Government of Western Australia
Department of Environment Regulation

Amendment Notice 2

Licence Number	L8578/2011/1
Licence Holder	Regis Resources Limited
ACN	009 174 761
Registered business address	Level 1, 1 Alvan Street SUBIACO WA 6008
Date of amendment	10 February 2017
Prescribed Premises	5 – Processing or beneficiation of metallic or non-metallic ore; 6 – Mine dewatering; 52 – Electric power generation; 54 – Sewage facility; 64 – Class II putrescible landfill site; and 73 – Bulk storage of chemicals, etc
Premises	Garden Well Gold Project 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, and L38/219 BANDYA WA 6440

Amendment

The Chief Executive Officer (CEO) of the Department of Environment Regulation (DER) has amended the above licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice.

Date signed: 10 February 2017

Tim Gentle

Manager Licensing – Resource Industries

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

Amendment Notice

This notice is issued under 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.

Amendment Description

On 11 November 2016, Regis Resources Limited (Regis) submitted an application to DER for an amendment to the Garden Well Gold Project licence (L8578/2011/1). The licence amendment application relates to three additional lifts for tailings storage facility (TSF) 1. The height of the TSF is currently at Stage 2, with a crest level of RL515.0 m. The three additional lifts will each be of 3 m, with a final crest level of RL524.0 m.

Amendment Notice 1 was issued on 19 December 2016 for TSF2, a new TSF location on the southern waste rock dump. The three additional lifts to TSF1 are designed to accommodate 5 years' production in combination with TSF2.

The lift design has been carried out in accordance with the following guidelines:

- Department of Mines and Petroleum (DMP) (2013), 'Code of practice: tailings storage facilities in Western Australia'; and
- Australian National Committee on Large Dams (ANCOLD)(2012), 'Guidelines on Tailings Dams, Planning, Design, Construction, Operation and Closure'.

Tailings will be deposited sub-aerially and cyclically via multiple spigots located on the perimeter embankment facility. The decant accessway will be centreline raised along with the perimeter embankment. The supernatant water will be pumped back to the process plant for reuse.

Risk Assessment

Tables 1 and 2 below apply a screening level risk assessment for the potential emissions which may arise from the application. The table identifies whether these emissions present a material risk requiring regulatory control.

Note: The geotechnical stability of the tailings storage facility, including risk of tailings wall failure do not form part of the current assessment as these are matters regulated by the Department of Mines and Petroleum under mine safety legislation.

Table 1 – Risk assessment for proposed amendments during construction

Activity	Potential emission	Potential receptors	Potential pathway	Potential impacts	Material risk	Reasoning
Cat 5 Processing or beneficiation of metallic or non-metallic ore	**Dust:** associated with construction activities of TSF2	**Nearby residents:** Garden Well Gold Project is isolated with the closest community being the Mulga Queen Community, located 85 km north of the project.	**Air:** Particulate matter (fugitive dust)	Dust can cause health and amenity impacts to humans.	No	The Delegated Officer considers there is no material risk due to the distance to the nearest sensitive receptor.
	Noise: associated with construction activities of TSF2		**Air:** Noise generated by the operation of equipment during construction	Amenity impacts to nearby noise sensitive receptors	No	The Delegated Officer notes the lack of sensitive receptors and determines that there is no material risk of noise impact.

Table 2 – Risk assessment for proposed amendments during operation

Activity	Potential emission	Potential receptors	Potential pathway	Potential impacts	Material risk	Reasoning
Cat 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 85 km north of the project.	**Air:** Particulate matter (fugitive dust)	Dust can cause health and amenity impacts to humans.	No	The Delegated Officer considers there is no material risk due to the distance to the nearest sensitive receptor. The substantive offenses of the *Environmental Protection Act 1986* provide enforceable prohibitions for dust emissions that result in pollution or environmental harm.
	Noise: associated with operational activities		**Air:** Noise generated by the operation of equipment during construction	Amenity impacts to nearby noise sensitive receptors	No	The Delegated Officer notes the lack of sensitive receptors and determines that there is no material risk of noise impact.
	Waste: leachate from TSF seepage	Groundwater dependent ecosystems, surrounding vegetation	**Land:** infiltration through soil profile to groundwater	Contamination of surrounding land and groundwater with metals and metalloids, sulphide minerals (if present), dissolved solids and cyanide affecting soil and groundwater quality and causing vegetation stress or death.	Yes	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 (mgbl) in some areas. Salinity ranges from potable at 1,000 mg/L total dissolved solids (TDS) to brackish at 3,000 mg/ TDS. Groundwater in the area is used for domestic and stock purposes by pastoral properties. The nearest pastoral bore is 3.5 km east-northeast of the process plant area and is actively used by the pastoralist. However, detailed groundwater studies have shown that the direction of groundwater flow is away from the bores. Seepage from TSF1 has not been detected in the nearby pit. The vegetation within the area has been disturbed by mining exploration activities and damage from cattle. There are no Threatened Ecological Communities (TEC) or Declared Rare Flora species within the project area; however two Priority Four Flora species; *Baeckea* sp. (located 2.5 km SW of TSF1) and *Eremophila pungens* (located 500 m SE from TSF1) occur in the area. No fauna of conservation significance occur within the project area. The vegetation directly surrounding TSF1 had remained in good to excellent condition, which indicates the Priority Four species will not be affected.

						Regis implemented a Groundwater Recovery and Seepage and Management Plan in 2014 after it became apparent there was a seepage issue with the facility. The aim of the management plant was to draw water levels down to 6 mbgl, with high water utilisation in processing and dust suppression. The plan was reviewed in 2014 by DER specialists and was deemed acceptable to deal with groundwater mounding. Seepage from TSF1 is currently managed by the following measures: • sub-excavation of the embankment footprint area to remove topsoil and any weak or loose soils; • compaction of the foundation of the TSF to a low permeability (1 x 10^{-9}); • cut-off trenches to minimise seepage through the embankment foundation; • an earth fill embankment core and a decant system; • a 14 bore ground water monitoring program measuring ground water levels and chemical parameters; and • development and implementation of a ground water seepage recovery action plan. The latest Annual Environmental Report, shows that overall trends within the areas targeted in the Seepage Management Plan are generally improving with water levels dropping. Some bores, however, are still showing rising levels (although below 6 mbgl). Regis believes this may be due to abstraction bore PB27 not performing at full potential and as such, Regis will examine the need for new infrastructure to manage rising water levels. A geochemistry analysis of the waste rock and tailings was carried out in 2011, as part of a mining proposal and for development of the mine closure plan. The results indicated that the material is unlikely to be acid forming, contained no asbestiform materials and the majority of metals were not present at elevated levels with the exceptions of arsenic, nickel, cadmium and molybdenum. Based on the Licence Holder controls with the seepage management that is currently occurring for TSF1, and also the proximity to flora including two Priority Four species, the Delegated officer considers that the consequence would be ***moderate*** and the likelihood is ***possible***. Therefore the risk rating for seepage is ***medium*** . The Delegated Officer considers existing conditions to manage the current TSF are satisfactory for the operation of facility at the new height. The Licence requires quarterly ambient groundwater monitoring through condition 3.4.1 of fourteen monitoring bores for TSF1. This monitoring

						will indicate whether seepage and groundwater contamination is occurring. The Licence Holder is required to continue to monitor standing water levels and report on these in the Annual Environmental Report, including identifying any trends or whether the water levels have had any environmental impacts. Existing condition 1.2.13 requires the Licensee to undertake an annual water balance which will identify amount of seepage occurring. The Delegated Officer considers existing conditions to manage TSF seepage are satisfactory for the proposed raise of TSF1.
Cat 5 Processing or beneficiation of metallic or non-metallic ore	**Waste:** associated with tailings pipeline rupture or failure	Terrestrial ecosystems - surrounding soils, vegetation and surface water	**Direct discharge**	Contamination of surrounding soils with metals and metalloids, sulphide minerals (if present), dissolved solids and cyanide affecting soil and groundwater quality and causing vegetation stress or death.	Yes	Regis have an Operations Manual which outlines that two inspections are to be undertaken during each shift by an operation or shift supervisor, which will cover the following: • Pipelines (tailings delivery line and water return line) to and from the TSF; • Leak detection (pipes); • Pump operation and condition; • Tailings deposition; • Location and size of the decant pool; • Signs of toe erosion; • Drainage recovery pumps; • General integrity of the embankment; and • Changes to any existing cracking or erosion. There are no permanent surface water bodies within the Regis Operations and no point source emissions to surface water occur. A number of drainage lines located around the site, which are shallow and ephemeral in nature. A shallow and narrow ephemeral creek, Mistake Creek, runs across the extreme southern end of the pit. The pit bund and waste landform have been designed to divert this drainage line. These surface water flows will be returned to natural drainage lines within a short distance down gradient of the pits and waste rock dumps. The site is generally drained in a southerly/south-westerly direction by Mistake Creek which discharges into Borodale Creek 6 km downstream of the site, which eventually reports to the Lake Irwin salt lake systems, 40km south-west of the site. Based on the Licence Holder controls, the Delegated officer considers that the consequence would be ***moderate*** and the likelihood is ***unlikely***. Therefore the risk rating for seepage is ***moderate***. The Delegated Officer considers existing conditions to manage pipelines containing tailings are satisfactory for the operation of pipelines associated with the raise of TSF1.

						Condition 1.2.12 ensures pipelines containing tailings will be managed appropriately and corrective action is taken in the event that pipelines leak or rupture.
	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 and metalloids, sulphide minerals (if present), dissolved solids and cyanide affecting soil and groundwater quality and causing vegetation stress or death.	Yes	TSF1 has been designed as follows:: • Staged construction is in a downstream direction, which means each lift is laid back against the surrounding mine waste rock storage and placed over previously placed mine waste. Therefore, construction of future embankments 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. • Tailings in the form of slurry will be discharged sub-aerially and cyclically into the facility in discrete layers, to allow the tailings to gain optimum densities, maximising storage capacity, and strength by subjecting each layer to a drying cycle. Deposition will take place via multiple spigots located on the upstream edge of the crest of the perimeter embankment. • Spigotting/tailings deposition will be carried out such that a tailings beach will form and the supernatant pond which develops due to both tailings deposition and rainfall events will be maintained around the central decant structure. The pond will be maintained away from the perimeter embankment at all times. Limiting the size of the supernatant water pond will reduce evaporation from the facility and assist in optimising water recovery and tailings density. • Water (comprising supernatant water and incident rainfall seepage return to the decant system) from the facility will be removed via an independent decant pump located at the end of the central decant access way and piped back to the process plant. • The tailings storage area will assume the form of a depressed cone due to the development of a sloped tailings beach. The facility will have the capacity to store a considerable volume of water during a rainstorm (i.e. 302,600m3 generated by the 1 in 100 year ARI, 72-hour storm event). The minimal operational freeboard to be maintained at 300 mm with a minimum total freeboard of 500 mm. • Operational, safety and environmental aspects of TSF1 will be periodically reviewed during an annual audit commissioned by Regis by a suitably experienced and qualified engineer. This audit will be performed at least every year. 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***. Existing condition 1.2.9 requires that a minimum embankment freeboard of 300 mm is maintained. Inspection of infrastructure is outlined in Table 1.2.5. Inspections relating to TSF infrastructure are required every 12

						hours. The Delegated Officer considers that existing conditions in the Licence ensure the operation of TSF1 is managed appropriately so as to avoid overtopping.
	Waste: supernatant water accessibility to surrounding wildlife	Terrestrial wildlife and birdlife.	**Direct discharge**	Consumption of decant water containing cyanide, metals and metalloids and dissolved solids could cause fauna mortality.	Yes	Regis currently implements a variety of management controls for TSF1 to minimize any impact on fauna. These include: • Twice daily TSF fauna inspections; • Effective management of the TSF, particularly keeping the decant pond away from embankments and of minimum size resulting in the tails drying quickly and reducing the likelihood of fauna getting trapped; • Use of intermittent gas cannon to scare fauna away; and • Installation of a number of egress points in case any fauna do enter the facility. The TDS level within the decant water has varied over the past few years, ranging from as low as 4,000 to as high as 18,000 mg/L. This is generally considered brackish to saline. These salinity levels are likely to mean less wildlife and birdlife is attracted to the water as a drinking source. Given the quality of the decant water the Delegated Officer considers that the consequence of fauna consumption would be ***moderate*** but the likelihood with Regis' controls in place is ***rare***. Therefore the risk rating is ***medium***. The Delegate Officer considers that the current TSF visual inspection conditions within the licence along with the management methods in place by Regis, are sufficient to ensure any impacts on fauna is controlled. No further conditions are required for the licence.

Decision

The Delegated Officer has determined that the key potential emissions associated with the proposed lift of TSF1 are waste via tailings seepage, possible TSF overtopping, or pipeline spills. There may also be potential for fauna or birds to be harmed if they access the tailings pond.

The Delegated Officer has determined that the construction and operation of the lift will not result in emissions which are unacceptable to public health or the environment.

The Licence Holder is required to operate in accordance with existing licence conditions relating to TSF management.

Amendment History

Instrument	Issued	Amendment
L8575/2011/1	17 August 2012	Amended Licence for categories 5, 52, 64, 73 and 85
L8575/2011/1	19 December 2013	Amended Licence for categories 5, 52, 64 and 73
L8575/2011/1	22 May 2014	Licence amendment to increase processing plant throughput and conversion to current format.
L8575/2011/1	6 November 2014	Licence amendment to remove conditions 1.3.10 to 1.3.14
L8575/2011/1	4 February 2016	Licence amendment to include Type 2 inert waste.
L8575/2011/1	19 December 2016	Amendment Notice 1 Licence amendment to include conditions relating to the construction of TSF2
L8575/2011/1	10 February 2017	Amendment Notice 2 Licence amendment to allow for stages 3 – 5 for the TSF1 raises.

Amendment

1. Condition 1.2.14 of the Licence is to be amended by the insertion of the red text shown in underline below:

   In relation to the construction of the TSF2 infrastructure and the construction of TSF1 lift, the Licensee must construct the infrastructure in Column 1 of Table 3 at the location specified in Column 2 in accordance with the requirements set out in Column 3.

Table 1.2.7: Infrastructure requirements

Column 1	***Column 2***	***Column 3***
Infrastructure	***Location***	***Requirements (design and construction)***
Tailings Storage Facility	*TSF 2 as depicted in map of*	*-Constructed on top of existing waste*

2	*emission points and monitoring in Schedule 1.*	*rock dump adjacent to and south of TSF1 and approximately 1km south-east of the plant.* *-Facility will be constructed in two stages using downstream construction method.* *-The embankment crest level of Stage 1 will be RL522m.* *-The embankment crest level of Stage 2 will be RL532m.* *-The maximum embankment heights of Stages 1 and 2 will be 10m and 24m respectively.* *-The facility will be fully lined with non-woven geofabric to act as a filter medium.* *-The perimeter embankment will be constructed using traffic compacted mine waste with a total crest width of 20m.*
Tailings storage facility 1 lift		*-The embankment crest level of stage 3 will be RL518m.* *-The embankment crest level of stage 4 will be RL521m.* *-The embankment crest level of stage 5 will be RL524m.* *-The perimeter embankment will be constructed using compacted tailings borrowed from within the facility with mine waste capping and a total crest width of 6m.*

2. Condition 1.2.20 to be added to the Licence as below:

The Licensee shall submit a construction compliance document to the CEO, following construction of the TSF1 lift and prior to operation.

3. Condition 1.2.21 to be added to the Licence as below:

The Licensee shall operate TSF1 in accordance with the conditions of this Licence, following submission of the construction compliance document required under condition 1.2.20.