



Licence Number	L8151/2005/2
Licence Holder	Round Oak Jaguar Pty Ltd
ACN	060 620 751
File Number:	2012/006866-1~1
Premises	Jaguar Operation Mining Tenements M37/44, M37/515, M37/1132, M37/1153, M37/1228, M37/1230, M37/1257, M37/1290 and M37/1301 LEONORA WA 6438
Date of Report	24 June 2020
Proposed Decision	Revised Licence granted

1. Definitions and interpretation

Definitions

In this Amendment 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
Amendment Report	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: (a) Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC JOONDALUP WA 6919 info@dwer.wa.gov.au
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
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
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	Round Oak Jaguar Pty Ltd
Minister	the Minister responsible for the EP Act and associated regulations
Occupier	has the same meaning given to that term under the EP Act.

Term	Definition
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Amendment Report applies, as specified at the front of this Amendment Report.
Revised Licence	the amended Licence issued under Part V, Division 3 of the EP Act, with changes that correspond to the assessment outlined in this Amendment Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>

1. Background

Round Oak Jaguar Pty Ltd.(the Licence Holder) holds Licence L8151/2005/2 for the Jaguar Operation (Jaguar) located approximately 60 km north of Leonora within the Shire of Leonora.

Jaguar consists of the Jaguar and Bentley underground mines and a zinc and copper concentrator plant. Tailings from ore processing is deposited within Tailings Storage Facility 2 (TSF2). TSF2 replaced Tailings Storage Facility 1 (TSF1) in 2013.

Mine dewater from the Jaguar and Bentley underground mines is pumped to the Bentley settling ponds and turkey's nest. The water is then pumped to the Jaguar turkey's nest where it can be used for dust suppression. This water is also available to the process water pond, or if unneeded, is diverted to the disused Teutonic Bore open pit for disposal.

Jaguar has been assessed as "prescribed premises" categories 5 and 6 under Schedule 1 of the *Environmental Protection Regulations 1987*.

The Licence conditions include the requirement to monitor groundwater conditions and operate groundwater recovery bores in the vicinity of TSF1. The standing water level (SWL) at Teutonic Bore open pit (receptor of mine dewater discharge) is also required to be monitored.

Two amendments have been added to the Licence:

- Amendment Notice 1 (Reference 2012/006866)
- Amendment Notice 2 (Reference 2012/006866)

Amendment Notice 1 was added to the Licence to allow for Stage 2 of the TSF2 raise and was issued on 8 March 2017.

Amendment Notice 2 was added to the Licence to allow for an additional water source to Teutonic Bore Pit, in addition to the construction and operation of a new dewatering pipeline between the Triumph underground mine and the Teutonic Bore pit.

The Licence Holder also has two separate registrations (not included on Schedule 1 Part 1 Licence):

- Category 85: Sewage Facility [A1865616]
- Category 89: Putrescible Landfill Site [A651267]

Both the above registrations are active and have the occupier name as 'Jabiru Metals Limited', which is previous business name.

2. Amendment description

The following guidance statements have informed the assessment and decision outlined in this Amendment Report.

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guideline: Decision Making (June 2019)*
- *Guidance Statement: Risk Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

2.1 Purpose and scope of assessment

On 17 January 2020, the Licence Holder applied to amend the Licence, requesting the following changes:

Condition 1.3.8 - Premises operation

- Remove the requirement to operate recovery bores at TSF1.

Condition 3.8.1, Table 3.8.1 - monitoring of ambient groundwater quality

- For TSF1 monitoring bores update the monitoring of SWL from monthly to quarterly;
- For TSF1 monitoring bores update the analysis of water samples from quarterly to annual analysis;
- Exclude TSF1 bore 06JGMB006 from SWL monitoring and sample/analysis requirements.

Condition 3.4.1, Table 3.4.1 - monitoring of point source emissions to groundwater (Teutonic bore pit)

- Reduce the frequency of SWL monitoring from monthly to biannually.

No other changes have been requested by the Licence Holder.

2.2 Consolidation of Licence

As part of this amendment package DWER has consolidated the Licence by incorporating changes made under the following Amendment Notices:

- Amendment Notice 1, issued on 8 March 2017; and
- Amendment Notice 2, issued on 25 August 2017.

The obligations of the Licence Holder have not changed in consolidating the Licence. DWER 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;
- deleted the redundant AACR form set out in schedule 1 of the previous Licence and advise the Licence Holder to obtain the form from the Department's website;
- revised Licence condition numbers, and removed any redundant conditions and realigned condition numbers for numerical consistency; and
- corrected clerical mistakes and unintentional errors.

Previously issued Amendment Notices will remain on the DWER website for future reference and will act a record of DWER's decision making.

3. Amendment history

Table 2 provides the amendment history for L8151/2005/2.

Table 2: Licence amendments

Instrument	Issued	Amendment
L8151/2005/2	23/08/2013	Licence amendment to include TSF2
L8151/2005/2	19/12/2013	Licence amendment to increase premises production and emissions to land to emission points L1 and L2 Licence amendment for an extension of the date of completion for compliance with condition 4.1.1 until 30 June 2014
L8151/2005/2	1/05/2014	Licence amendment for an extension of the date of completion for compliance with condition 4.1.1 until 30 June 2014
L8151/2005/2	1/05/2014	Licence amendment to remove emissions to land limits
L8151/2005/2	2/07/2015	Licence amendment to change name and increase throughput
L8151/2005/2	8/03/2017	Amendment Notice 1 Licence amendment to allow for stage 2 for the TSF2 raise
L8151/2005/2	25/08/2017	Amendment Notice 2 Licence amendment for an additional water source, as well as the construction and operation of a new dewatering pipeline between the Triumph underground mine and the Teutonic Bore pit
L8151/2005/2	24/06/20	Amendment to amend the groundwater monitoring program and consolidate the Licence and two Amendment Notices.

4. Assessment

4.1 TSF 1 Monitoring

The Licence Holder has stated that TSF1 is not operational and there are no plans to change the operational state in the foreseeable future. TSF1 was constructed in 2006 (authorised by W4268/2006/1) and stored tailings from 2007, ceasing operation in 2013. The conditions in the Licence related to TSF1 require monitoring of both groundwater quality and standing water levels surrounding TSF1. The monitoring is focused on the behaviour of the seepage released from TSF1 into the surrounding environment, particularly as the TSF1 tailings are considered potentially acid forming and that the chemistry data indicated that the tailings within TSF1, particularly the surficial tailings, could leach appreciable amounts of metals of environmental significance under neutral conditions (KCB, 2017).

During operation of the Jaguar TSF1 management of the standing water level in groundwater in the vicinity of the TSF due to mounding from tailings seepage was an issue, and a number of recovery bores were installed to recover seepage. The Licence Holder has been required to monitor and actively manage the seepage from TSF1 under the current Licence conditions.

The Licence Holder has requested changes to the Licence conditions based upon standing water level data presented in the application (ROM, 2020).

Monitoring results presented in the application (Figure 1) show the standing water level is falling at all monitoring bores around TSF1. The location of the monitoring bores and recovery bores are shown in Figure 2. Twelve monitoring bores (06JGMB001, 06JGMB002, 06JGMB003, 06JGMB004, 06JGMB005, 06JGMB006, 07JGMB007, 07JGMB008, 07JGMB009, 07JGMB010, 10JGMB011, 10JGMB012) show that the standing water level Licence target of 6 m and below the standing water level Licence limit of 4 m has been met since July 2015. All bores show that the standing water levels continue to fall.

Over the period from January 2017 to April 2017, standing water levels increased for

monitoring bores 06JGMB001, 06JGMB002, 06JGMB003, 06JGMB004, 06JGMB005, 06JGMB006, 10JGMB011, 10JGMB012, though all remained below the Licence target and Licence limit. The standing water level of these bores has continued to fall since April 2017. The multi-year trend of falling standing water levels within the monitoring bores indicates that the mounding of groundwater beneath TSF1 is reducing.

As the tailings are considered potentially acid forming (KCB, 2017) field measurements of total acidity and alkalinity, major ions (sodium, potassium, calcium, magnesium, carbonate and bi-carbonate) and additional metals and metalloids (cobalt, nickel, mercury and antimony) are to be included within the Licence condition.

This presentation of data and operational status provided in the application support the requests to:

- Remove the requirement to operate recovery bores at TSF1 (Licence condition 1.3.8 - Premises operation)
- Change the standing water level monitoring for the TSF1 monitoring bores from monthly to quarterly frequency (Licence condition 3.8.1, Table 3.8.1)
- Reduce the frequency of sampling and analysis TSF1 monitoring bores from quarterly (Licence condition 3.8.1, Table 3.8.1). An annual frequency was requested, however due to potential reactivity of the tailings stored in TSF1 a biannual frequency has been mandated; and
- Exclude TSF1 bore 06JGMB006 from SWL monitoring and sample/analysis requirements. (Licence condition 3.8.1, Table 3.8.1).

It should be noted the Licence Holder has plotted data for two additional bores, 10JGMB011 and 10JGMB012, which are not nominated in the current Licence. Bore 10JGMB012 will be included within the consolidated Licence (bore 10JGMB011 has internally collapsed and is not a viable monitoring bore).

Due to the potential for acid mine drainage from TSF1 the additional conditions with respect to the monitoring of groundwater will be included within the Licence condition:

- Inclusions of field measurements of total acidity and total alkalinity;
- Inclusions of major-ion analyses: sodium (Na^+), potassium (K^+), calcium (Ca^{2+}), magnesium (Mg^{2+}), carbonate (CO_3^{2-}) and bi-carbonate (HCO_3^-); and
- Inclusion of metals and metalloids analyses: cobalt (Co), nickel (Ni), mercury (Hg) and antimony (Sb).

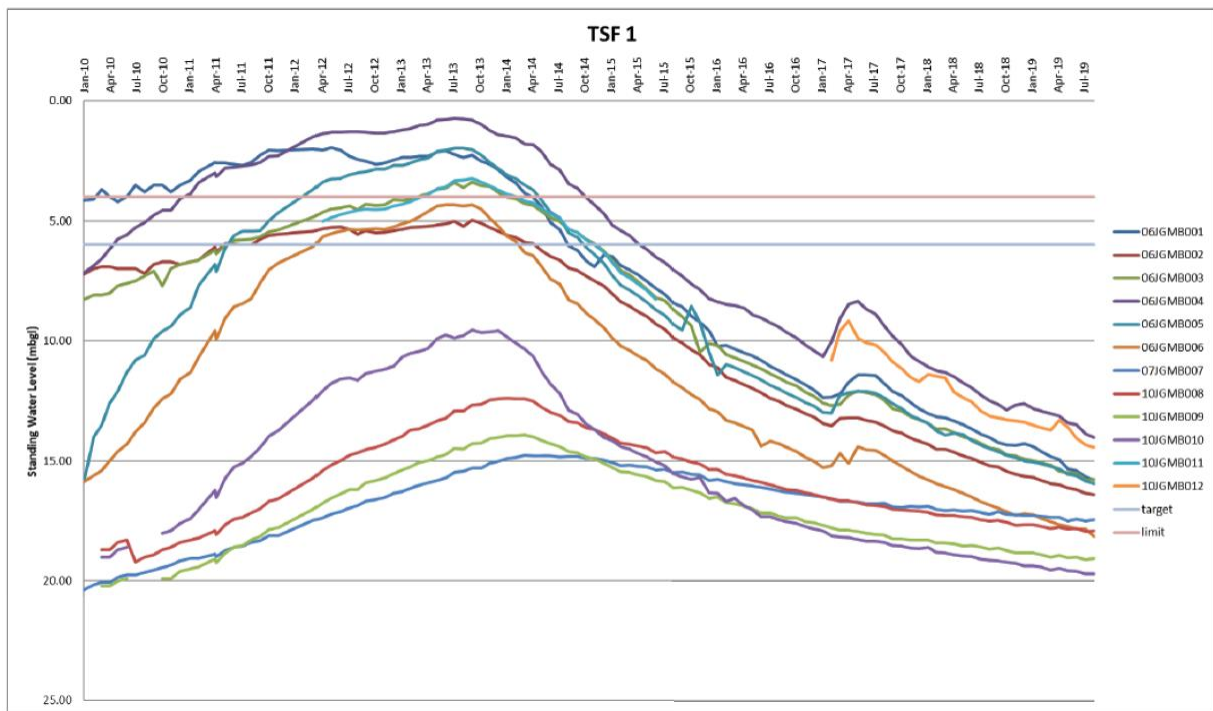


Figure 1 Standing water level data for monitoring bores located around TSF1 (after ROM, 2020)

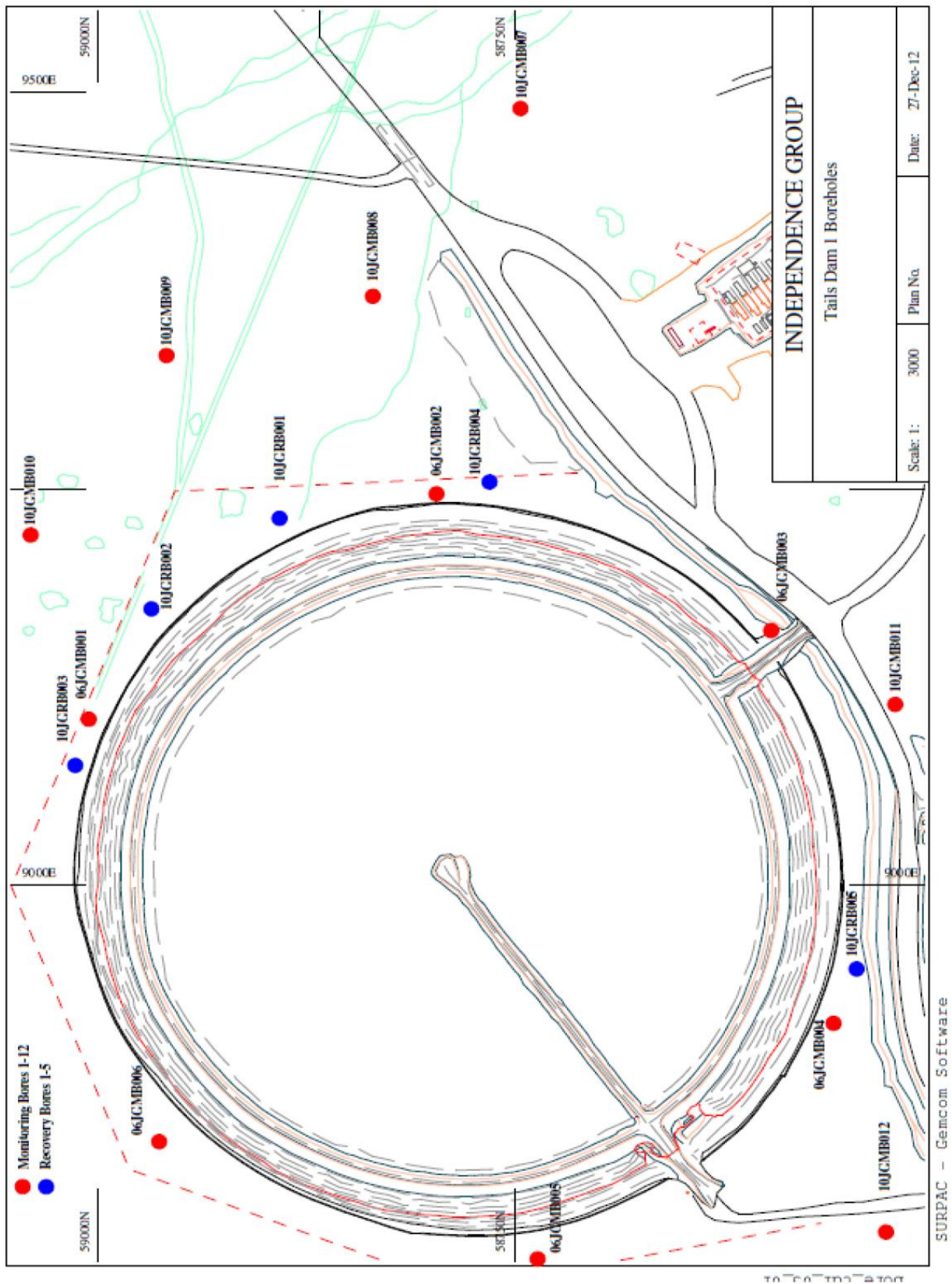


Figure 2 Location of monitoring and recovery bores around TSF1 that support current Licence. (L8158/2005/2)

4.2 Teutonic Bore Monitoring

The Licence Holder has also requested to reduce the frequency of monitoring the standing water level (spot sampling) within Teutonic Bore Pit from monthly to bi-annually. Results presented in the application (Figure 3) show the standing water level is rising with a gradually slowing rate of increase and the water level is below 35m.

The Teutonic Bore Pit receives mine dewatering water as authorised by the Licence (Amendment Notice 2) which is supplemented with rainfall.

The requested amendment to the frequency of spot monitoring of standing water level (Condition 3.4.1, Table 3.4.1) is supported by the gradual rate of increase, with relatively little monthly variation and a level below 35 m.

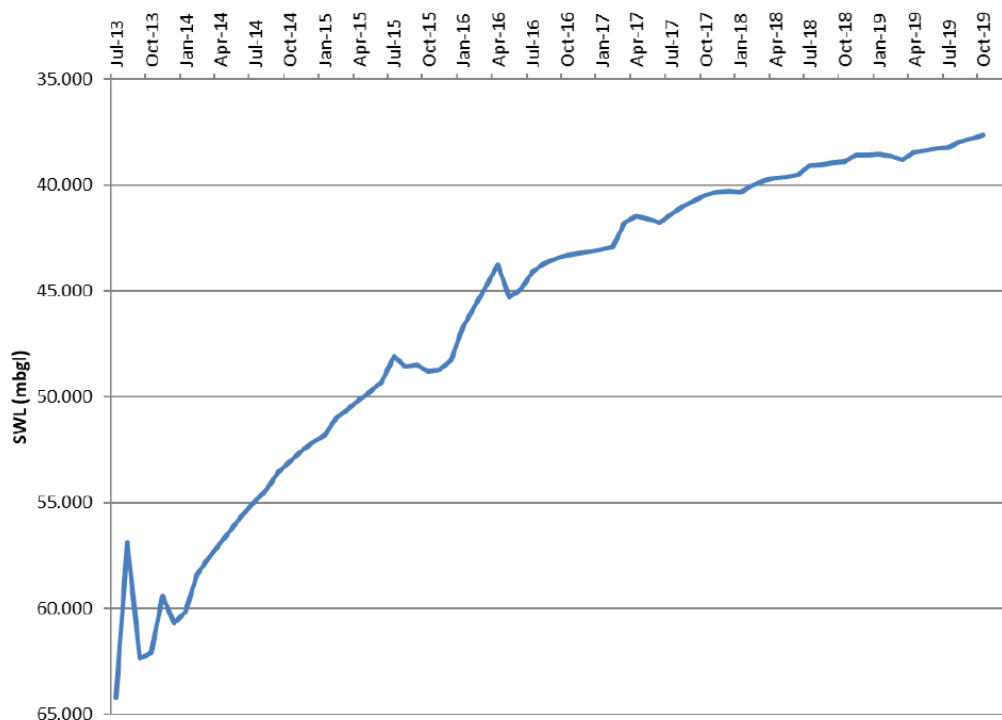


Figure 3 Monitoring of standing water level of Teutonic Bore Pit (after ROM, 2020)

5. Consultation

Table 3: Summary of consultation

Method	Comments received	DWER response
Request for comment issued to DMIRS on 20 March 2020	No comments received	Noted
Applicant provided with draft documents 29 May 2020	Refer to Appendix 2	Refer to Appendix 2

6. Conclusion

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

7.1 Summary of amendments

Table 4 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 4: Licence amendments

Condition No.	Proposed amendments
1.3.8	Remove the requirement to operate recovery bores at TSF1
3.4.1	Change the standing water level monitoring for the Teutonic Bore Pit from monthly to biannual frequency.
3.8.1	Change the standing water level monitoring for the TSF1 monitoring bores from monthly to quarterly frequency
3.8.1	Change the analysis of water samples for the TSF1 monitoring bores from quarterly to biannual frequency. Include measurements of total acidity and total alkalinity as either in field or lab analysis. Include major ions within the analysis suite: sodium (Na ⁺), potassium (K ⁺), calcium (Ca ²⁺), magnesium (Mg ²⁺), carbonate (CO ₃ ²⁻) and bi-carbonate (HCO ₃ ⁻). Include metals and metalloids within the analysis suite: cobalt (Co), nickel (Ni), mercury (Hg) and antimony (Sb).
3.8.1	Exclude TSF1 bore 06JGMB006 from SWL monitoring and sample/analysis requirements within Table 3.8.1. Include bore 10JGMB012 within Table 3.8.1

Carmen Standring
A/Manager Resource Industries
REGULATORY SERVICES

An officer delegated by the CEO under section 20 of the EP Act

Appendix 1: Key documents

Document title	In text ref	Availability
Licence amendment application including: <ul style="list-style-type: none">- Cover letter dated 16 January 2020- Application form dated 16 January 2020	ROM, 2020	DWER records (DWERDT245354)
Jaguar Operation Landform Geochemistry Study 2017 Klohn Crippen Berger July 5 2017	KCB, 2017	DWER records (A1715645)

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Report on 29 May 2020 for review and comment. The Licence Holder responded on 9 June 2020. The following comments were received on the draft Amendment Report.

Condition	Summary of Licence Holder comment	DWER response
-	Revise summary of changes to include change to SWL frequency for Teutonic Bore pit	Amended
3.4.1	Remove monthly frequency for SWL in Teutonic Bore pit	Amended
3.8.1	Remove 10JGMB011 as a monitoring bore as no longer viable	Amended
3.8.1	Remove requirement for field analysis of alkalinity and acidity	Amended – these are now optional to analyse in lab or field
3.4.1 and 3.8.1	Amend the monitoring months to February and August for a six monthly period	Amended
-	Premises Map updated	Updated
-	Additional monitoring maps supplied	Updated
3.8.1	-	DWER identified an error in the draft licence for Table 3.8.1 in that the frequency of monitoring for both TSF1 and TSF2 bores was reduced. No changes are made to the existing monitoring frequency for TSF2 bores (active TSF) and this Table has been formatted and corrected accordingly.