officer.<br>CEO for the purposes of notification means:<br>Director General<br>Department Administering the *Environmental Protection Act 1986*<br>Locked Bag 10<br>Joondalup DC WA 6919<br>info@dwer.wa.gov.au |
| CS Act | *Contaminated Sites Act 2003* (WA) |
| Delegated Officer | an officer under section 20 of the EP Act |
| Department | means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act. |
| DWER | Department of Water and Environmental Regulation |
| EPA | Environmental Protection Authority |
| EP Act | *Environmental Protection Act 1986* (WA) |
| EP Regulations | *Environmental Protection Regulations 1987* (WA) |

| | |
|---|---|
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* (Cth) |
| 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 |
| kL | Kilolitre |
| Licence Holder | Regis Resources |
| $m^3$ | cubic metres |
| Minister | the Minister responsible for the EP Act and associated regulations |
| MS | Ministerial Statement |
| NEPM | National Environmental Protection Measure |
| Noise Regulations | *Environmental Protection (Noise) Regulations 1997* (WA) |
| 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 *Guidance Statement: Risk Assessment* |
| UDR | *Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA) |
| $\mu g/m^3$ | micrograms per cubic metre |
| µg/L | micrograms per litre |

# Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited only to an amendment for Category 5, Category 52 and Category 54.

The following guidance statements have informed the decision made on this amendment:

- *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 Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016).*

## Amendment description

The amendment application relates to three aspects as follows:

- Construction of a new Tailings Storage Facility (TSF3) at the Tooheys Well Project. It will be constructed 3km south east of the Garden Well open pit and immediately east of Tooheys Well pit.
- Increase in diesel powered generators for Garden Well and Rosemont projects.
- Upgrade to the Garden Well accommodation village Waste Water Treatment Plant (WWTP). The maximum occupancy of the accommodation camp is expected to increase from 400 to 600 people per day within 12 months. The original design for the existing series of oxidation ponds will be replicated, two new cells will be installed and the evaporation basin will be increased by 1ha. The calculated increase in plant capacity of 99.8 kL per day provided by the applicant is based on a conservative usage rate of 350 Litres per person per day. Calculated increases in emissions of nitrogen from 185.3 kg/ha/year to 277.9 kg/ha/year and phosphorus 56.7 kg/ha/year to 84.7 kg/ha/year provided by the applicant are based on 2017 AER figures for the Garden Well WWTP and the increase in maximum occupancy from 400 to 600 people per day.
- Add tenement M38/1277 and remove L38/212 and L38/219.
- Remove 7 monitoring bore locations around TSF1; and
- Add 5 monitoring bore locations around TS3.

The location of the TSF3 and the 5 bores to be added is shown in Figure 1. The location of the generators in shown in Figure 2 and the upgrade to the WWTP is shown in Figure 3. The 7 bores to be removed are shown in Figure 4.

Table 2 below outlines the proposed changes to the Licence.

**Table 2: Proposed design or throughput capacity changes**

| Category | Current design or throughput capacity | Proposed design or throughput capacity | Description of proposed amendment |
|---|---|---|---|
| 5 | 42 Mt of tailings | 7 Mtpa | The TSF3 will contain processed tailings from various open pits at Garden Well, Tooheys Well, Erlistoun, Baneygo and Rosemont. The development of the TSF3 will provide continued tailing storage when the existing TSF1 and TSF2 have reached capacity<br>Monitoring bore locations to be removed are as follows:<br>• RRLGDTSFMB1A<br>• RRLGDTSFMB8<br>• RRLGDTSFMB9<br>• RRLGDPB025(57)<br>• RRLGDPB026<br>• RRLGDPB027<br>• RRLGDTSFMB021S/D<br>Monitoring bore locations to be added are as follows:<br>• RRLTWPB006<br>• RRLTWPB007<br>• RRLTWPB008<br>• RRLTWPB009<br>• RRLTWPB010 |
| 52 | 16MW | 8MW | Increase in from 16MW to 24MW diesel powered generators |
| 54 | 198 $m^2$ | Up to 198 $m^2$ per day | The proposed WWTP system was sized to handle effluent from a maximum of 285 extra staff and will treat an additional 99.8 kL per day |

The Applicant's justification for removing the seven monitoring bores is outlined in Table 3.

**Table 3: Applicant's justification for removing monitoring bores**

| Bore number | Justification |
|---|---|
| RRLGDTSFMB1A | Only equipped to monitor standing water level and is close to other monitoring locations |
| RRLGDTSFMB8 | Single level monitoring facilities that are also close to other monitoring locations |
| RRLGDTSFMB9 | |
| RRLGDP025(57) | These are all active production bores that are also monitored as part of the water abstraction Licence monitoring regime albeit at different frequencies |
| RRLGDPB026 | |
| RRLGDPB027 | |
| RRLGDTSFMB021S/D | This bore is a significant distance from TSF2 and relatively close to the open pit. This proximity to the pit has dewatered the bore and hence this bore cannot be sampled |

## Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 4.

**Table 4: Relevant approvals**

| Legislation | Number | Approval |
|---|---|---|
| Environmental Protection Act 1986 S51E | Clearing Permit 6657/6 | Clearing of 311 ha for TSF3 and 1.1 ha for WWTP upgrade<br>Approval ID 36941 |

The Licence Holder applied to the Shire of Laverton and the Department of Health to increase the size of the WWTP on 20 July 2018. Correspondence from the Applicant on 22 February 2019 indicated that further engineering design work is being undertaken as per request from the Department of Health.

## Amendment history

Table 5 provides the amendment history for L8578/2011/1.

**Table 5: Licence amendments**

| Instrument | Issued | Amendment |
|---|---|---|
| L8578/2011/1 | 17/2/12 | Licence issued for Category 6 |
| L8578/2011/1 | 17/8/12 | (Category 5) Beneficiation of ore<br>(Category 52) Electric power generation<br>(Category 64) Class II and III landfill<br>(Category 72) Bulk storage of chemicals<br>(Category 85) Wastewater Treatment Plant |

| | | |
|---|---|---|
| L8578/2011/1 | 19/12/13 | Licensing of the Rosemont Gold Processing Facility<br>Increases in throughput for existing prescribed activities- Categories 5, 52, 64 and 73<br>The requirement for Regis to submit a ground water recovery and seepage management plan for the Garden Well tailings storage facility |
| L8578/2011/1 | 3/4/2014 | Addition of a Category 54 Sewage Facility to supersede Category 85<br>Amend the date of condition 18 from 31 March 2014 until 31 August 2014<br>Increase the capacity from 5,500,000 to 8,000,000 tonnes per annual period of the processing facilities |
| L8575/2011/1 | 22/5/2014 | Licence amendment to increase processing plant throughput and conversion to current format |
| L8575/2011/1 | 6/11/14 | Licence amendment to remove conditions 1.3.10 to 1.3.14 |
| L8575/2011/1 | 4/2/14 | Licence amendment to include Type 2 inert waste |
| L8578/2011/1 | 19/12/2016 | Construction of Tailings Storage Facility 2 (TSF2). |
| L8578/2011/1 | 10/2/2017 | Three additional lifts for Tailings Storage Facility 1 (TSF1) |
| L8578/2011/1 | 27/8/18 | This amendment |

## Location and receptors

Table 6 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 6: Receptors and distance from activity boundary**

| Residential and sensitive premises | Distance from Prescribed Premises |
|---|---|
| Mulga Queen Community | 85km |
| Laverton townsite | 80km |
| Lake Carey | 107 km |

Groundwater salinity at the project site ranges from potable (approximately 1000 mg/L TDS) to brackish at 11,000 mg/L TDS. Groundwater in the area is used for domestic and stock purposes by pastoral properties and the nearest pastoral bore is approximately 3.5km east north east of the process plant area and 5km north east of TSF3. Groundwater studies have shown that the direction of groundwater flow is away from the bores.

There is no permanent surface water within or near the Garden Well site. A number of drainage lines occur at the site however these are shallow and ephemeral in nature.

Garden Well is located within the Lake Carey Groundwater Management Unit. Lake Carey is a major salt lake and the terminus of the Carey paleodrainage (groundwater system). It is an important breeding site for water birds at the time of flooding. It is also a habitat for aquatic invertebrate species. However Lake Carey is located 107 km away from the project.

The vegetation within the project area has been previously disturbed by grazing and mining exploration. Results of a 2012 Level 2 flora survey showed there were no Threatened Ecological Communities (TEC) or Declared Rare Flora (DRF) species within the project area. A Level 2

fauna risk assessment was also undertaken in the project area and no fauna of conservation significance were identified.

## Risk assessment

Tables 7 and 8 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

**Table 7: Risk assessment for proposed amendments during construction**

| Risk Event | | | | | Consequence rating | Likelihood rating | Risk | Reasoning |
|---|---|---|---|---|---|---|---|---|
| **Source/Activities** | **Potential emissions** | **Potential receptors** | **Potential pathway** | **Potential adverse impacts** | | | | |
| ***Cat 5*** *Processing or beneficiation of metallic or non-metallic ore* | **Dust**: associated with construction of TSF2 | **Nearby residents:** Garden Well project is isolated with the closest community being the Mulga Queen Community, located 85km north of the project | **Air:** Particulate matter (fugitive dust) | Amenity impacts | N/A | N/A | N/A | No credible risk due to the distance to the nearest sensitive receptor. |
| | ***Noise:*** associated with construction of TSF2 | | **Air:** noise generated by the operation of equipment during construction | Amenity impacts | N/A | N/A | N/A | No credible risk due to the distance to the nearest sensitive receptor. |

**Table 8: Risk assessment for proposed amendments during operation**

| Risk Event | | | | | Consequence rating | Likelihood rating | Risk | Reasoning |
|---|---|---|---|---|---|---|---|---|
| **Source/Activities** | **Potential emissions** | **Potential receptors** | **Potential pathway** | **Potential adverse impacts** | | | | |
| **Category 5** Processing or beneficiation of metallic or non-metallic ore | **Dust:** associated with operational activities | **Nearby residents:** Garden Well Gold Project is isolated with the closest community being the Mulga Queen Community located 85km north of the project. | **Air:** Particulate matter (fugitive dust) | *Amenity impacts* | N/A | N/A | N/A | No credible risk due to the distance to the nearest sensitive receptor. |
| | **Noise:** associated with operational activities | | **Air:** Noise *generated by the operation of equipment during construction* | Amenity impacts | N/A | N/A | N/A | No credible risk due to the distance to the nearest sensitive receptor. |
| | **Waste:** leachate from TSF seepage | **See Risk to groundwater section below** | | | | | | |
| | **Waste:** Discharge of tailings to the tailings storage facility | Birds or bats | Birds or bats drinking the decant water | Cyanide poisoning | Major | Possible | High | Because the groundwater and tailings are of relatively low salinity the shallow water in the decant pond is likely to be attractive to birds (or bats at night) with consequent risk of wildlife poisoning. Research has indicated that gold processing tailings with residual WAD-CN in solution above 50 mg/L with a salinity of less than 50,000 present a risk to |

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|---|---|---|---|---|---|---|---|---|
| | | | | | | | | wildlife health [1].<br><br>Further research by Donato *et a*l has shown that, in the absence of systematic surveys by appropriately trained personnel, bird deaths from cyanide poisoning may occur at gold mines without mine personnel being aware of it [2].<br><br>Poisoning of birds or bats which come into contact with the water in the TSF decant pond has therefore been identified as a risk requiring management controls. This issue will be addressed in a separate amendment. |

[1] Adams MD, 2008, *Cyanide ecotoxicity at hypersaline gold operations*, MERIWA report no273, Volume I – Phase I (Preliminary Investigation), Volume II– Phase II (Definitive Investigation), Volume III – Appendices to Phase II, August (Minerals and Energy Research Institute of Western Australia: Perth)

[2] Donato D and Overdevest ND, 2016, *Approaches to Cyanide Code Compliance for Tailings Storage Facilities,* Chapter 13 in Adams MD (Editor) *Gold Ore Processing – Project Development and Operations* 2nd edition*,* Elsevier Science.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Waste:** Overtopping of tailings due to heavy rainfall resulting in decant water outside of containment infrastructure | Terrestrial ecosystems- surrounding soils, vegetation and surface water | Land and water | Contamination of surrounding soils with metals, dissolved solids and cyanide affecting soil and groundwater quality and causing vegetation stress or death | Major | Possible | High | TSF3 has been designed as follows:<br>• Staged construction is in a downstream direction which means the construction of future embankment raises does not rely on the strength of deposited tailings and as such the rate of rise and strength of tailings will not impact on construction<br>• Tailings in the form of slurry will be discharged sub aerially and cyclically into the facility in thin discrete layers not exceeding 300mm thickness to allow the tailings to gain optimum densities (by subjecting each layer to a drying cycle) hence maximize storage capacity. Deposition will take place via multiple spigots located on the upstream edge of the crest of the perimeter embankment<br>• Spigotting/tailings |

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|---|---|---|---|---|---|---|---|---|
| | | | | | | | | deposition is to be carried out such that the tailings beach should be formed and the supernatant water pond is maintained around the decant facility. The pond is to be maintained as far as practically possible away from the perimeter embankment at all times<br>• Water (comprising supernatant water and incident rainfall) from the facility will be removed via a pump deployed within a central decant rock ring and pumped back to the process plant.<br>• Water recovered via the upstream under-drainage and downstream seepage collection systems will be pumped onto the tailings beach and report to the decant area.<br>• The tailings storage area will assume the form of a depressed cone in the top surface (due to the |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | development of a sloped tailings beach). The facility will have the capacity to store a considerable volume of water during a storm event of 1:100 ARI, 72 hour duration whilst maintaining required total freeboard of 500mm<br>• Operational, safety and environmental aspects of TSF3 will be periodically reviewed during an annual audit commissioned by Regis conducted by a suitably experienced and qualified engineer. This audit will be performed at least every year<br><br>Based on the Licence Holder controls, the Delegated Officer considers that the consequence would be **moderate** and the likelihood is **rare**. Therefore the risk rating for seepage is **medium.**<br>Existing Condition 1.2.9 requires that a minimum embankment |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | freeboard of 300mm is maintained. Inspections relating to TSF infrastructure are required every 12 hours.<br><br>The Delegated Officer considers that existing conditions in the Licence ensure the operation of TSF3 is managed appropriately so as to avoid overtopping. |
| | **Leakage of pipes** | Ground in vicinity of the pipe | Spill onto ground | Contamination of soil Vegetation damage | Moderate | Rare | Medium | Existing Condition 1.2.11 states that all pipelines are to be inspected twice daily |
| **Category 54** Waste Water Treatment Facility | **Odour:** Associated with effluent treatment and disposal | No residences or other sensitive receptors in proximity | Air/wind dispersion | Amenity | N/A | N/A | N/A | No credible risk |
| | **Sewage:** Rupture of pipes/ overtopping of holding tanks<br>Irrigation of poorly treated effluent | Soil and vegetation adjacent to discharge area | Direct discharge | Soil contamination causing poor native vegetation health or death; vigorous weed growth | Slight | Unlikely/Rare | Low | Vegetation has been disturbed by mining exploration activities and damage from cattle |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Irrigation of treated effluent | Groundwater | soil to groundwater | Groundwater contamination with nutrients | Moderate | Possible | Medium | Nutrient rich wastewater discharged to land through waterlogging/ soil eutrophication causing impacts to soil and groundwater. The Licence indicates that the WWTP produces C Class effluent as determined by the Department of Water Water Quality Protection Note 22. |
| | Leachate from irrigated effluent discharge | Groundwater | Soil to groundwater | Groundwater contamination with nutrients | | | | |

## Risk to groundwater from TSF seepage

The applicant has reported that leach testing showed neutral to slightly alkaline (pH 7.3- 8.6) solutions with generally low trace metal concentrations commonly below detection limits.

Groundwater in the vicinity of the project is in a shallow semi-confined aquifer with natural depths of less than 6 metres below ground level (mbgl) in some areas. Salinity ranges from potable at 1000 mg/L total dissolved solids (TDS) to brackish at 11000 mg/L TDS. Groundwater in the area is used for domestic and stock purposes by pastoral properties. The nearest pastoral bore is located approximately 5km north east of TSF3.

While there is negligible risk that contamination from the TSF could reach the existing pastoral bores, for the purposes of this risk assessment, the groundwater itself is considered a sensitive receptor as it constitutes a resource suitable for future use. It should therefore be protected from contamination.

The Delegated Officer considers the likelihood of leachate from TSF seepage causing groundwater contamination to be **Possible** (could occur at some time) with consequence rated at **Moderate** (mid-level onsite impacts, local scale low level offsite impacts). The overall risk of impacts to groundwater from TSF seepage has therefore been assessed as **Medium**.

## Applicant controls

Seepage from TS3 will be managed by the following measures:

- Design criteria includes an upstream underdrainage system to mitigate basal seepage and lower the phreatic surface and a downstream underdrainage system to further mitigate seepage
- The upstream underdrainage piping system around the perimeter embankment upstream toe includes a central underdrainage piping network around the decant rock ring to minimize basal seepage beneath the decant pond
- A cut-off trench with a 4m wide base will be excavated below the perimeter embankment and backfilled with compacted clayey mine waste to reduce horizontal seepage losses
- Interception drainage pipes which will be placed in trenches with geotextile placed at the surrounding interfaces and backfilled with aggregate
- Five monitoring bores will be installed around the facility which can also serve as recovery bores if it becomes necessary to control seepage water. Two of the bores constructed for TSF2 will also be used to monitor TSF3
- Decant water is continually removed.

The seepage collection system will comprise interception drainage pipes connected to a collector pipe. The drainage pipes will be placed within trenches with geotextile (Bidim A34 or approved equivalent) placed at the surrounding interfaces and backfilled with aggregate. Seepage collected will drain by means of gravity to a pumped collection sump. Geotextile will also be used in the underdrainage network, sump and interception trench.

The minimum designated fall of the pipe is 0.5%. The collection sump will be located through the lowest bench of the downstream Zone B embankment at the northwest side of the facility (closest point to Mistake Creek).

The recovered seepage water will either be pumped onto the adjacent tailings beach, and report to the decant system.

Quarterly groundwater monitoring is required in the Licence and this monitoring will indicate whether seepage and groundwater contamination is occurring.

## Decision

The construction of TSF3 is approved. Applicant controls have been conditioned in this amendment. The Licence currently specifies inspections of TSF infrastructure once operational.

Approval of operation of TSF3 will be contingent on a successful submission of construction compliance documents.

The increase in power generation capacity from 16MW to 24 MW is approved. The applicant will be required to submit a compliance document stating that the generators have been installed in accordance with the Manufacturer's specifications. This amendment includes new conditions for emissions testing for the new generators and amended conditions for emissions testing of the existing generators.

The upgrade to the Garden Well accommodation village Waste Water Treatment Plant (WWTP) is approved. The Delegated Officer has included new conditions for an effluent quality monitoring point prior to discharge into the oxidation ponds and prior to discharge to land.

The addition of tenement M38/1277 and removal of L38/212 and L38/219 has been included in this amendment.

The installation of 5 new monitoring bores and removal of 7 monitoring bores is approved. The Delegated Officer has included a new condition for the installation and maintenance of the new bores and amended conditions for the inclusion of the new bores in the monitoring of ambient groundwater quality.

DWER has identified potential cyanide poisoning of birds or bats which come into contact with the TSF decant pond as a site-wide risk requiring management controls. This issue will be addressed in a separate amendment.

## Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 27 February 2019. Comments received from the Licence Holder have been considered by the Delegated Officer as shown in Appendix 2.

## Amendment

1. The Premises address is amended by the deletion of ~~L38/212 and L38/219~~ and the insertion of M38/1277.

2. Condition 1.2.14 is to be amended by the deletion of ~~TSF2~~ and the insertion of TSF3.

3. Condition 1.2.17 is to be amended by the deletion of ~~TSF2~~ and the insertion of TSF3.

4. Condition 1.2.19 is to be amended by the deletion of ~~TSF2~~ and the insertion of TSF3.

5. Condition 3.2.1 is to be amended by the insertion of the red text shown in underline below:

| Table 3.2.1 Monitoring of water quality prior to discharge into oxidation ponds and emissions to land | | | |
|---|---|---|---|
| **Emission point reference** | **Parameter** | **Units** | **Frequency** |
| L1 Monitoring point prior to discharge into oxidation ponds<br>L2 Monitoring point prior to discharge to land | Biological Oxygen demand<br>Total Suspended solids<br>pH<br>Total Nitrogen<br>Total Phosphorus | mg/L | Quarterly |
| | E.coli | Cfu/100ml | |

6. A condition is to be added to the Licence as follows:

3.5 The groundwater monitoring bores must be installed in accordance with section 8.2 of Schedule B2- *Guideline on Site Characterisation of the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (**NEPM**)*

3.5.1 The Licence Holder must ensure that the bores are maintained in serviceable condition and are fit for the purpose of taking samples of groundwater for monitoring purposes.

7. Condition 3.4.1 is to be amended by the addition of the red text shown in underline below:

| Table 3.4.1 Monitoring of ambient groundwater quality | | | | | |
|---|---|---|---|---|---|
| **Monitoring point reference and location** | **Parameter** | **Limit** | **Units** | **Averaging period** | **Frequency** |
| ~~RRLGDTSFMB1A~~<br>RRLGDTSFMB1D<br>RRLGDTSFMB1S<br>~~RRLGDPB025~~<br>RRLGSTSFMB3D<br>RRLGDTSFMB3S<br>RRLGDTSFMB4D<br>RRLGDTSFMB4S | Total cyanide | - | mg/L | Spot sample | Quarterly |
| | WAD cyanide | 0.5 | mgL/ | | |
| | pH | - | | | |
| | Electrical Conductivity | - | mS/m | | |

| Table 3.4.1 Monitoring of ambient groundwater quality | | | | | |
|---|---|---|---|---|---|
| **Monitoring point reference and location** | **Parameter** | **Limit** | **Units** | **Averaging period** | **Frequency** |
| ~~RRLGDPB027~~<br>~~RRLGDPB026~~<br>RRLGDTSFMB7D<br>RRLGDTSFMB7S<br>~~RRLGDTSFMB8~~<br>~~RRLGDTSFMB9~~<br>RRLGDTSFMB20S/D<br>~~RRLGDTSFMB21S/D~~<br>RRLGDTSFMB22S/D<br>RRLGDTSFMB23S/D<br>RRLGDTSFMB24S/D<br>RRLTWPB006<br>RRLTWPB007<br>RRLTWPB008<br>RRLTWPB009<br>RRLTWPB010 | Total dissolved solids<br>As, Sb, Hg, Ni, Fe, Pb, Na, K, Ca, Cd, Mg, Zn, Cu, Tl, Mo, Se, Cr, Co, Mn, U, $NO_3$, $SO_4$, $HCO_3$, $CO_3$, Cl | - | mg/L | | |

9. A condition is to be added to the Licence as follows

1.2.22 TSF3 is to be constructed according to the design and construction requirements specified in Column 3 of Table 1.2.22 below:

## Table 1.2.22: Infrastructure requirements table

| Column 1 | Column 2 | Column 3 |
|---|---|---|
| **Site infrastructure and equipment** | **Location** | **Requirements (design and construction)** |
| Tailings Storage Facility | TSF3 as depicted in map (Schedule 1) | • Facility will be constructed in stages using a downstream construction method<br>• Maintain a 300mm freeboard when operating<br>• Stage 1 embankment crest level will be RL 510m<br>• Stage 2 embankment crest level will be RL 515m<br>• Stage 3 embankment crest level will be RL 520m<br>• The maximum embankment heights of Stages 1 and 3 will be 14m and 24m respectively (on the north-west side)<br>• The seepage collection system will comprise interception drainage pipes connected to a collector pipe. The drainage pipes will be placed within trenches with geotextile (Bidim A34 or approved equivalent) placed at the surrounding interfaces and backfilled with aggregate. Seepage collected will drain by means of gravity to a pumped collection sump. The minimum designated fall of the pipe is 0.5%. The collection sump will be located through the lowest bench of the downstream Zone B embankment at the northwest side of the facility (closest point to Mistake Creek). The recovered seepage water will be pumped onto the adjacent tailings beach and report to the decant system, Geotextile will also be used in the underdrainage network, sump and interception trench.<br>• The perimeter embankment will be constructed using traffic compacted mine waste with a total crest width of 20m. |
| Groundwater monitoring bores | Indicative locations as per Figure 1 | Installation of monitoring bores RRLTWPB006, RRLTWPB007, RRLTWPB008, RRLTWPB009 and RRLTWPB010.<br><br>Removal of monitoring bores RRLGDTSFMB1A, RRLGDTSFMB8, RRLGDTSFMB9, RRLGDPB025(57), RRLGDPB026, RRLGDPB027 and RRLGDTSFMB021S/D. |

| Column 1 | Column 2 | Column 3 |
|---|---|---|
| Site infrastructure and equipment | Location | Requirements (design and construction) |
| Wastewater Treatment Plant<br>Submerged aerated filter wastewater treatment plant as detailed in Schedule , capacity of | Within the area as shown in Figure 3 | • Tanks to be bunded so to contain volume of 110% of the largest tank |
| Effluent discharge pipeline | | • Sample point to be installed on discharge pipeline<br>• A flow meter to be installed on pipeline to allow discharge volumes to be measured |

10. A condition is to be added to the Licence as follows:

1.2.23 The Licensee shall submit a construction compliance document to the CEO following construction of TSF3 and prior to operation.

11. A condition is to be added to the Licence as follows:

1.2.24 Deposition of tailings is not permitted until the CEO has confirmed in writing that TSF3 has been constructed in accordance with the requirements of Condition 1.2.22.

## Appendix 1: Key documents

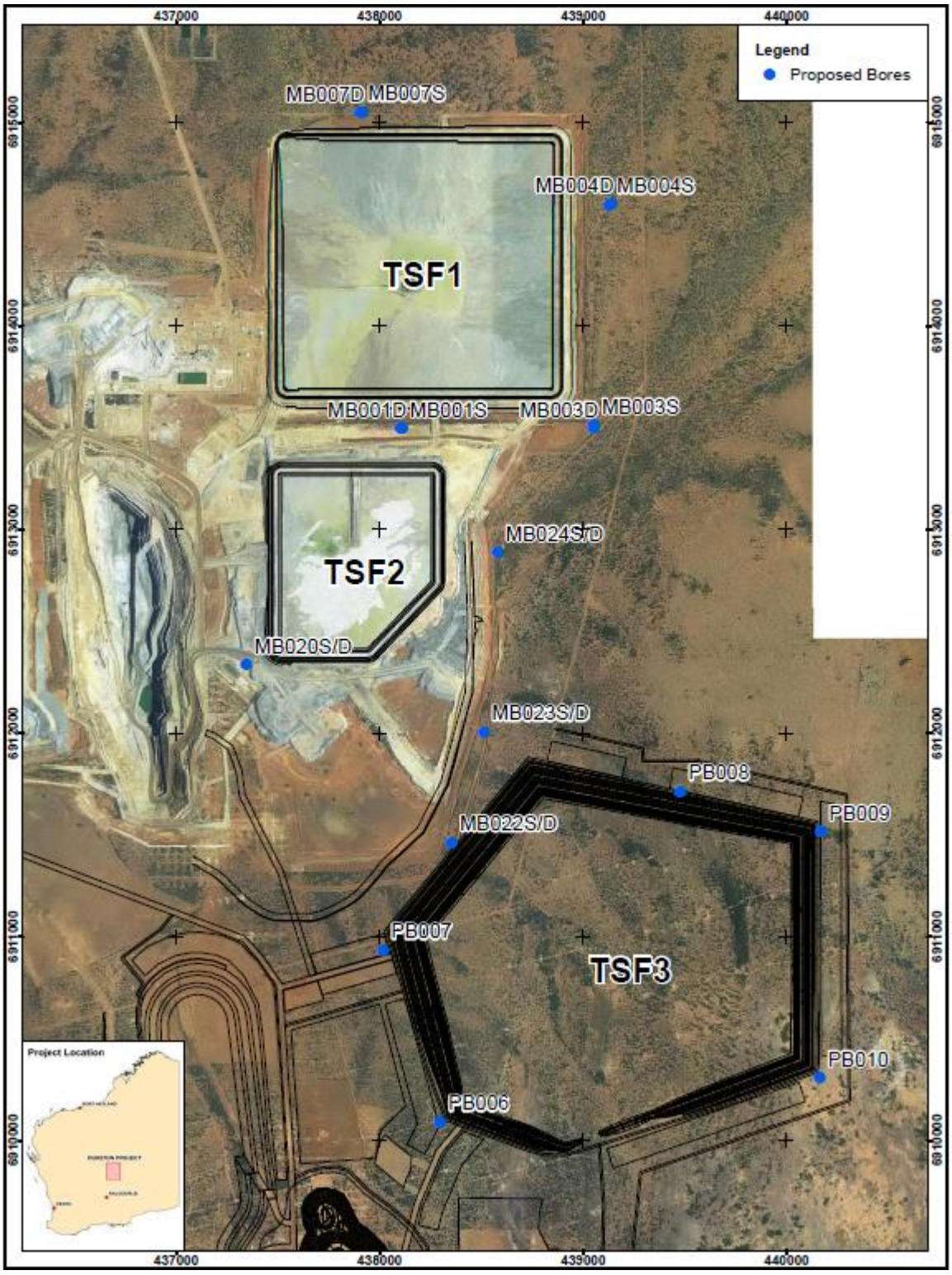
| | Document title | In text ref | Availability |
|---|---|---|---|
| 1 | Licence L8578/2011/1 | L8578/2011/1 | Accessed at www.dwer.wa.gov.au |
| 2 | Licence Amendment Application- Garden Well Regis Resources | | DWER records (A1714231) |
| 3 | TSF3 Design report | | Attachment 8A of Licence Amendment Application (A1714231) |
| 4 | DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth. | | accessed at www.dwer.wa.gov.au |
| 5 | DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth. | | |
| 6 | DER, February 2017. *Guidance Statement: Land Use Planning* Department of Environment Regulation, Perth. | | |
| 7 | DER, February 2017. *Guidance Statement: Decision Making*. Department of Environment Regulation, Perth. | | |
| 8 | DER, February 2017. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth. | | |
| 9 | DER November 2016. Guidance Statement; Environmental Siting. Department of Environmental Regulation, Perth. | | |

## Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 1 March 2019 for review and comment. The Licence Holder responded on 13 March 2019. The following comments were received on the draft Amendment Notice.

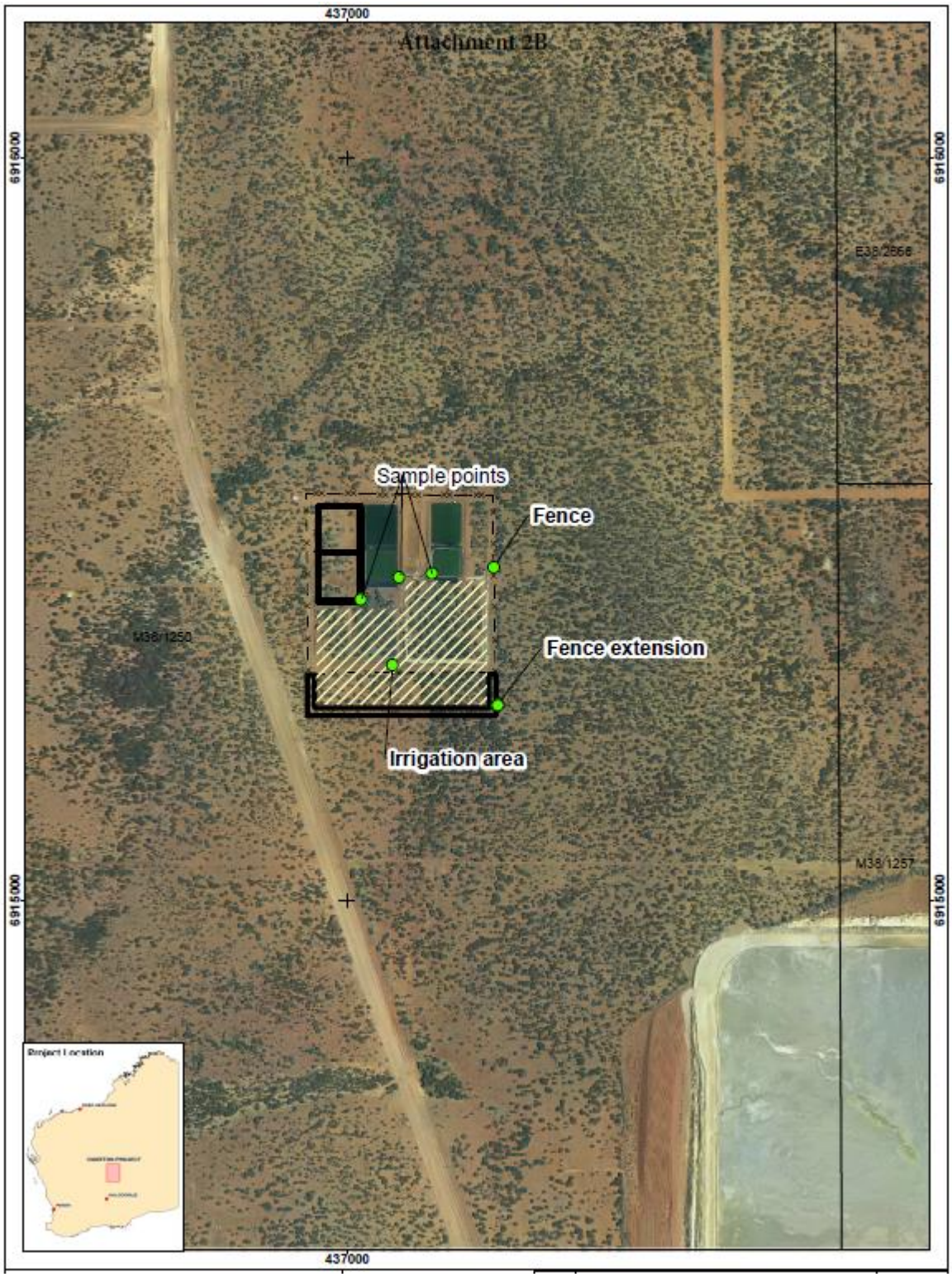
| Condition | Summary of Licence Holder comment | DWER response |
|---|---|---|
| Amendment Description | Correct spelling of TSF 3 on point 6 | Noted and corrected |
| Table 8 | Water recovered via the upstream underdrainage and downstream seepage collection systems will be pumped onto the tailings beach and report to the decant area. | Noted and amended |
| Condition 3.5 (b) | The bores are already constructed and don't have 3m long screens, they have been constructed as seepage recovery bores with slots over their length as per Coffey's recommendations. | Noted and accepted |
| Condition 3.5 (c) | Each bore has been surveyed. | Noted and accepted |

## Figure 1: Location of the new TSF3 and new monitoring bores



## Figure 2: Location of the new generators

## Figure 3: WWTP upgrade



## Figure 4: Location of the monitoring bores to be removed