



# Works Approval

## *Environmental Protection Act 1986, Part V*

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**Works Approval Holder:** Big Bell Gold Operations Pty Ltd

**Works Approval Number:** W5972/2016/1

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

**ACN:** 090 642 809

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

**Issue date:** Thursday, 30 June 2016

**Commencement date:** Monday, 4 July 2016

**Expiry date:** Wednesday, 3 July 2019

The following category/s from the *Environmental Protection Regulations 1987* cause this Premises to be a prescribed premises for the purposes of the *Environmental Protection Act 1986*:

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

### Conditions

This Works Approval is subject to the conditions set out in the attached pages.

Date signed: 04 July 2016

.....  
**Alana Kidd**  
**Manager Licensing – Resource Industries**  
Officer delegated under section 20  
of the *Environmental Protection Act 1986*



# Works Approval Conditions

## 1 General

### 1.1 Interpretation

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

1.1.2 In the Works Approval, unless the contrary intention appears:

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

**'annual period'** means the inclusive period from 1 July until 30 June in the following year;

**'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  
Email: info@der.wa.gov.au

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

**'Schedule 1'** means Schedule 1 of this Works Approval unless otherwise stated;

**'Works Approval'** means this Works Approval numbered W5972/2016/1 and issued under the Act; and

**'Works Approval Holder'** means the person or organisation named as the Works Approval Holder on page 1 of the Works Approval.

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

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

### 1.2 General conditions

1.2.1 The Works Approval Holder shall construct the works in accordance with the documentation detailed in Table 1.2.1:

Table 1.2.1: Construction Requirements <sup>1</sup>		
Document	Parts	Date of Document
Works Approval Application Form	All	27 April 2016
Big Bell Gold Operations Pty Ltd, Central Murchison Gold Project Supporting Document for Comet Dewatering and Class I Landfill, April 2016	All, including Drawings and Appendices	April 2016



Note 1: Where the details and commitments of the documents listed in condition 1.2.1 are inconsistent with any other condition of this Works Approval, the conditions of this Works Approval shall prevail.

## **2 Information**

### **2.1 Reporting**

2.1.1 The Works Approval Holder shall submit a compliance document to the CEO, following the construction of the works and prior to commissioning of the same.

2.1.2 The compliance document shall:

- (a) certify that the works were constructed in accordance with the conditions of the Works Approval; and
- (b) be signed by a person authorised to represent the Works Approval Holder and contain the printed name and position of that person within the company.

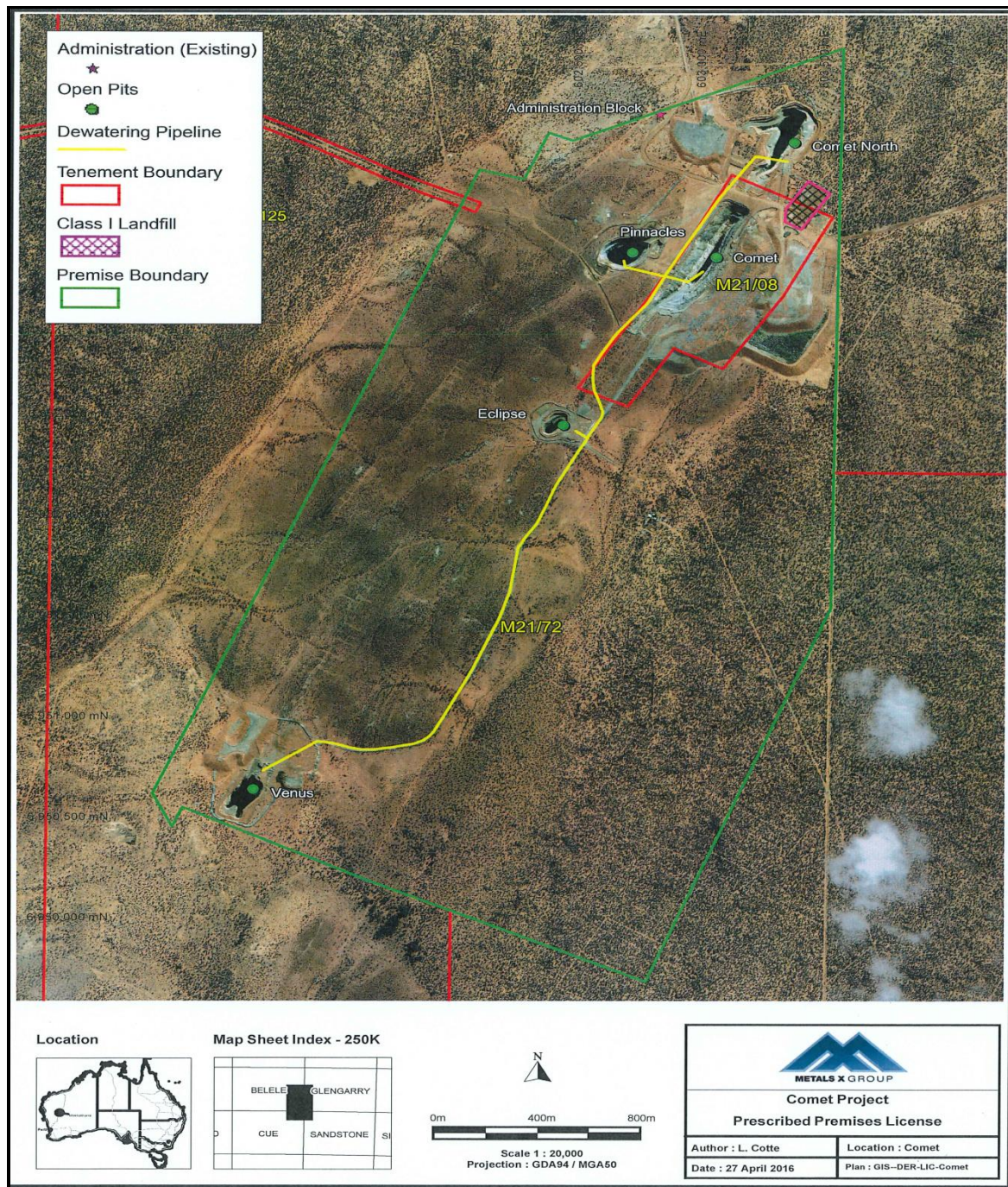




## Schedule 1: Maps

### Premises map

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





# Decision Document

## *Environmental Protection Act 1986, Part V*

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**Proponent: Big Bell Gold Operations Pty Ltd**

**Works Approval: W5972/2016/1**

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**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, 30 June 2016

**Commencement date:** Monday, 4 July 2016

**Expiry date:** Wednesday, 3 July 2019

### **Decision**

Based on the assessment detailed in this document, the Department of Environment Regulation (DER) has decided to issue a Works Approval. DER considers that in reaching this decision, it has taken into account all relevant considerations and legal requirements and that the Works Approval 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

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## 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 <input checked="" type="checkbox"/> New Licence <input type="checkbox"/> Licence amendment <input type="checkbox"/> Works Approval amendment <input type="checkbox"/>	
Activities that cause the premises to become prescribed premises	Category number(s)	Assessed design capacity
	6	500,000 tonnes per annual period
Application verified	Date: 6 May 2015	
Application fee paid	Date: 19 May 2015	
Works Approval has been complied with	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Compliance Certificate received	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>



Is the proposal subject to Ministerial Conditions?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	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 <i>Environmental Protection Act 1986</i> )?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Department of Water consulted Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes include details of which EPP(s) here.		
Is the Premises subject to any EPP requirements? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, include details here, eg Site is subject to SO <sub>2</sub> requirements of Kwinana EPP.		

### 3 Executive summary of proposal and assessment

Big Bell Gold Operations Pty Ltd (BBGO) is currently undertaking feasibility studies at its Comet Project (Project). The Project consists of re-opening a number of previously mined pits and developing a number of deposits via open pit underground mining methods. In order to progress the feasibility studies, the water standing in the pit voids will require transfer to a storage pit. Ongoing mining operations would also require dewatering. If mining commences, all mined ore will be transported to the nearby BBGO Bluebird Gold Mine for processing. BBGO also proposes to operate a Class I landfill at the Project for the burial of 150 tonnes per annum of inert waste.

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 mm and 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 proposes to dewater the Comet, Comet North, Eclipse and Pinnacles pits with dewatering water being discharge into the previously mined Venus pit. A small quantity of dewatering water will be used for dust suppression at the Project. Initially about 500,000 cubic metres (m<sup>3</sup>) of water will be transferred from the existing pits to the Venus pit at a rate of approximately 360 kilolitres per hour (kL/hr).

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.

No clearing of vegetation is required at the Project as dewatering infrastructure is to be installed within existing haul roads and previous cleared areas.



Power for the Project will be 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.

DER considers that BBGO's commitments and internal procedures will provide sufficient protection that the risks can be appropriately managed. This works approval 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 three years.

The Works Approval Holder will require a licence for the Project, at the completion of commissioning for ongoing operation.





## 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
<b>General Conditions</b>	W1.2.1  Licence condition proposed	<p><b>Construction</b> Construction requirement conditions have been applied to the Works Approval.</p> <p><b>Operation</b> A condition will be proposed in the Licence to ensure the recovery or removal and disposal of spills of environmentally hazardous materials outside an engineered containment system.</p>	<p>Application supporting documentation.</p> <p><i>Environmental Protection Act 1986.</i></p> <p><i>Environmental Protection (Unauthorised Discharges) Regulations 2004.</i></p>
<b>Premises operation</b>	W – N/A  Licence conditions proposed	<p><b>Construction</b> No premises operation conditions have been applied to the Works Approval.</p> <p><b>Operation</b> A condition is proposed in the Licence to ensure the Licensee records and investigates an exceedance of any descriptive or numerical limit in the Premises operation section.</p> <p><u>Landfill</u> 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 will be</p>	<p>Application supporting documentation.</p> <p><i>Environmental Protection Act 1986.</i></p> <p><i>Environmental Protection (Unauthorised</i></p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p>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 <i>Environmental Protection Regulations 1987</i>, whereby conditions are applied to the Licence for its operation. Therefore no landfill conditions are likely to be applied to the Licence. The general provisions of the Act will however apply.</p> <p><u>Dewatering</u> Details of DER's assessment and decision making for proposed conditions in the Licence for the dewatering operations are included in Appendix A.</p> <p><u>Stormwater</u> No conditions are required to be added to the Works Approval and proposed Licence in relation to stormwater management and the storage of hydrocarbons and chemicals as this can be sufficiently regulated under the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i>.</p> <p><u>Hydrocarbons</u> <u>Emission Description</u> <i>Emission:</i> Discharge of hydrocarbons and hydrocarbon contaminated wastes into the environment due to inappropriate storage and handling. <i>Impact:</i> Contamination of soil, groundwater and surface water. <i>Controls:</i> Waste oil tanks utilised and bunded facilities provided for waste hydrocarbons in the processing plant and workshops. Removed off-site for recycling. All hydrocarbons shall be 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 material shall be disposed of at a 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, shall not be conducted in the vicinity of water bodies or drainage lines without the authorisation of the site manager.</p>	<i>Discharges) Regulations 2004.</i>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p>Where such activities are necessary to the project scope of works, a pre-task job hazard analysis shall be undertaken.</p> <p><u>Risk Assessment</u> <i>Consequence:</i> Insignificant <i>Likelihood:</i> Rare <i>Risk Rating:</i> Low</p> <p><u>Regulatory Controls</u> The general provisions of the <i>Environmental Protection Act 1986</i> with respect to the causing of pollution and environmental harm apply, as well as subsidiary legislation including the <i>Environmental Protection (Unauthorised Discharges) Regulation 2004</i>.</p> <p><u>Residual Risk</u> <i>Consequence:</i> Insignificant <i>Likelihood:</i> Rare <i>Risk Rating:</i> Low</p>	
Point source emissions to air including monitoring	N/A.	<p><b>Construction and Operation</b> There will be no point source emissions to air during the construction and operation of the dewatering infrastructure. No conditions relating to point source emission to air or the monitoring of these emissions are required to be added to the Works Approval or proposed Licence.</p>	General provisions of the <i>Environmental Protection Act 1986</i> .
Point source emissions to surface water including monitoring	N/A.	<p><b>Construction and Operation</b> There will be no point source emissions to surface water during the construction and operation of the dewatering infrastructure. The nearest surface water is approximately 20 km south of the Project.</p> <p>No conditions relating to point source emission to surface water or the monitoring of these emissions are required to be added to the Works Approval or proposed Licence.</p>	General provisions of the <i>Environmental Protection Act 1986</i> .



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Point source emissions to groundwater including monitoring	W – N/A Licence conditions proposed	<b>Construction and Operation</b> Details of DER's assessment and decision making are included in Appendix A.	Application supporting documentation.  <i>Environmental Protection Act 1986.</i>
Noise	W - N/A L - N/A	<b>Construction and Operation</b> No significant noise emissions are expected during construction and operation of the dewatering facility. No conditions relating to noise emissions are required to be added to the Works Approval or the proposed Licence. Any noise from the Project can be adequately managed through the provisions of the <i>Environmental Protection (Noise) Regulations 1997</i> .	Application supporting documentation.  <i>Environmental Protection (Noise) Regulations 1997</i>
Fugitive emissions	N/A.	<b>Construction and Operation</b> Fugitive dust emissions may occur during the installation of the dewatering infrastructure. A water cart will be 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 <i>Environmental Protection Act 1986</i> .  No conditions relating to fugitive dust emissions are required in the Works Approval or proposed Licence for the construction and operation of the dewatering infrastructure.	General provisions of the <i>Environmental Protection Act 1986</i> .
Information	W2.1.1 and W2.1.2 Licence conditions proposed	<b>Construction</b> Conditions requiring the Works Approval Holder to submit a compliance document in the required format following the completion of the Works have been applied to the Works Approval.	Application supporting documentation.  <i>Environmental</i>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<b>Operation</b> Administrative conditions including records, reporting and notification will be applied to the proposed Licence.	<i>Protection Act 1986.</i>
<b>Works Approval Duration</b>	N/A	DER considers that BBGO's commitments, internal procedures and the monitoring conditions in the Works Approval will provide sufficient protection and that the risks can be appropriately managed. This Works Approval 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 three years.	N/A





## 5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
30/5/2016	Application advertised in West Australian (or other relevant newspaper)	No comments received	N/A
16/6/2016	Proponent sent a copy of draft instrument	Cheryl Low, Environment Manager. No comments and wishes to proceed with signing of Works Approval.	Works Approval prepared for signing 23/6/2016



## 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 – Construction

No premises operation or monitoring conditions have been applied to the Works Approval.

#### 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 intends to discharge this water into the previously mined Venus Pit.

Pit water will be sump pumped from the pit voids. A pipeline will be constructed from the Comet group of pits, with offtakes and discharges to the various pits as required. Initially, approximately 500,000 m<sup>3</sup> 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<sup>3</sup> 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 will run from the Comet North pit to the Venus Pit. This pipe line will follow the existing access and haul roads for all but 300 m of the route. The southern pits (Comet, Pinnacles and Eclipse) will each have spur pipes that will connect to the main line. Diesel powered centrifugal pumps and electric powered submersible pumps will pump the water from the pits through the pipe line to the Venus Pit. All the units (including fuel cells if required) will be within the pit areas. Discharge rate through the pipe line will be between a minimum of 20 L/sec and a maximum 180 L/sec.

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

The pipeline will be 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 will check for leaks daily. Having the pipeline above ground allows for easy detection of leaks and repair work if required.



Pipelines will follow areas of existing disturbance, which consist of old haul roads. Pumping equipment will also be located in areas of previous disturbance, as will all associated construction equipment. There will be no vegetation clearing 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 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 banded iron formation (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	370	480	998
Chloride	1300	3100	910	2100	1609
TDS	3100	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.

#### 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 or overtopping of the pit wall.

*Controls:* BBGO proposes 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 proposes to maintain a 3 m freeboard in the Venus pit.

#### Risk Assessment

*Consequence:* Minor

*Likelihood:* Unlikely

*Risk Rating:* Moderate

#### Regulatory Controls

BBGO has already undertaken analysis of the pit waters during February 2016. Therefore no conditions for ambient groundwater monitoring are required within the Works Approval.

A condition is proposed in the Licence which will require the Licensee to maintain a minimum top of embankment of 3 m to prevent overtopping.

A condition is proposed in the Licence which will require the Licensee to conduct daily inspections of the Venus pit to ensure a 3 m freeboard is maintained.

A condition is proposed in the Licence which will require the Licensee to only emit to groundwater, dewatering water into the Venus pit.

A condition is proposed in the Licence which will require the Licensee to undertake general monitoring requirements.

A condition is proposed in the Licence which will require the Licensee to undertake routine monitoring of dewatering water discharged into the Venus pit.





Residual Risk

*Consequence:* Minor

*Likelihood:* Unlikely

*Risk Rating:* Moderate

Emission Description

*Emission:* Dewatering water leak caused by a pipeline fracture or leaking valves.

*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

A condition is proposed in the Licence which will require the Licensee to ensure all pipelines containing dewatering effluent are either equipped with pressure sensors, automatic cut-outs or provided with secondary containment.

A condition is proposed in the Licence which will require the Licensee to undertake daily inspections of the dewatering pipeline, and if the inspection identifies that an appropriate level of environmental protection is not being maintained, the Licensee is to take corrective action to mitigate adverse environmental consequences as soon as practicable.

Residual Risk

*Consequence:* Minor

*Likelihood:* Possible

*Risk Rating:* Moderate

Emission Description

*Emission:* Use of brackish to saline dewatering water at the Project for dust suppression.

*Impact:* Saline water used for dust suppression affecting surrounding vegetation. Land contamination.

*Controls:* Minimise spray drift into vegetation alongside roads by use of dribble bars. BBGO will ensure all water used for dust suppression in close proximity to topsoil stockpiles is not saline (TDS of Eclipse pit is considered brackish). Staff induction will include information on dust minimisation practices.

Risk Assessment

*Consequence:* Minor

*Likelihood:* Unlikely

*Risk Rating:* Moderate



Regulatory Controls

A condition is proposed in the Licence which will require the Licensee to ensure that the use of dewatering water for dust suppression is appropriately managed to minimise damage to surrounding vegetation.

Residual Risk

*Consequence*: Minor

*Likelihood*: Rare

*Risk Rating*: Low