Government of Western Australia
Department of Environment Regulation

Licence

Environmental Protection Act 1986, Part V

Proponent: Big Bell Gold Operations Pty Ltd

Licence: L8978/2016/1

Registered office: Level 3
18-31Parliament Place
WEST PERTH WA 6005

ACN: 090 642 809

Premises address: Comet Project
Mining Tenements M21/08 and M21/72
CUE WA 6640
as depicted in Schedule 1

Issue date: Thursday, 1 September 2016

Commencement date: Monday, 5 September 2016

Expiry date: Thursday, 4 September 2036

Prescribed premisescategory
Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
06	Mine dewatering	50,000 tonnes ore more per year	500,000 tonnes per annual period

Conditions
This Licence is subject to the conditions set out in the attached pages.

Date signed: 1 September 2016
.....
Alana Kidd
Manager Licensing – Resource Industries
Officer delegated under section 20
of the *Environmental Protection Act 1986*

Contents

Introduction

This Introduction is not part of the Licence conditions.

DER's industry licensing role
The Department of Environment Regulation (DER) is a government department for the State of Western Australia in the portfolio of the Minister for Environment. DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DER regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment.DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

Licence requirements
This Licence is issued under Part V of theAct.Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the Licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link:
http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.

- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.

- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your Licence. Non-compliance with your Licence is an offence and strict penalties exist for those who do not comply.

Licence holders are also reminded of the requirements of section 53 of the Act which places restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice.

Licence fees
If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions
If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and Licence summary
The Comet Project (Project) is located approximately 25 kilometres (km) east of Cue, and about 600 km north west of Perth. The surrounding land consists of pastoral and exploration leases. Lake Austin, which is a major ephemeral wetland (salt lake), is approximately 20 km to the south of the Project.

Big Bell Gold Operations Pty Ltd (BBGO) dewaters the Comet, Comet North, Eclipse and Pinnacles pits with dewatering water being discharged into the previously mined Venus pit. A small quantity of dewatering water is used for dust suppression at the Project.

Power for the Project is supplied by mobile generators which have a combined total output of less than trigger thresholds set out in the *Environmental Protection Regulation 1987,* whereby a works approval and registration or licence would be required.

BBGO also operates a 150 tonne per annum (tpa) inert landfill at the Project however the capacity is less than the 500 tpa trigger threshold set out in the *Environmental Protection Regulation 1987,* whereby a works approval and registration or licence would be required.

This Licence is for the operation of a new facility established under Works Approvals W5972/2016/1.

The licences and works approvals issued for the Premises are:

Instrument log		
Instrument	**Issued**	**Description**
W5972/2016/1	30/06/2016	Works Approval to install mine dewatering infrastrucuture
L8978/2016/1	25/08/2016	New Licence

Severance
It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION

Licence conditions

1 General

1.1 Interpretation

1.1.1 In the Licence,definitions from the*Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

'Act' means the *Environmental Protection Act 1986;*

'annual period' means the inclusive period from 29 August until 28 August in the following year;

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples;*

'AS/NZS 5667.10' means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters;*

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' for the purpose of correspondence means;
Chief Executive Officer
Department Administering the Environmental Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Telephone: (08) 9333 7510
Facsimile: (08) 9333 7550
Email: info@der.wa.gov.au

'freeboard' means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

'Licence' means this Licence numbered L8978/2016/1 and issued under the Act;

'Licensee' means the person or organisation named as Licensee on page 1 of the Licence;

'm^3' means cubic metres;

'mbgl' means metres below ground level;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated; and

'usual working day' means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.2 Premises operation

1.2.1 The Licensee shall record and investigate the exceedance of any descriptive or numerical limit in this section.

1.2.2 The Licensee shall ensure that any dewatering effluent shall only be used for dust suppression in a manner that minimises damage to surrounding vegetation.

1.2.3 The Licensee shall ensure that dewatering effluent is discharged into dams with the relevant infrastructure requirements and at the location specified in Table 1.2.1 and identified in Schedule 1.

Table 1.2.1: Containment infrastructure

Containment point reference	Material	Infrastructure requirements
Venus pit	Dewatering effluent	Maintain a minimum freeboard of 3 metres

1.2.4 The Licensee shall ensure that all dewatering pipelines are either:
- (a) equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures;
- (b) equipped with automatic cut-outs in the event of a pipe failure; or
- (c) provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.

1.2.5 The Licensee shall:
- (a) undertake inspections as detailed in Table 1.2.2;
- (b) where any inspection identifies that an appropriate level of environmental protection is not being maintained, take corrective action to mitigate adverse environmental consequences as soon as practicable; and
- (c) maintain a record of all inspections undertaken.

Table 1.2.2: Inspection of infrastructure

Scope of inspection	Type of inspection	Frequency of inspection
Dewatering effluent pipelines	Visual integrity	Daily
Freeboard at the Venus pit	Visual to confirm required freeboard capacity is available	Daily

2 Emissions

2.1 General

2.1.1 The Licensee shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Licence.

2.2 Point source emissions to groundwater

2.2.1 The Licensee shall ensure that where waste is emitted to groundwater from the emission point in Table 2.2.1, and identified on the map of emission points in Schedule 1, it is done so in accordance with the conditions of this Licence.

Table 2.2.1: Emission points to groundwater

Emission point reference	Description	Source including abatement
Venus pit	Dewatering waste water discharge into a disused mine pit.	Water from dewatering of the Comet, Comet North, Eclipse and Pinnacles pits .

2.2.2 The Licensee shall not cause or allow point source emissions to groundwater greater than the limits listed in Table 2.2.2.

Table 2.2.2: Point source emission limits to groundwater

Emission point reference	Parameter	Limit (including units)	Averaging period
Venus pit discharge	Volume of dewatering effluent water	500,000 tonnes	Annual period
	Total recoverable hydrocarbons	15 mg/L	Spot sample

3 Monitoring

3.1 General monitoring

3.1.1 The Licensee shall ensure that:
(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10; and
(c) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured unless indicated otherwise in the relevant table.

3.1.2 The Licensee shall ensure that:
(a) quarterly monitoring is undertaken at least 45 days apart; and
(b) annual monitoring is undertaken at least 9 months apart.

3.1.3 The Licensee shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Licence is calibrated in accordance with the manufacturer's specifications and the requirements of the Licence.

3.1.4 The Licensee shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

3.2 Monitoring of point source emissions to groundwater

3.2.1 The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of point source emissions to groundwater					
Emission point reference	**Parameter**	**Units**	**Limit**	**Averaging Period**	**Frequency**
Dewatering discharge outlet into the Venus pit	Volumetric flow rate	m^3	None specified	Monthly	Continuous
	Arsenic; Cadmium; Chromium; Copper; Manganese; Mercury; Molybdenum; Nickel; Total Nitrogen; and Zinc	mg/L		Spot sample	Annually
	Standing water level in pit	mbgl			Quarterly
	Total recoverable hydrocarbons	mg/L	15		
	Total dissolved solids		None specified		
	pH[1]	-			

Note 1: In-field non-NATA accredited analysis permitted.

4 Information

4.1 Records

4.1.1 All information and records required by the Licence shall:
- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 3.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
- (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
  - (i) off-site environmental effects; or
  - (ii) matters which affect the condition of the land or waters.

4.1.2 The Licensee shall ensure that:
- (a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and
- (b) any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing.

4.1.3 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of theLicence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.

4.1.4 The Licenseeshall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

4.2 Reporting

4.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 90 calendar days after the end of the annual period. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

Table 4.2.1: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form[1]
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Table 3.2.1	Monitoring of point source emissions to groundwater	
4.1.3	Compliance	Annual Audit Compliance Report (AACR)
4.1.4	Complaints summary	None specified

Note 1: Forms are in Schedule 2

4.3 Notification

4.3.1 The Licensee shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements

Condition or table (if relevant)	Parameter	Notification requirement[1]	Format or form[2]
-	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1

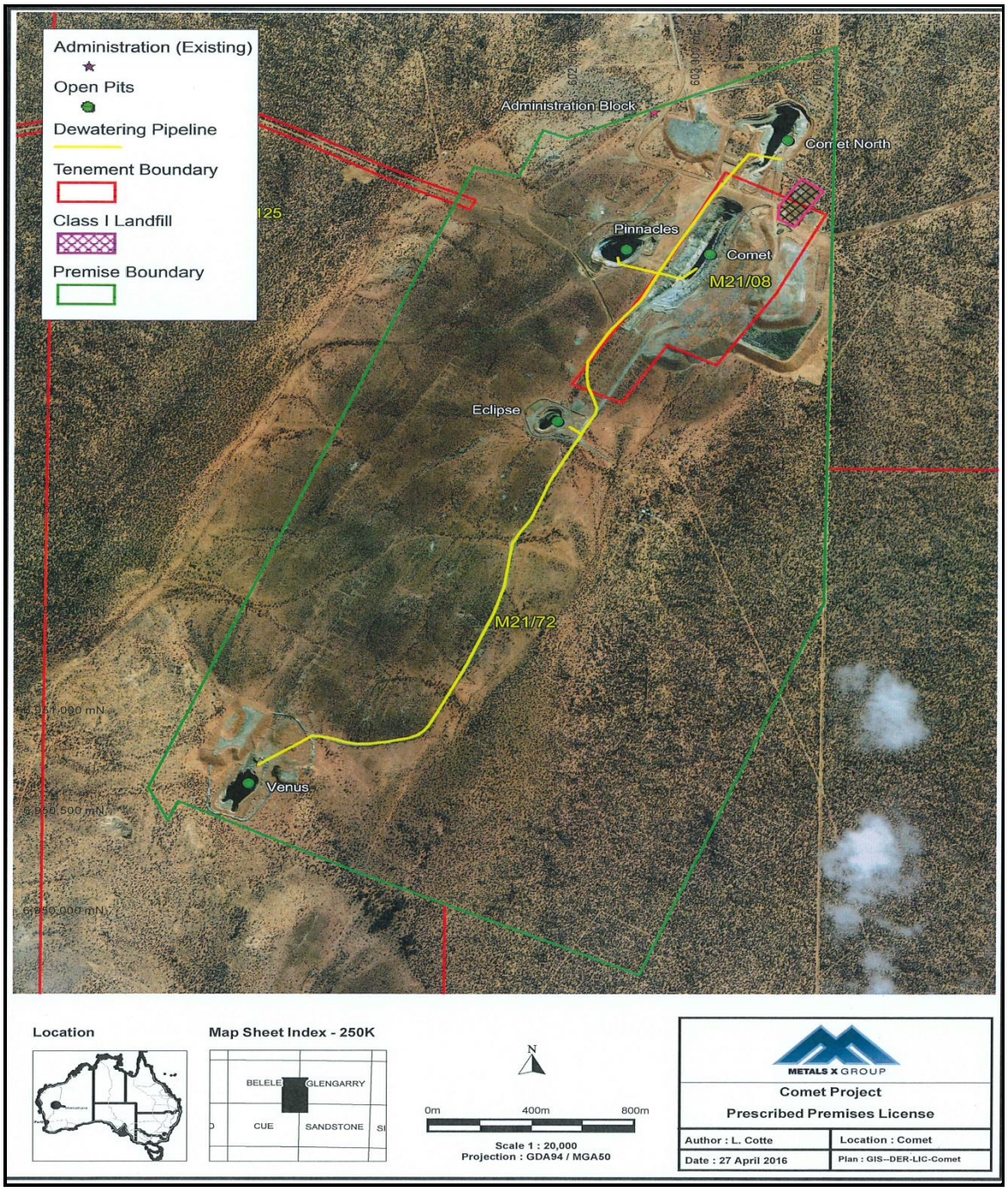
Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act

Note 2: Forms are in Schedule 2

Schedule 1: Maps

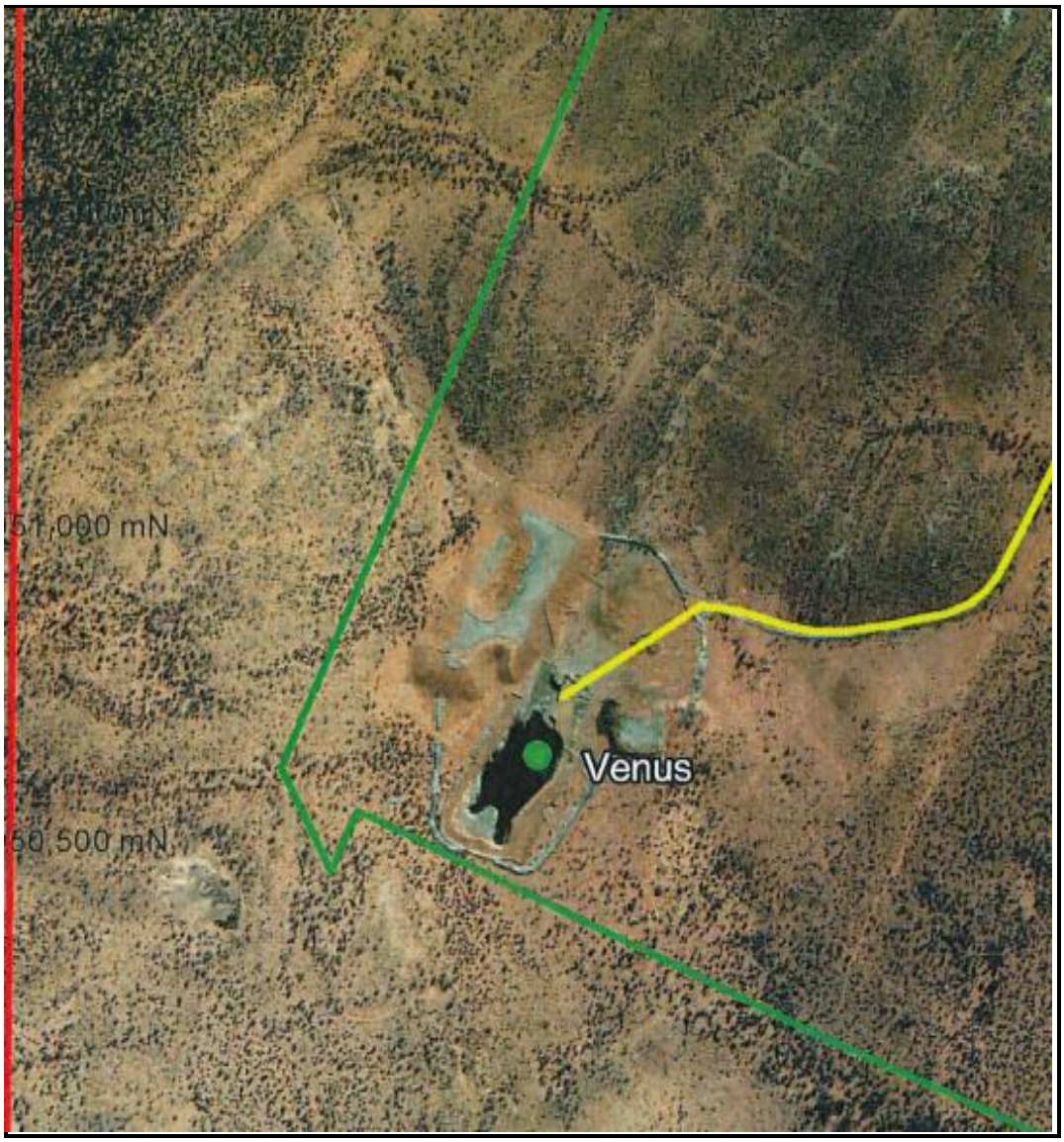
Premises map

The Premises is shown in the map below.The green line depicts the Premises boundary.



Map of emmission point

The location of the emission point defined in condition 2.2.1 is shown below.



Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by theLicence. They can be requested in an electronic format.

ANNUAL AUDIT COMPLIANCE REPORT PROFORMA

SECTION A

LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name: Trading as:	ABN:
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of the Licence complied with within the reporting period? (please tick the appropriate box)

Yes ☐ Please proceed to Section C

No ☐ Please proceed to Section B

Each page must be initialled by the person(s) who signs Section C of this Annual Audit Compliance Report (AACR).

Initial:

SECTION B
DETAILS OF NON-COMPLIANCE WITH LICENCE CONDITION.

Please use a separate page for each Licence condition that was not complied with.

a) Licence condition not complied with:	
b) Date(s) when the non compliance occurred, if applicable:	
c) Was this non compliance reported to DER?:	
☐ Yes ☐ Reported to DER verbally Date _____ ☐ Reported to DER in writing Date _____	☐ No
d) Has DER taken, or finalised any action in relation to the non compliance?:	
e) Summary of particulars of thenon compliance, and what was the environmental impact:	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram):	
g) Cause of non compliance:	
h) Action taken, or that will be taken to mitigate any adverse effects of the non compliance:	
i) Action taken or that will be taken to prevent recurrence of the non compliance:	

Each page must be initialled by the person(s) who signs Section C of this AACR

Initial:

SECTION C

SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report (AACR) must only be signed by a person(s) with legal authority to sign it. The ways in which the AACR must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this AACR is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
An individual	□	by the individual licence holder, or
	□	by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	□	by affixing the common seal of the licensee in accordance with the *Corporations Act 2001*; or
	□	by two directors of the licensee; or
	□	by a director and a company secretary of the licensee, or
	□	if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or
	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	□	by the principal executive officer of the licensee; or
	□	by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	□	by the chief executive officer of the licensee; or
	□	by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of $50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SIGNATURE: _____

NAME:
(printed) _____

POSITION: _____

DATE: _____/_____/_____

SEAL (if signing under seal)

Licence: L8978/2016/1 Licensee: Big Bell Gold Operations Pty Ltd
Form: GR1 Period:
Name: Monitoring of point source emissions to groundwater

Emission point	Parameter	Result	Limit	Averaging period	Sample date & times
Dewatering discharge into Venus pit	Volumetric flow rate	m^3	None specified	Monthly	
	Standing water level	mbgl		Spot sample	
	pH	-			
	Arsenic	mg/L			
	Cadmium	mg/L			
	Chromium	mg/L			
	Copper	mg/L			
	Manganese	mg/L			
	Mercury	mg/L			
	Molybdenum	mg/L			
	Nickel	mg/L			
	Total dissolved solids	mg/L			
	Total nitrogen	mg/L			
	Total recoverable hydrocarbons	mg/L	15		
	Zinc	mg/L	None specified		

Signed on behalf of Big Bell Gold Operations Pty Ltd: ……..

Date: ……

Licence: L8978/2016/1 Licensee: Big Bell Gold Operations Pty Ltd
Form: N1 Date of breach:

Notification of detection of the breach of a limit.

These pages outline the information that the operator must provide.
Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence Number	
Name of operator	
Location of Premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of Big Bell Gold Operations Pty Ltd	
Date	

Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Big Bell Gold Operations Pty Ltd

Licence: L8978/2016/1

Registered office:	Level 3 18-32 Parliament Place WEST PERTH WA 6005
ACN:	090 642 809
Premises address:	Comet Project Mining Tenements M21/08 and M21/72 CUE WA 6640
Issue date:	Thursday, 1 September 2016
Commencement date:	Monday, 5 September 2016
Expiry date:	Thursday, 4 September 2036

Decision

Based on the assessment detailed in this document, the Department of Environment Regulation (DER) has decided to issue a Licence. DER considers that in reaching this decision, it has taken into account all relevant considerations and legal requirements and that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by:	Paul Anderson Licensing Officer
Decision Document authorised by:	Alana Kidd Manager Licensing

Contents

1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986.* Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☒ Licence amendment ☐ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	**Category number(s)**	**Assessed design capacity**
	6	500,000 tonnes per annual period
Application verified Application fee paid	Date: 28 June 2016 Date: 20 July 2016	
Works Approval has been complied with Compliance Certificate received	Yes☐ No☐ N/A☐ Yes☐ No☐ N/A☐	
Commercial-in-confidence claim	Yes☐ No☒	
Commercial-in-confidence claim outcome	N/A	
Is the proposal a Major Resource Project?	Yes☒ No☐	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes☐ No☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐

Is the proposal subject to Ministerial Conditions?	Yes☐ No☒	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes☐ No☒ Department of Water consulted Yes ☐ No ☒	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☐ No☒ If Yes include details of which EPP(s) here.		
Is the Premises subject to any EPP requirements? Yes☐ No☒ If Yes, include details here, eg Site is subject to SO_2 requirements of Kwinana EPP.		

3 Executive summary of proposal and assessment

Big Bell Gold Operations Pty Ltd (BBGO) is currently constructing the Comet Project (Project) through *Environmental Protection Act 1986* (EP Act) Works Approval W5972/2016/1(Works Approval). The Works Approval was issued for the construction of dewatering infrastructure and a Class I landfill at the Project. As part of the Works Approval application process, BBGO also applied concurrently for an EP Act Licence for operation; the purpose of this assessment.

The Project is located approximately 25 kilometres (km) east of Cue and about 600 km north west of Perth. The surrounding land consists of pastoral and exploration leases. The region is arid having an average annual rainfall of 232 millimetres (mm) and an annual evaporation rate of 3,750 mm. Lake Austin, which is a major ephemeral wetland (salt lake), is approximately 20 km to the south of the Project.

The groundwater regime across the Project flows south-east into the Eucla Basin and the regional water table is at approximately 30 to 100 metres below ground level. Vegetation is closely associated with the geology, soils and climate and is characterised as mallee-mulga parkland over hummock grasslands. The main cause of land degradation in the area is overgrazing. However in the Project area, historical mining activities as well as overgrazing have contributed to the current degraded state of the land, including vegetation loss.

BBGO will dewater the Comet, Comet North, Eclipse and Pinnacles pits with dewatering water being discharged into the previously mined Venus pit. Dewatering of the pits will allow BBGO to undertake feasibility studies. Initially about 500,000 cubic metres (m^3) of water will be transferred from the existing pits to the Venus pit at a rate of approximately 360 kilolitres per hour (kL/hr). A small quantity of dewatering water will be used for dust suppression at the Project. If mining commences, all mined ore will be transported to the nearby BBGO Bluebird Gold Mine for processing. Dewatering of the open pits will be required if mining commences but at a significantly lower rate.

Pit water associated with the project area is considered reasonable quality. BBGO has identified through historical sampling results and monitoring conducted in February 2016 that there is little evidence of contamination from previous mining activities and the hydrogeology of the pits at the Project are similar.

BBGO will also operate a Class I landfill at the Project for the burial of 150 tonnes per annum of inert waste. All putrescible wastes generated at the Premises will be collected and stored in waste receptacles before being removed from the Project for burial at a licensed landfill.

Power for the Project is supplied by mobile generators which have a combined total output of less than trigger thresholds set out in the *Environmental Protection Regulation 1987,* whereby a Registration or Licence would be required.

DER considers that BBGO's commitments and internal procedures will provide sufficient protection that the risks can be appropriately managed. This Licence has not been assessed as a high risk premises requiring reduced time frames for approvals, therefore, it will be issued for the standard period of twenty years.

4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987*, and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	**Condition number** **W = Works Approval** **L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Premises operation	L1.2.1 to L1.2.5	**Operation** Condition 1.2.1 is included in the Licence to ensure the Licensee records and investigates an exceedance of any descriptive or numerical limit in the Premises operation section. **Landfill** BBGO will be operating a small inert landfill at the Premises for the burial of up to 150 tonnes per annum of inert wastes, mainly generated through the construction of the dewatering infrastructure and ongoing maintenance. All putrescible wastes are collected and stored in waste receptacles before being removed from the Project for burial at a licensed landfill. The total throughput of 150 tonnes per annum does not meet the minimum 500 tonnes per annum throughput as described in Schedule 1, Part 1 of the *Environmental Protection Regulations 1987*. No landfill conditions have been applied to the Licence. **Dewatering** Details of DER's assessment and decision making for conditions in the Licence for the dewatering operations are included in Appendix A. **Stormwater** No conditions are required to be added to the Licence in relation to stormwater management and the storage of hydrocarbons and chemicals as this can be sufficiently regulated under the *Environmental Protection (Unauthorised Discharges) Regulations 2004.*	Application supporting documentation. General provisions of the *Environmental Protection Act 1986*. *Environmental Protection (Unauthorised Discharges) Regulations 2004.*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Hydrocarbons Emission Description *Emission:* Discharge of hydrocarbons and hydrocarbon contaminated wastes into the environment due to inappropriate storage and handling. *Impact:* Contamination of soil, groundwater and surface water. *Controls:* Waste oil tanks and bunded facilities are provided for waste hydrocarbons, which are then removed off-site for recycling. All hydrocarbons are stored in containment areas designed to prevent and contain releases. Containment facilities shall accommodate minimum 110% of the volume of hydrocarbon being stored. Hydrocarbon contaminated materials are disposed of at an offsite licensed facility. Effective spill clean-up material shall be readily available at each work site and on all mobile service vehicles where hydrocarbons are stored and used. Hydrocarbon handling activities, such as refuelling, are not conducted in the vicinity of water bodies or drainage lines without the authorisation of the site manager. Where such activities are necessary to the project scope of works, a pre-task job hazard analysis is undertaken. Risk Assessment *Consequence:* Insignificant *Likelihood:* Rare *Risk Rating:* Low Regulatory Controls The general provisions of the *Environmental Protection Act 1986* with respect to the causing of pollution and environmental harm apply, as well as subsidiary legislation including the *Environmental Protection (Unauthorised Discharges) Regulation 2004.* Condition 2.2.2 has been applied to the Licence to limit the amount of hydrocarbons that can be present in the dewatering effluent water discharged to the Venus pit. Limits have not been set for any other parameters as the water contained within the pits is of	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		similar nature. Water sampling of the receiving pit (Venus pit) and the dewatered pits indicates no presence of historical hydrocarbon contamination however there is potential for hydrocarbons to enter the dewatering process through spills and leaks from dewatering pumps located in the pits being dewatered. Residual Risk *Consequence:* Insignificant *Likelihood:* Rare *Risk Rating:* Low **Reuse of dewatering water for dust suppression** Emission Description *Emission:* Use of brackish to saline dewatering water on site for dust suppression. *Impact:* Contamination of surface water, groundwater and soil. Vegetation stress due to exposure to elevated concentrations of dissolved solids. *Controls:* The water used for dust suppression is expected to be brackish to saline. The following measures have been implemented to prevent and monitor for impacts on vegetation: • Minimise spray drift into vegetation alongside roads by use of dribble bars; and • Drainage for roads designed with culverts at appropriate locations. Risk Assessment *Consequence*: Minor *Likelihood:* Unlikely *Risk Rating:* Moderate Regulatory Controls Condition 1.2.2 has been applied to the Licence to ensure that the use of dewatering water for dust suppression is appropriately managed to minimise damage to surrounding vegetation.	

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		The general provisions of the *Environmental Protection Act 1986* with respect to the causing of pollution and environmental harm apply. Residual Risk *Consequence:* Minor *Likelihood:* Rare *Risk Rating:* Low	
General Emissions	L2.1.1	Condition 2.1.1 is included in the Licence to ensure the Licensee records and investigates an exceedance of any descriptive or numerical limit in the emissions operation section.	General provisions of the *Environmental Protection Act 1986*.
Point source emissions to air including monitoring	N/A.	**Operation** Power for the Project is supplied by mobile generators which have a combined total output of less than trigger thresholds set out in the *Environmental Protection Regulation 1987,* whereby a Registration or Licence would be required. No conditions relating to point source emission to air or the monitoring of these emissions are included in the Licence.	General provisions of the *Environmental Protection Act 1986*.
Point source emissions to surface water including monitoring	N/A.	**Operation** There are no point source emissions to surface water during operations at the Premises. The nearest surface water is approximately 20 km south of the Project. No conditions relating to point source emission to surface water or the monitoring of these emissions are required to be added to the Licence.	General provisions of the *Environmental Protection Act 1986*.
Point source emissions to groundwater including monitoring	L2.2.1 and L2.2.2, L3.2.1	**Operation** Details of DER's assessment and decision making are included in Appendix A.	Application supporting documentation. *Environmental*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
			Protection Act 1986.
General monitoring	L3.1.1 to 3.1.4	**Operation** General monitoring conditions have been included in the Licence to ensure monitoring is carried out in accordance with relevant standards.	Australian Standard AS/NZS 5667.1 – Water Quality – Sampling – Guidance on the Design of sampling programs, sampling techniques and the preservation and handling of samples. Australian Standard AS/NZS 5667.10 – Water Quality – Sampling – Guidance on the sampling of waste waters.
Noise	N/A	**Operation** No significant noise emissions are expected during operation of the dewatering facility. No conditions relating to noise emissions are included in the Licence. Any noise from the Project can be adequately managed through the provisions of the *Environmental Protection (Noise) Regulations 1997.*	Application supporting documentation. *Environmental*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L = Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
			Protection (Noise) Regulations 1997
Fugitive emissions	N/A.	**Operation** Fugitive dust emissions are not expected during the operation of the dewatering infrastructure. Fugitive dust emissions may occur from other operations occurring at the Premises however are not expected to be significant. A water cart is used to keep material and working surfaces damp. There are no receptors considered sensitive within 25 km of the Project, as such fugitive emissions can be sufficiently regulated under section 49 of the *Environmental Protection Act 1986*. No conditions relating to fugitive dust emissions are required in the Licence.	General provisions of the *Environmental Protection Act 1986.*
Information	L4.1.1 to L4.1.4, L4.2.1, L4.3.1	**Operation** Administrative conditions including records, reporting and notification have been applied to the Licence.	Application supporting documentation. *Environmental Protection Act 1986.*
Licence Duration	N/A	DER considers that BBGO's commitments, internal procedures and the monitoring conditions in the Licence will provide sufficient protection and that the risks can be appropriately managed. This Licence has not been assessed as a high risk premises and will be issued for the standard period of twenty years.	N/A

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
1/8/2016	Application advertised in West Australian (or other relevant newspaper)	No comments received	N/A
17/8/2016	Proponent sent a copy of draft instrument	Applicant agreed with draft Licence.	N/A

6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High

Appendix A

Point source emissions to groundwater including monitoring

Emission Risk Assessment - Operations

The objective of the dewatering project is to remove the water standing in the existing pit voids to allow further exploration drilling to take place. This will require some dewatering of the surrounding rock in order to reduce hydrostatic pressure and maintain pit wall stability. BBGO will discharge this water into the previously mined Venus Pit.

Pit water will be sump pumped from the pit voids. A pipeline has been installed from the Comet group of pits, with offtakes and discharges to the various pits as required. Initially, approximately 500,000 m^3 of water will be transferred from existing pits to the Venus pit at a rate of approximately 360 kL/hr. The actual rate of discharge may increase or decrease according to conditions and project requirements. The table below represents the likely duration of dewatering at the Project.

Likely Duration of Dewatering

Pit	Water volume (kL)	Likely installed pumping capacity (kL/hr)	Annual abstraction	Likely Duration (Days)
Pinnacles	29,806	360	Until empty	4
Comet	51,510	360	Until empty	6
Eclipse	203,931	360	Until empty	24
Comet North	139,584	360	Until empty	16
Comet South	2,050	360	Until empty	1

Ongoing mining operations would also require dewatering however at a significantly lower amount. The Venus pit has sufficient capacity to accept the water from the four operating pits with approximately 700,000 m^3 remaining at the completion of dewatering all pit lakes.

A 4 km long 150mm to 250mm (the size of the pipe will increase as other pit spurs join it) high-density polyethylene (HDPE) pipe runs from the Comet North pit to the Venus Pit. This pipeline follows the existing access and haul roads for all but 300 m of the route. The southern pits (Comet, Pinnacles and Eclipse) each have spur pipes that connect to the main line. Diesel powered centrifugal pumps and electric powered submersible pumps pump the water from the pits through the pipe line to the Venus Pit. All the units (including fuel cells if required) are within the pit areas. Discharge rate through the pipe line are between a minimum of 20 L/sec and a maximum180 L/sec.

All power on site is provided by either diesel generator or stationary diesel motors. Due to the low power ratings of the pumping units, a major on site fuel storage facility was not required. Individual pods of less than 4,000 litres have been placed next to the pumping units within the pit boundaries.

The pipeline is placed in a v-drain close to vehicle access to allow for ease of inspection and containment of spills. In order to provide further protection against uncontrolled discharge from the dewatering line, BBGO checks for leaks daily. Having the pipeline above ground allows for easy detection of leaks and repair work if required.

The hydrogeology of the pits at the Project is considered similar. The only significant variable between the pits is the difference in the number of banded iron formation (BIF) units encountered, the level of interconnection between the units due to cross cutting structures and the amount of compartmentalisation due to cross cutting structures. Generally the BIF is targeted at a depth of approximately 80-100 m beneath the natural ground surface (the base of the weathered zone). The BIF is aggressively dewatered in order to try and induce a steep hydraulic gradient in the less

permeable, mafic footwall and hangingwall units. Generally there is good drawdown along the strike of the BIF, while the drawdown is retarded across strike.

Pit water quality associated with the project area is generally good. Sampling conducted by BBGO identified there is little evidence of contamination from previous mining activities. Pit water quality has been analysed by BBGO using three sources of data:

- Historical pit water monitoring data;
- Analysis of water standing in the existing pits (February 2016); and
- Modelling of the mixed pit waters.

BBGO compared pit water quality results and the results from modelling to the ANZECC 2000 livestock drinking water and freshwater at the 95% protection level, the Department of Health (DoH) non potable groundwater use (NPUG) and the Australian Drinking Water Guidelines (2011 version 3.2 updated 2016).

The table below presents the 2016 water quality results and results of the modelling of the mixed water.

Sample ID	Comet	Pinnacles	Eclipse	Venus	Mixed
Calcium	230	690	130	180	273
Magnesium	160	390	92	140	175
Sodium	600	1600	420	1000	807
Potassium	33	85	24	38	41
Bicarbonate	91	77	100	120	96
Sulfate	840	2800 2800	370	480	998 998
Chloride	1300 1300	3100 3100	910 910	2100 2100	1609 1609
TDS	3100	9000 9000	2200	4000	3670
Conductivity	5100	11000	3600	6900	
pH	8.1	8.1	8.3	8.	
Carbonate	< 1	< 1	1	< 1	1
Alkalinity	75	63	86	95	
Fluoride	0.8	1.6	0.7	1	1
Nitrite	0.3	< 0.2	1	0.9	0.7
Nitrate	65	16	76	93	62.5
Silicon	12	5.8	19	25	15.45
Hardness	1200	3300	710	1000	1553
Fluoride	0.8	1.6	0.7	1	1
Nitrite	0.3	< 0.2	1	0.9	0.7
Nitrate	65	16	76	93	62.5
Silicon	12	5.8	19	25	15.45
Hardness	1200	3300	710	1000	1553
Fluoride	0.8	1.6	0.7	1	1
Nitrite	0.3	< 0.2	1	0.9	0.7
Nitrate	65	16	76	93	62.5
Silicon	12	5.8	19	25	15.45
Hardness	1200	3300	710	1000	1553
Selenium	0.011	< 0.005	0.003	0.007	0.016
Zinc H	< 0.005	< 0.025	0.008	< 0.025	0.012
Mercury	< 50E-6	< 50E-6	< 50E-6	< 50E-6	< 50E-6

ANZECC livestock drinking water
Australian drinking water

ANZECC fresh water 2000
DoH non-potable water use

All water quality in the pits is considered suitable, with the exception of TDS in the Pinnacles pit, for stock watering and mine use which are the main groundwater users in the Project area.

Discharge of dewatering effluent water into disused pits

Emission Description

Emission: Discharge of mine dewatering effluent into a mined pit.

Impact: Contamination of groundwater through exchange of water between storage pit and surrounding aquifer. Vegetation loss/damage due to increased groundwater levels.

Controls: BBGO has committed to undertake monthly monitoring of the Venus pit water level and quality and should deviations from the baseline data be observed, appropriate measures will be undertaken. Any potential impacts would be localised within the confined fractured rock aquifer. Heavy metals in the discharge water are very low or are below detection limits. Water quality in all pits to be dewatered, except the Pinnacles pit, is similar in quality to the receiving Venus pit. Only a small volume of water is needed to be dewatered from the Pinnacles pit with the final mixed water quality of similar or better quality than the Venus receiving pit. There is no groundwater dependant vegetation located within the Project area. BBGO will maintain a minimum 3 m freeboard in the Venus pit however it is not expected to reach that level because the reserve volume in the Venus pit, following the completion of dewatering discharge, is estimated at 700,000 kilolitres.

Risk Assessment

Consequence: Minor

Likelihood: Unlikely

Risk Rating: Moderate

Regulatory Controls

Condition 1.2.3 has been applied to the Licence and specifies the freeboard to be maintained at the Venus pit where the dewatering effluent will be stored.

Condition 1.2.5 has been applied to the Licence and requires daily visual inspections of the available freeboard at the Venus pit and to take any corrective actions if required.

Condition 2.2.1 has been applied to the Licence to ensure only water from the dewatering of the Comet, Comet North, Eclipse and Pinnacle pits is discharged to the Venus pit.

Condition 2.2.2 has been applied to the Licence to limit the amount of hydrocarbons that can be present in the dewatering effluent water discharged to the Venus pit. Limits have not been set for any other parameters as the water contained within the pits is of similar nature. Water sampling of the receiving pit (Venus pit) and the dewatered pits indicates no presence of historical hydrocarbon contamination however there is potential for hydrocarbons to enter the dewatering process through spills and leaks from dewatering pumps located in the pits being dewatered.

Condition 3.2.1 has been applied to the Licence to ensure the Licensee undertakes routine monitoring of dewatering water discharged into the Venus pit.

Condition 4.3.1 has been applied to the Licence that requires the Licensee to notify the CEO, within a specified time, when any limit specified in the Licence has been exceeded.

Residual Risk

Consequence: Minor

Likelihood: Unlikely
Risk Rating: Moderate

Dewatering pipelines

Emission Description

Emission: Ruptured dewatering pipelines resulting in the discharge of brackish to saline dewatering water to the environment.

Impact: Soil erosion, land contamination, surface water contamination, and vegetation loss/damage.

Controls: Pipeline located within a trenched V-drain to contain leaks. Contingency plan for early detection and control of pipeline failure that includes pressure sensors and daily inspection of pipelines. Dewatering water is considered good quality. Pipelines located within previous cleared areas with surrounding vegetation heavily degraded due to over grazing and historical mining. No permanent surface waters in the Project area.

Risk Assessment

Consequence: Minor

Likelihood: Possible

Risk Rating: Moderate

Regulatory Controls

Condition 1.2.4 has been applied to the Licence and requires that all pipelines containing dewatering effluent are either equipped with telemetry, automatic cut-outs or provided with secondary containment.

Condition 1.2.5 has been applied to the Licence and requires daily visual inspections of the dewatering discharge pipelines to identify any leaks and/or maintenance requirements.

Residual Risk

Consequence: Minor
Likelihood: Possible
Risk Rating: Moderate

Containment infrastructure

Emission: Overtopping of the Venus pit discharging brackish to saline water to the environment.

Impact: Contamination of surface water, groundwater and soil. Vegetation stress due to exposure to elevated concentrations of dissolved and suspended solids.

Controls: The water level in the Venus pit will be maintained at 3 metre below ground level as a minimum. Following dewatering of all pits to be mined, the Venus pit is expected to have a reserve capacity of 700,000 kilolitres. Daily visual inspections of the water storage infrastructure is undertaken to monitor freeboard and identity maintenance requirements.

Risk Assessment

Consequence: Minor
Likelihood: Unlikely
Risk Rating: Moderate

Regulatory Controls

Condition 1.2.3 has been applied to the Licence and specifies the freeboard to be maintained at the Venus pit where the dewatering effluent will be stored.

Condition 1.2.5 has been applied to the Licence and requires daily visual inspections of the available freeboard at the Venus pit and to take any corrective actions if required.

Residual Risk
Consequence: Minor
Likelihood: Rare
Risk Rating: Low