Government of Western Australia
Department of Environment Regulation

Licence

Environmental Protection Act 1986, Part V

Licensee: Big Bell Gold Operations Pty Ltd

Licence: L8934/2015/1

Registered office: Level 3, 123 Adelaide Terrace
EAST PERTH WA 6004

ACN: 090 642 809

Premises address: Central Murchison Gold Project – Big Bell
Mining Tenements M20/17, M20/99, M20/192, L20/21 and L20/40
CUE WA 6640
As depicted in Schedule 1

Issue date: Thursday, 3 March 2016

Commencement date: Monday, 7 March 2016

Expiry date: Friday, 6 March 2026

Prescribed premises category
Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
6	Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining or ore	50,000 tonnes or more per year	3,500,000 tonnes per annual period (discharged)

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

Date signed: 3 March 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 the Act. 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 Central Murchison Gold Project (CMGP) is owned by Westgold Resources Limited and is operated by its wholly owned subsidiary Big Bell Gold Operations Pty Ltd (BBGO). The CMGP consists of three project areas; Big Bell, Day Dawn and Cuddingwarra. At this stage, BBGO have developed the Big Bell and Day Dawn project areas.

This Licence is for the Big Bell project area. The Day Dawn project area operations is subject to a separate Licence, L8907/2015/1.

The CMGP has been assessed as prescribed premises category 6, under Schedule 1 of the *Environmental Protection Regulations 1987*. Category 6 is defined as 'Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore'. Ore mined from Big Bell is processed at the companie's Bluebird Gold Mine processing plant, operating under Licence L4496/1988/1.

BBGO undertakes dewatering of the projects open pits (Big Bell, Fender and Shocker/1600) and underground voids, utilising abstracted water for mining purposes and dust suppression on site. A maximum of 4.3 gigalitres (GL) will be abstracted per year. Dewatering water is stored in the Shocker and 1600N pits prior to being directed to a transfer dam, measuring 90 m long by 33 m in width and 3 m in depth. Dewatering water in excess of site requirements is discharged to Lake Austin, located approximately 24 kilometres (km) to the south of the project area.

It is anticipated that in the first year of dewatering, being 2016, up to 1 GL of dewatering effluent will be discharged to Lake Austin. This will increase to 2.8 GL per year for the following two years, after which discharge to Lake Austin is anticipated to cease. The approved design capacity on the Licence, being 3.5 GL per year discharged to Lake Austin, is consistent with Works Approval W5357/2013/1, which assessed and approved construction of the Big Bell dewatering operations. Should further discharge into Lake Austin be required beyond three years, the Licensee will consult with DER accordingly.

This Licence is for the discharge of dewatering water from the Big Bell mining operations, approved under works approval W5357/2013/1.

The licences and works approvals issued for the Premises since 11 April 2013 are:

Instrument log		
Instrument	**Issued**	**Description**
W5357/2013/1	11 April 2013	New Works Approval application
L8934/2015/1	3 March 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 1 October until the 30 September 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 5667.4' means the Australian Standard AS/NZS 5667.4 *Water Quality – Sampling – Guidance on sampling from lakes, natural and man-made;*

'AS/NZS 5667.6' means the Australian Standard AS/NZS 5667.6 *Water Quality – Sampling – Guidance on sampling of rivers and streams;*

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

'averaging period' means the time over which a limit is measured or a monitoring result is obtained;

'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;

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

'HDPE' means high density polyethylene;

'Licence' means this Licence numbered L8934/2015/1 and issued under the Act;

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

'mg/L' means milligrams per litre;

'm^3' means cubic metres;

'mm' means millimetres;

'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;

'quarterly' means the 4 inclusive periods from 1 October to 31 December and in the following year, 1 January to 31 March, 1 April to 30 June and 1 July to 30 September;

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

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

'spot sample' means a discrete sample representative at the time and place at which the sample is taken.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of 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.

1.1.5 Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:
(a) pollution;
(b) unreasonable emission;
(c) discharge of waste in circumstances likely to cause pollution; or
(d) being contrary to any written law.

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 1.2.3 and identified in Schedule 1.

Table 1.2.3: Containment infrastructure

Containment point reference	Material	Infrastructure requirements
Shocker and 1600N pits	Dewatering effluent	Maintain water level at 10 metres below surface

Transfer dam	Dewatering effluent	• 0.75 mm HDPE liner to achieve a permeability of 2 x 10^{-10} metres per second; and • maintain an operational freeboard of 300 mm

1.2.4 The Licensee shall ensure that all pipelines containing dewatering effluent 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 1.3.2;
(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 1.3.2: Inspection of infrastructure

Scope of inspection	Type of inspection	Frequency of inspection
Mine dewatering pipelines	Visual integrity	Daily
Transfer dam	Visual to confirm required freeboard capacity is available	Daily
Shocker and 1600N pits	Visual to confirm a freeboard of 10 metres is available	Daily during dewatering operations

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 surface water

2.2.1 The Licensee shall ensure that where waste is emitted to surface water from the emission points 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 surface water

Emission point reference	Description	Source including abatement
Lake Austin discharge	Discharge of dewatering effluent into Lake Austin	Water from dewatering of mine pits and underground operations

2.2.2 The Licensee shall discharge mine dewatering effluents via the discharge point in a manner which minimises erosion and scouring impacts, and reduces the likelihood of surface ponding.

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

Table 2.2.2: Point source emission limits to surface water			
Emission point reference	**Parameter**	**Limit (including units)**	**Averaging period**
Lake Austin discharge	Dewatering effluent water	3,500,000 tonnes	Annual period

2.3 Point source emissions to groundwater

2.3.1 The Licensee shall ensure that where waste is emitted to groundwater from the emission points in Table 2.3.1 and identified on the map of emission points in Schedule 1, it is done so in accordance with the conditions of this Licence.

Table 2.3.1: Emission points to surface water		
Emission point reference	**Description**	**Source including abatement**
Shocker and 1600N pits	Discharge of dewatering effluent into the Shocker and 1600N pits	Water from dewatering of mine pits and underground operations

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;
(c) all surface water sampling is conducted in accordance with AS/NZS 5667.4 or AS/NZS 5667.6 as relevant; and
(d) 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 surface water

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 surface water					
Emission point reference	**Parameter**	**Units**	**Limit**	**Averaging period**	**Frequency**
Lake Austin dewatering discharge sampling point	Volumetric flow rate	m^3/day	-	Monthly	Continuous
	pH[1]	-	-	Spot sample	Quarterly
	Total Recoverable Hydrocarbons	mg/L	15 mg/L		

	Total Dissolved Solids		-		
	Total Suspended Solids				
	Arsenic	mg/L	-	Spot sample	Annual
	Cadmium				
	Chromium				
	Cobalt				
	Copper				
	Lead				
	Nickel				
	Selenium				
	Zinc				

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

3.3 Monitoring of point source emissions to groundwater

3.3.1 The Licensee shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Monitoring of point source emissions to groundwater

Monitoring point reference	Parameter	Units	Limit	Averaging period	Frequency
Shocker and 1600N pits dewatering discharge sampling point	Volumetric flow rate	m^3/day	-	Monthly	Continuous
	pH[1]	-	-	Spot sample	Quarterly
	Total Recoverable Hydrocarbons	mg/L	15 mg/L		
	Total Dissolved Solids				
	Total Suspended Solids				
	Arsenic	mg/L	-	Spot sample	Annual
	Cadmium				
	Chromium				
	Cobalt				
	Copper				
	Lead				
	Nickel				
	Selenium				
	Zinc				

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

4.1.3 The Licensee shall 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	Point source emissions to surface water monitoring results	None specified
Table 3.3.1	Point source emissions to groundwater monitoring results	None specified
4.1.2	Compliance	Annual Audit Compliance Report (AACR)
4.1.3	Complaints summary	None specified

Note 1: Forms are in Schedule 2

4.2.2 The Licensee shall ensure that the Annual Environmental Report also contains:
(a) any relevant process, production or operational data; and
(b) an assessment of the information contained within the report against previous monitoring results and Licence limits.

4.2.3 The Licensee shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements

Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form[1]
-	Copies of original monitoring reports submitted to the Licensee by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licensee from third parties

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[1]**
2.2.2, 3.2.1 and 3.3.1	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

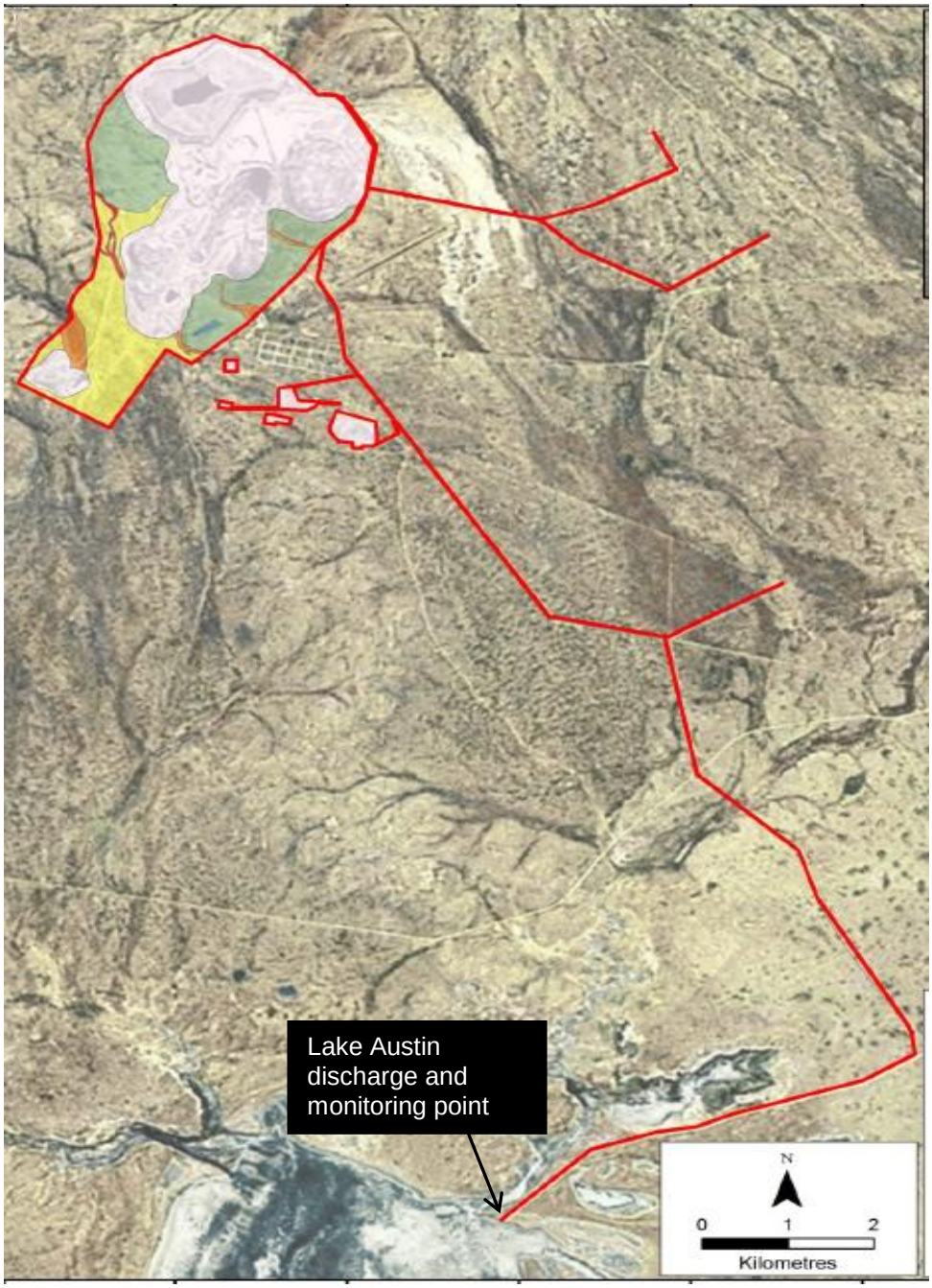
Note 1: Forms are in Schedule 2

Schedule 1: Maps

Premises map

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

The location of the emission point and monitoring location defined in Tables 2.2.1 and 2.3.1 are shown in the map below.



Map of containment infrastructure, emission and monitoring points

The location of the containment infrastructure defined in Table 1.2.3 and the emission point and monitoring location defined in Tables 2.3.1 and 3.3.1 is shown below.

Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. 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 the non 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: L8934/2015/1 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: L8934/2015/1

Registered office:	Level 3, 123 Adelaide Terrace EAST PERTH WA 6004
ACN:	090 642 809
Premises address:	Central Murchison Gold Project – Big Bell Mining Tenements M20/17, M20/99, M20/192, L20/21 and L20/40 CUE WA 6640
Issue date:	Thursday, 3 March 2016
Commencement date:	Monday, 7 March 2016
Expiry date:	Friday, 6 March 2026

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 that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by:	Haley Brunel Licensing Officer
Decision Document authorised by:	Alana Kidd Manager Licensing – (Resource Industries)

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	3,500,000 tonnes per annual period (discharged)
Application verified Application fee paid	Date: 4 December 2015 Date: 22 December 2015	
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

The Central Murchison Gold Project (CMGP) is owned by Westgold Resources Limited and is operated by its wholly owned subsidiary Big Bell Gold Operations Pty Ltd (BBGO). The CMGP consists of three project areas; Big Bell, Day Dawn and Cuddingwarra. At this stage, BBGO have developed the Big Bell and Day Dawn project areas.

This Licence is for the Big Bell project area. The Day Dawn project area operations is subject to a separate Licence, L8907/2015/1.

The CMGP has been assessed as prescribed premises category 6, under Schedule 1 of the *Environmental Protection Regulations 1987*. Category 6 is defined as 'Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore'. Ore mined from Big Bell is processed at the companie's Bluebird Gold Mine processing plant, operating under Licence L4496/1988/1.

BBGO undertakes dewatering of the projects open pits (Big Bell, Fender and Shocker/1600) and underground voids, utilising abstracted water for mining purposes and dust suppression on site. A maximum of 4.3 gigalitres (GL) will be abstracted per year. Dewatering water in excess of site requirements is discharged to Lake Austin, located approximately 24 kilometres (km) to the south of the project area.

It is anticipated that in the first year of dewatering, being 2016, up to 1 GL of dewatering effluent will be discharged to Lake Austin. This will increase to 2.8 GL per year for the following two years, after which discharge to Lake Austin is anticipated to cease. The approved design capacity on the Licence is consistent with Works Approval W5357/2013/1, which assessed and approved construction of the Big Bell dewatering operations.

Lake Austin is an ephemeral system located approximately 15 km south of Cue. The total surface area of the lake is approximately 773 km^2, and excluding the numerous islands equates to about 444 km^2. The lake is bisected by the Great Northern Highway, with a small gravel causeway across the western section. A portion of land situated along the northern flank of the lake is managed by the Department of Parks and Wildlife (former Lakeside pastoral lease), and is set aside for conservation purposes.

An aquatic assessment of Lake Austin was undertaken by Outback Ecology in 2011. During the aquatic assessment the Lake was flooded and provided an opportunity to obtain water quality data. Salinities of the surface waters ranged from 14,200 mg/L total dissolved solids (TDS) (hyposaline) to 250,000 mg/L (hypersaline) TDS. The major constituent ions were sodium (Na) and chloride (Cl). Concentrations of most metals and trace elements were below detection, with copper being the exception, exceeding the ANZECC value for marine waters (0.008 mg/L) at six of the seven sites. TDS in groundwater at Lake Austin is greater than 200,000 mg/L.

Groundwater was sampled from the Big Bell main shaft in 2012, at depths of 100 m, 150 m, 200 m, 250 m, and 300 m below the shaft collar. The analyses showed that the water in the underground workings is saline, ranging from 9,600 mg/L TDS at 100 m to 15,100 mg/L TDS at 250 m.

Big Bell pit and underground dewatering takes place from existing voids without the need to install dedicated dewatering bores. The first 3,000 megalitres (ML) of dewatering down to 250 metres below ground surface is undertaken using a pair of electric submersible pumps, suspended within the old haulage shaft. Each pump is capable of a peak flow of 8.0 ML/day with a 6.5 ML/day average over the project. Water is pumped through a 315 millimetre (mm) outer diameter high density polyethylene (HDPE) pipeline to the Shocker and 1600 pits. Water from the Fender pit is also directed to the Shocker and 1600 pits. The Shocker and 1600N pits are used for water storage with the water level maintained at 10 metres below ground surface.

The water pumped into the Shocker and 1600N pits is then pumped to a 7.5 mm HDPE lined transfer dam with a permeability of 2×10^{-10} metres per second. The dam has a capacity of 8,910 m^3 and provides a retention time of 32 hours at 6.5 ML/day. The transfer dam measures 90 m long by 33 m in width and 3 m in depth. The purpose of the transfer dam is to allow suspended solids to settle prior to the final discharge to Lake Austin.

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**
General conditions	N/A	Emission Description *Emission: S*tormwater contaminated with hydrocarbons from hydrocarbon storage areas. *Impact:* Contamination of surrounding land and surface water drainage systems. Potential impacts on ecology of surface water from the addition of hydrocarbons. *Controls:* Approximately 10,000 litres of diesel is stored on site to run the dewatering pumps. The 10,000 litre fuel tank is self bunded and all dewatering pumps are appropriately bunded. A hydrocarbon spill kit is stored in the vicinity of the pumps. The Licensee undertakes the transport, storage and handling of hydrocarbons and other hazardous materials in accordance with relevant industry guidelines and standards. Risk Assessment *Consequence*: Insignificant *Likelihood:* Unlikely *Risk Rating:* Low	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**
		Regulatory Controls The discharge of contaminated stormwater from the premises has been assessed as a low risk, therefore no specified conditions relating to the management of stormwater have been applied to the Licence. 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) Regulations 2004.* It is the occupiers responsibility to ensure they comply with relevant legislative requirements for the storage and handling of environmentally hazardous materials. Under the point source emissions to surface water conditions specified in condition 3.2.1 the Licensee is required to sample for total recoverable hydrocarbons in water discharged to Lake Austin and a limit of 15 mg/L has been applied. Exceedances of this limit will be reported to DER in accordance with the reporting requirements of this Licence. Residual Risk *Consequence*: Insignificant *Likelihood:* Unlikely *Risk Rating:* Low	
Premises operation	L1.2.1 to L1.2.5	The DER's assessment and decision making with respect to the management of the dewatering pipelines and containment infrastructure are detailed in Appendix A.	Application supporting documentation General provisions of the *Environmental Protection Act 1986*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
			Environmental Protection (Unauthorised Discharges) Regulations 2004
Emissions general	L2.1.1	Descriptive limits will be set through conditions of the licence and therefore condition regarding recording and investigation of exceedances of limits has been included.	N/A
Point source emissions to air including monitoring	N/A	There are no significant point source air emissions associated with the project. No specified conditions relating to air emission or the monitoring of such emissions have been applied to the Licence.	N/A
Point source emissions to surface water including monitoring	L2.2.1 to L2.2.3	DER's assessment and decision making with respect to the discharge of dewatering water to Lake Austin is detailed in Appendix B.	Application supporting documentation General provisions of the *Environmental Protection Act 1986* *Environmental Protection (Unauthorised Discharges) Regulations 2004*
Point source emissions to groundwater including monitoring		Condition 2.3.1 is included in the Licence to identify the location of the dewatering discharge into the Shocker and 1600N pits. Condition 3.3.1 is included in the Licence to ensure the dewatering effluent water discharge into Shocker and 1600N pits is sampled and analyaed for particular parameters while dewatering is occurring.	Application supporting documentation General provisions of the *Environmental Protection Act 1986*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		The Shocker pit in 2011 had a TDS of 5,100 mg/L and the 1600N pit had a TDS of 9,200 mg/L. In 2011 the Fender and Big Bell pits, from which water will be abstracted and directed to the Shocker and 1600N pits for storage, had a TDS of 5,100 mg/L and 13,000 mg/L respectively. Dewatering water is to be stored in the Shocker and 1600N pit prior to being directed to the transfer dam. Condition 3.3.1 has been applied to the Licence and requires the monitoring of volumes and quality of water discharged to the pit. The requirement to monitor for Total Recoverable Hydrocarbons has been included as there is potential for water discharge to be contaminated from the use of hydrocarbons in the underground mining operations.	*Environmental Protection (Unauthorised Discharges) Regulations 2004*
Emissions to land including monitoring	N/A	There are no point source emissions to land associated with the project. No specified conditions relating to emissions to land or the monitoring of such emissions have been applied to the Licence.	General provisions of the *Environmental Protection Act 1986* *Environmental Protection (Unauthorised Discharges) Regulations 2004*
Fugitive emissions	N/A	*Emission:* Dust emissions generated from the use of heavy machinery and vehicle movements. *Impact:* Deterioration of the local air shed, impacts to amenity. Dust emissions can be harmful to human health and the environment. Elevated total suspended particulates (TSP) can impact ambient environmental quality resulting in amenity impacts and can smother vegetation.	General provisions of the *Environmental Protection Act 1986* Application supporting documentation

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Controls: The nearest sensitive receptor is located approximately 5 km to the north of the site. The Licensee utilises water carts on the roads, open pits, parking bays and equipment areas. Vehicle speeds are restricted on unsealed surfaces. Processing of ore will not be undertaken at the premises. <u>Risk Assessment</u> *Consequence*: Insignificant *Likelihood:* Possible *Risk Rating:* Low <u>Regulatory Controls</u> No specified conditions relating to the management of fugitive dust emissions have been applied to the Licence. The general provisions of the *Environmental Protection Act 1986* with respect to the causing of pollution and environmental harm will apply. <u>Residual Risk</u> *Consequence*: Minor *Likelihood:* Rare *Risk Rating:* Low	
Odour		There are no significant odour emissions associated with the project. No specified conditions relating to odour emissions have been applied to the Licence.	General provisions of the *Environmental Protection Act 1986*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Noise		There are no significant noise emissions associated with the project. No specified conditions relating to noise emissions have been applied to the Licence.	General provisions of the *Environmental Protection Act 1986* *Environmental Protection (Noise) Regulations 1997*
Monitoring general	L3.1.1 to 3.1.4	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 5667.11 – Water Quality – Sampling – Guidance on the sampling of groundwaters Standard Methods for Examination of Water and Wastewater, American Public Health Association – American Water Works Association – Water Environment Federation
Ambient quality monitoring	N/A	The monitoring of ambient environmental conditions (eg. vegetation, groundwater, surface water etc) is not considered necessary due to the mine dewatering discharge being a temporary requirement.	General provisions of the *Environmental Protection Act 1986*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		The appropriate location and design of the discharge point will minimise impacts to the environment. Under the Licence, monitoring of the discharge to Lake Austin is required and results are reported to DER in the Annual Environmental Report for assessment. Further consideration will be given to the implementation of ambient monitoring if mine dewatering activities at the Project are extended past 2018.	*Environmental Protection (Unauthorised Discharges) Regulations 2004*
Information		Administrative conditions including keeping of records, reporting and notification requirements have been included in the Licence.	
Licence Duration	N/A	The Licensee has advised that the mining tenements for the operations expire in 2026. In accordance with the Guidance Statement *Licence Duration,* the Licence has been issued for a period of 10 years.	Guidance Statement, *Licence Duration* (DER, November 2014)

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
4/01/2016	Application advertised in West Australian (or other relevant newspaper)	No comments received	-
23/02/2016	Proponent sent a copy of draft instrument	No comments received	-

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

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:

- Roads bunded where necessary to prevent saline water runoff into the surrounding environment;
- Runoff from roads directed to drainage sumps where necessary; and
- Operators of water trucks are informed of the potential environmental impacts of saline water through inductions and training.

Risk Assessment

Consequence: Minor
Likelihood: Unlikely
Risk Rating: Moderate

Regulatory Controls

Condition 1.3.2 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.

The general provisions of the *Environmental Protection Act 1986* with respect to the causing of pollution and environmental harm will apply.

Residual Risk

Consequence: Minor
Likelihood: Rare
Risk Rating: Low

Dewatering pipelines

Emission Description

Emission: Ruptured dewatering pipelines resulting in the discharge of hypersaline dewatering water (total dissolved solids of up to 20,000 mg/L) to the environment.

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

Controls: The pipeline conveying the dewatering water to Lake Austin for discharge is a 355 mm outer diameter HDPE that is 24.3 km in length.

Sections of the pipe have either been buried or bunded and all pipes have been constructed and installed to Australian Standards and the Plastics Industry Pipe Association Guidelines. The pipeline route mainly follows routes which have been previously cleared or are highly disturbed.

Telemetry has been fitted to the pipeline and there is the capability for pumps to be automatically shut off, if required.

The Licensee undertakes visual inspections of pipes once per 12 hour shift, which includes assessing the health of riparian vegetation where it is in close proximity to the pipelines.

Risk Assessment
Consequence: Minor
Likelihood: Unlikely
Risk Rating: Moderate

Regulatory Controls
Condition 1.3.4 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 1.3.5 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: Rare
Risk Rating: Low

Containment infrastructure
Emission: Overtopping of water storage and transfer dam or infiltration of stored water, discharging hypersaline 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 Shocker and 1600N pits is maintained at 10 mbs.

The transfer dam, used to settle out suspended solids, is equipped with level sensors to prevent overtopping. During operations a freeboard of at least 300 mm is maintained. The transfer dam is lined with a HDPE liner. 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 1.3.1 has been applied to the Licence and specifies the freeboard to be maintained on the dewatering effluent storage infrastructure and the permeability of the transfer dam.

Condition 1.3.5 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: Rare
Risk Rating: Low

Appendix B

Emission: Discharge of hypersaline (up to 20,000 mg/L) mine dewatering effluent to Lake Austin.

During 2016, being the first year of dewatering, approximately 1 GL is proposed to be discharged to Lake Austin. Discharge to Lake Austin for both the second and third year is expected to be 2.8 GL. After the third year of dewatering is anticipated that no further discharge to Lake Austin will occur as the mine dewater will be required for process water on site.

The water balance for the Big Bell Project area is provided in Figure 1 below.

Water Quality	Water Output	2016 (in ML)	2017 (in ML)	2018 (in ML)
Mine Dewatering (after settling)	Lake Austin	1,000	2,800	2,800
	Surface mining processes	50	50	100
	Dust suppression	50	50	200
	Underground mining operations	50	50	200
Total Water Output		**1,150**	**2,980**	**3,300**

Figure 1. Big Bell Project area water balance

Impact: Increased metal, salt, nutrient and solid loads in the aquatic habitat, impacting aquatic biota, including water birds, invertebrates and algae.

Accumulation of salt on the lake bed and subsequent dissolution and dispersion of this salt load throughput the lake. Impacts on riparian and fringing vegetation communities, altering distribution/zonation of some species.

Erosion of the lake bed at the discharge point.

Controls: The dewatering discharge point will be located approximately 900 m onto the surface of the salt lake, avoiding the lake edges and surrounding creek lines to minimise impacts on riparian vegetation, shallow and fringing habitats. When mining was last operational in the Project area, the north-western part of Lake Austin was selected as a suitable discharge point due to its highly mineralised surface and halophytic fringing vegetation. Flow is directed towards deeper parts of the basin to prevent backflow of saline water into creek lines and tributaries, further minimising potential impacts to riparian vegetation. The outfall has been fitted with flow diffusers to minimise effects of scouring and erosion on the lake bed.

It is anticipated that in total, up to 133,800 tonnes of salt may be added to Lake Austin from the Big Bell discharge. The north-west corner of Lake Austin is the deepest part of the basin and water will be mostly localised, and restricted to the vicinity of the discharge outfall. During dry conditions, the discharge water evaporates rapidly, leaving a shallow pool (less than 5 cm deep) which covers an area of between 1 km^2 and 4 km^2. This is equivalent to less than one percent of the total lake area of 222 km^2, or less than four per cent of the area of the north west corner.

In wet conditions the discharge area will increase, however due to the effects of dilution, will not impede on the natural balance of the system. Natural runoff has been shown to meander around the discharge outfall and collect further to the east. Estimated water volumes into the system during a 1 in 2 year rainfall event are 32 gigalitres (72 mm) and a 1 in 100 year rainfall event are 74 gigalitres (166 mm). The addition of up to 2.8 gigalitres from Big Bell is minimal in comparison. The Licensee

has committed to diverting discharge water to available mine pits during the first month of a complete flood event to maintain natural environmental salinity levels.

The 2011 aquatic ecology assessment found that past dewatering onto the lake has had no detectable impact on lake ecology and the anticipated water quality of the discharge water is generally within the range of natural variation recorded across the lake (Outback Ecology, January 2012).

The assessment report found that provided steps are taken to direct the dewatering discharge away from sensitive areas, the risk associated with the recommencement of dewatering discharge at Lake Austin is considered to be low.

It is anticipated that discharge to Lake Austin will be required for up to three years, after which dewatering volumes from the mine pits and underground will be used as process water and for dust suppression on site. Any disturbance associated with the dewatering discharge will be minor, localised and temporary, avoiding any long-term ecological impacts. The Licensee has taken appropriate measures to direct the discharge water away from sensitive areas and manage the discharge to avoid erosion at the discharge point.

The Licensee has indicated that comprehensive biological monitoring will be addressed through the closure plan. The extensive baseline information which is available will be used to formulate closure criteria to assess the health of aquatic communities, riparian vegetation and water quality.

Risk Assessment
Consequence: Minor
Likelihood: Unlikely
Risk Rating: Moderate

Regulatory Controls
Condition 2.2.1 has been applied to the Licence and identifies the Lake Austin discharge point. The Licensee is required to monitor the volume and quality of point source emissions to surface water under condition 3.2.1. With the use of equipment and the storage of hydrocarbons underground, there is the potential for contamination of Lake Austin. Therefore the requirement of quarterly sampling of Total Recoverable Hydrocarbons has been included in condition 3.2.1 and a limit of 15 mg/L has been set. The results of this monitoring will be reported to DER in the Annual Environmental Report for assessment.

Condition 2.2.2 has been included in the Licence and requires the Licensee to minimise erosion and scouring at the discharge location and to reduce the likelihood of surface ponding.

Limits on the volume of dewatering effluent discharged to Lake Austin have been imposed through condition 2.2.2.

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

References
'Westgold Resources Limited Central Murchison Gold Project – Aquatic Assessment of Lake Austin', Outback Ecology Services (January 2012)