



Application for Licence Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L8978/2016/1
Licence Holder	Big Bell Gold Operations Pty Ltd
ACN	090 642 809
File Number	DER2016/000908-1
Premises	Comet Project CUE WA 6640 Mining tenement M21/8, M21/72 and L21/16 As defined by the Premises maps attached to the Revised Licence
Date of Report	13 June 2022
Proposed Decision	Granted

**MANAGER, RESOURCE INDUSTRIES
INDUSTRY REGULATION**

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

Table of Contents

1. Decision summary	4
2. Scope of assessment	4
2.1 Regulatory framework	4
2.2 Application summary	4
3. Risk assessment	4
3.1 Source-pathways and receptors	5
3.1.1 Emissions and controls	5
3.1.2 Receptors	6
3.2 Risk ratings	11
3.3 Detailed Risk Assessment – discharge to Eclipse Pit	15
4. Consultation	18
5. Conclusion	18
5.1 Summary of amendments	18
References	20
Appendix 1: Summary of Licence Holder’s comments on risk assessment and draft conditions	21
Appendix 2: Dewatering data Eclipse, Comet and Comet North Pits	22
Appendix 3: Application validation summary	25
Table 1 Licence Holder controls	5
Table 2 Sensitive human and environmental receptors and distance from prescribed activity	6
Table 3 Risk assessment of potential emissions and discharges from the Premises during construction and operation	12
Table 4 Water balance, Eclipse Pit (Rockwater, 2022)	17
Table 5 Water level for all pits within the prescribed premises (Big Bell Gold, 2022)	17
Table 6 Consultation	18
Table 7 Summary of licence amendments	18
Table 8 Summary of Licence Holder comments on risk assessment and draft conditions	21
Table 9 Eclipse pit water quality sampled 29/09/2021 (Westgold, 2021)	22
Table 10 Comet pit water quality sampled 29/09/2021 (Westgold, 2021)	23
Table 11 Comet North pit water quality sampled 12/3/2021 (Westgold, 2021)	24
Figure 1 Distance to sensitive receptors	9
Figure 2 Colour infrared (vegetation composite)	10
Figure 3 Conceptual hydrogeological model	15

Figure 4 Location of Pinnacles Well 16

Figure 5. Pinnacles Well standing water levels (SWL) m bgl from 2013 to March 2022 (GRM, 2013; BBG, 2022) 16

1. Decision summary

Licence L8978/2016/1 is held by Big Bell Gold Operations Pty Ltd (Licence Holder) for the Comet Project (the Premises), located at mining tenements M21/8, M21/72 and L21/16. As part of this amendment, the applicant is planning to include L21/16 in their prescribed premises boundary. Other proposed amendments are discussed in Section 2 below.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the operation of the Premises. As a result of this assessment, Revised Licence L8978/2016/1 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the Premises. The Revised Licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format. This amendment also relates to amendments which assessed under L8644/2012/1 (dewater discharge to Friars pit).

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary

On 9 December 2021 the Licence Holder submitted an application to the department to amend Licence L8978/2016/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments, limited only to changes to category 6 from the existing Licence are being sought:

- Dewatering discharge to Eclipse pit;
- Addition of mining tenement L21/16; and
- Construction of dewatering pipeline on L21/16.

No amendments to dewatering throughput are proposed. The Licence Holder will manage dewatering activities within the existing licence allocation of 500,000 tonnes per annual period.

Note that construction of dewatering pipeline on L21/26 will be for dewatering from L8978/2016/1 to Friars pit located on L8644/2012/1. This decision report will assess construction of the pipeline only. Discharge of dewater to Friars pit will be assessed under a separate amendment for L8644/2012/1.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this Amendment Report are detailed in

1 below, which also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 1: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Dust	Mobile equipment movements during construction of dewatering pipelines	Air/windborne pathway	<p>Limit activities to minimise dust generation on cleared areas.</p> <p>Delay activities if weather conditions are likely to produce excessive dust.</p> <p>Use water truck for dust suppression as required.</p> <p>Visual monitoring for dust during construction and maintenance activities.</p>
Noise	Mobile equipment movements during construction of dewatering pipelines	Air/windborne	No controls proposed.
Saline pit dewater (saline, 3000-5500 mg/L TDS)	Dewatering to Eclipse pit	Seepage through base and pit walls to groundwater	No controls proposed
		Overtopping and direct discharge	
	New pipeline through L21/16, connecting M21/72 pits to Friars pit within prescribed premises L8644/2012/1, tenement M20/208.	Direct discharge from pipeline leak/rupture	<p>Pipeline infrastructure placed within a v-drain to limit movement and to capture any spills or releases.</p> <p>Diffuse deposition method of series of holes in the side of the pipe to reduce velocity and limiting capacity for localized erosion to occur.</p> <p>Length of pipe placed on a rock bed to further dissipate the discharge energy.</p> <p>Pipeline will be monitored and inspected daily.</p>
Dewater used for onsite dust suppression	Overspray or runoff from ongoing use of mine dewatering effluent for	Minimise spray drift into vegetation alongside roads by use of dribble bars	

Emission	Sources	Potential pathways	Proposed controls
		dust suppression operations	
Hydrocarbons and chemicals	Mobile equipment maintenance and servicing activities. Storage and use of hydrocarbons and chemicals (e.g. Diesel)	Spills/leaks to ground, overflow during filling, breach of Containment, via infiltration through soil and/or runoff.	<p>All chemicals and hydrocarbons stored onsite are bunded and limited to project requirements</p> <p>Existing workshop and fuel facility is located at Comet with a self-contained tank and cowling system to contain uncontrolled release.</p> <p>Existing pontoon-mounted diesel powered pump and fuel pod located at Eclipse pit, another to be installed at Comet north pit – diesel fuel lines housed inside system to contain possible leaks. Fuel collection pod on the pontoon has automatic shut-off valve that prevents pooling when a leak occurs</p> <p>Hydrocarbon spill kits stored in the vicinity to diesel powered pumps, generators and refueling areas</p> <p>Regular inspections and maintenance of pumps and infrastructure (each shift)</p> <p>Recording of all spill events</p>

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

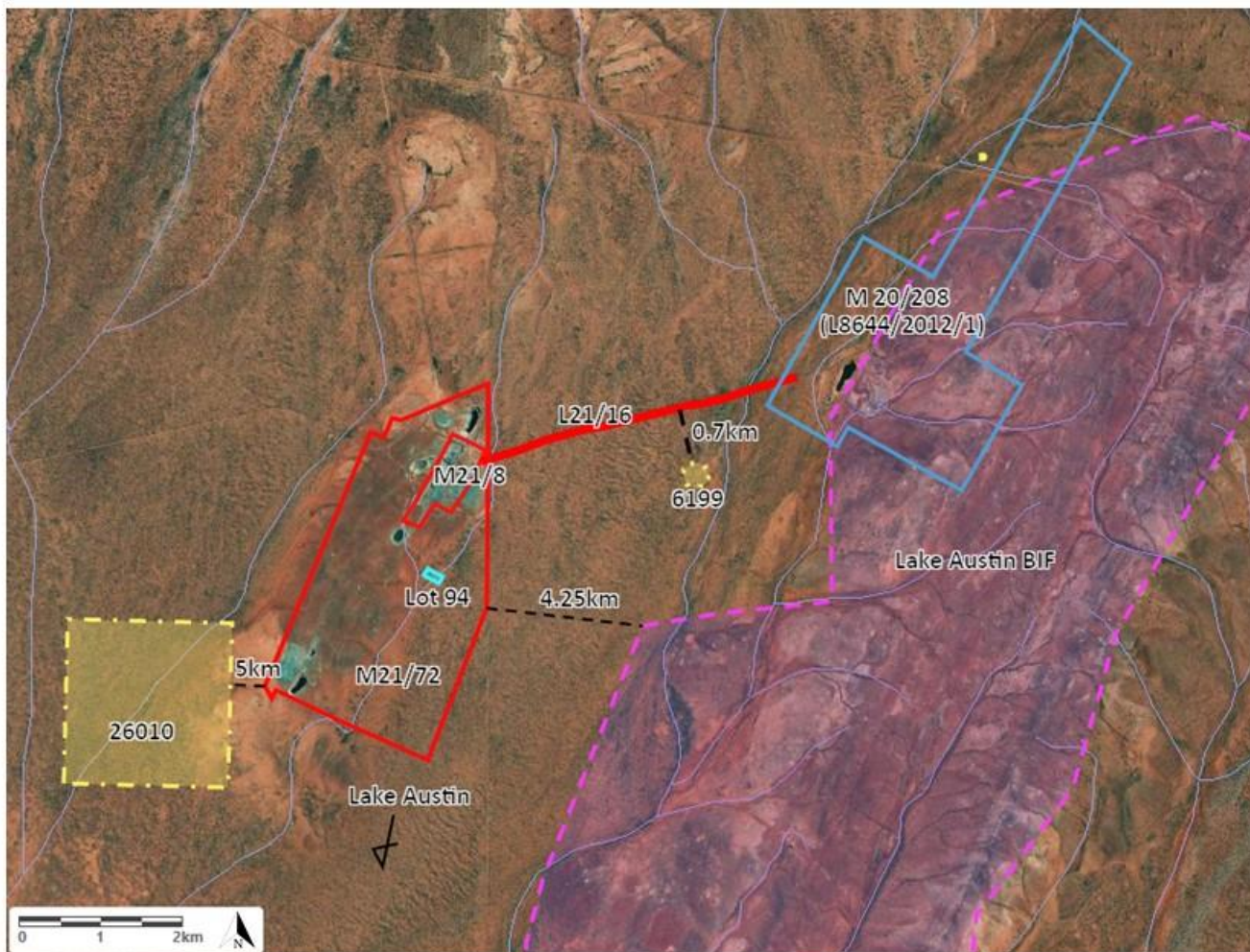
Table 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)). The nearest human receptors are the town Cue approximately 18km north-west of the premises. There are also no aboriginal communities within 100km of the premises. Given the distance of these receptors from the premises, they will not be considered as receptors under the scope of this risk assessment.

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Lot 94 (on plan 188158)	<p>Within M21/72, 0.2km². Located 500m south-east of Eclipse pit.</p> <p>The lease holder has not expressed any previous objection to discharge and abstraction activities at Eclipse pit since October 2016.</p>

Environmental receptors	Description and Distance from prescribed activity
RIWI Act East Murchison Groundwater Area	<p>Directly underneath prescribed premises.</p> <p>Groundwater flows to the south towards Lake Austin, a zone of groundwater discharge (DWER WIR database).</p> <p><u>Groundwater depth:</u></p> <p>Most recent groundwater levels measured at Pinnacles Well in March 2022 is 11.4 metres below ground level (m bgl). Data from 2013 (~18 m bgl) shows a rising groundwater water level trend over time. See Appendix 2 for further detail.</p> <p><u>Groundwater quality:</u></p> <p>The groundwater ranges from fresh to saline, with salinities of 910 to 6,800 mg/L TDS (DWER WIR database). Recent field salinity measurements indicate values of 860 mg/L (Pinnacles Well) to 6,090 mg/L TDS (Comet) (Rockwater 2022).</p> <p>Groundwater at the Comet Project ranges between 3000mg/L and 5500mg/L TDS, with a neutral to alkaline pH of between 7.0 and 8.3. Cobalt and Molybdenum exceed the ANZG (2018) Freshwater Guidelines 95% Protection limit for the Eclipse pit (Westgold Resources Ltd 2021).</p> <p>There are three groundwater abstraction licences associated with the premises, GWL 176056(4), GWL 174233 (3) and GWL 182783 (2).</p>
Threatened ecological communities.	<p>Located 4.25km west of M21/72 and approximately spanning 63km², is the Lake Austin vegetation complexes on a banded ironstone formation (BIF).</p>
Native vegetation	<p>The vegetation communities located west of M21/72, along the north side of the pipeline corridor fall within in the Eastern Murchison subregion (IBRA) (DWER Geocodex).</p> <p>The vegetation classified as Beard's vegetation association 18 (low Mulga woodland) and vegetation association 313 (succulent steppe with open scrub). Mulga woodland covers the majority of Comet, except for areas of Eremophila shrubland associated with the small rise/hill and areas of previous disturbance and clearing. Vegetation associations 18 and 313 are well represented with greater than 99.9% of the pre-European extent of the vegetation remaining in Western Australia (Coffey Environments 2012).</p> <p>See Figure 2 for vegetation map.</p>
Native fauna	<p>Comet consists of two broad fauna habitat types (Mulga Woodland and Rocky Slope). Thirty-five species listed under Commonwealth or State government legislation were predicted to occur at Comet. However, only six vertebrate species and one invertebrate species are possible visitors to the project area (Coffey Environments 2012).</p> <p>A further seven terrestrial and non-migratory bird species were listed as possibly occurring in the region during a 2021 fauna survey at Tuckabianna (Western Ecological 2021)</p>
Ephemeral drainage lines	<p>Drainage lines run into an open floodplain and then into Lake Austin.</p>

Lake Austin	Ephemeral lake located approximately 6km south of the prescribed premises. The lake is predominantly dry year-round except for months following major rainfall events. There are no known beneficial users
Heritage receptors	Distance from prescribed activity
"Woman" Gnamma – ID 26010	500m west of M21/72
Artefacts/scatter – ID 6199 (tuckabianna south-west)	680m south of proposed pipeline and 2.43km east of M 21/72



Legend:

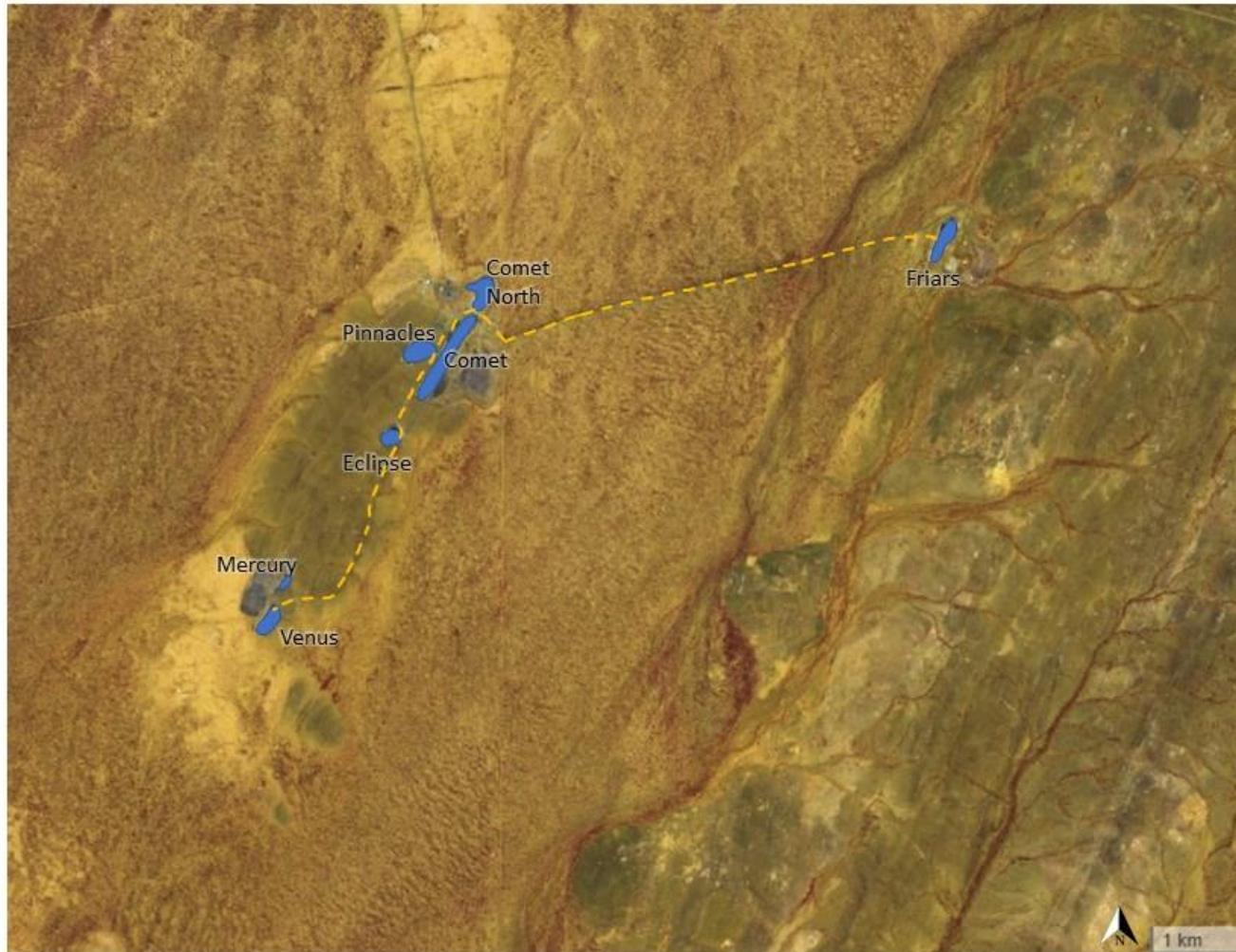
- Prescribed premises
- Other mining tenements
- Nearby lots
- Aboriginal sites and heritage places
- Lake Austin vegetation complexes (banded ironstone formation)
- Ephemeral creek lines
- Distance

Government of Western Australia,
Department of Water and
Environmental Regulation. Map
generated for the amendment of
licence L8978/2016/1. Map using
WGS 1984 Web Mercator Auxiliary
Sphere.



Author: Rachael Fiorentino

Recipient: Big Bell Gold Operations
Pty Ltd

Figure 1: Distance to sensitive receptors



Legend:

-  Mining pits
-  Pipeline corridor

Vegetation displayed in dark red/brown.

Government of Western Australia,
Department of Water and
Environmental Regulation. Map
generated for the amendment of
licence L8978/2016/1. Map extracted
from Sentinelhub Playground using
color infrared (vegetation)
composite.

Author: Rachael Fiorentino

Recipient: Big Bell Gold Operations
Pty Ltd

Figure 2: Colour infrared (vegetation composite)

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are incomplete they have not been considered further in the risk assessment.

Where the Licence Holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

The Revised Licence L8978/2016/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. dewatering activities.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 3: Risk assessment of potential emissions and discharges from the Premises during construction and operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Construction								
Mobile equipment movements etc. during construction of dewatering pipelines	Dust	Air/windborne pathway causing poor vegetation health/death	Native vegetation	Refer section 3.1.1	C = Minor L = Unlikely Medium Risk	Yes	<u>New condition:</u> 1.2.8 The licence holder must manage dust generation from mobile equipment movements during all dewatering pipeline constructions	The Delegated Officer considers that the Applicant proposed controls for dust suppression with a water cart acceptable and has included this control within the licence as a regulatory control.
	Noise	Air/windborne pathway causing disturbance	Lot 94 (on Plan 188158)		C = Slight L = Unlikely Low Risk	Yes	N/A	Given the construction of pipeline will be 1.5km from residents of Lot 94 on plan 188158, the Delegated Officer considers that risk of noise impacts to residents to be low.
Operation								
Dewatering to Eclipse pit	Saline pit dewater (saline, 3000-5500 mg/L TDS)	Seepage through base and pit walls to groundwater, impacting root zones and groundwater contamination	Adjacent vegetation East Murchison Groundwater Area	Refer section 3.1.1	C = Moderate L = Unlikely Medium Risk	Yes	<u>Modifications to existing conditions:</u> Condition 1.2.3 and table 1.2.1 modified to include Eclipse Pit to have a minimum 4m freeboard	Refer to section 3.3
		Overtopping and direct discharge causing poor vegetation health and ephemeral creek contamination	Adjacent vegetation Ephemeral creek lines Local fauna	Refer section 3.1.1	C = Moderate L = Possible Medium Risk	No	<u>Modifications to existing conditions:</u> Condition 1.2.3 and table 1.2.1 modified to include Eclipse Pit to have a minimum 4m freeboard	Refer to section 3.3

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Pipeline leak/rupture (pipeline connecting M 21/72 pits to M 20/208 friars pits)	Saline pit dewater	Direct discharge Potentially cause reduced vegetation health/death Increased metal, salt, nutrient and solid loads into environment, Increased erosion (sedimentation and souring within ephemeral creek lines)	Adjacent vegetation Ephemeral creek lines Local fauna Lake Austin BIR & adjacent vegetation		C = Minor L = Unlikely Medium Risk	Y	<u>Existing condition</u> 1.2.4 table 1.2.2, all ground pipelines equipped with telemetry, automatic cut-outs or secondary containment 1.2.5 daily visual inspection of dewatering pipelines <u>New condition</u> 1.2.6 – pipeline construction requirements	The Delegated Officer considers that existing conditions with the licence are suitable to manage the operational risks associated with the dewatering pipeline. The Delegated Officer also considers the proposed controls regarding the construction of the pipeline suitable, and these have been added to licence. New condition 1.2.7 has been added detailing pipeline construction requirements.
Mine dewater utilised for onsite dust suppression	Saline pit dewater	Overspray or runoff from ongoing use of mine dewatering effluent. Sprayed surfaces may become dispersive, causing increased erosion and sedimentation	Native vegetation		C = Slight L = Unlikely Low Risk	Y	<u>Existing condition</u> 1.2.2, the Licensee shall ensure that any dewatering effluent shall only be used for dust suppression in a manner that minimizes damage to surrounding vegetation.	The Delegated Officer considers that existing conditions with the licence are suitable to manage the operational risks associated with the use of saline dewater for dust suppression.

Risk Event					Risk rating ¹	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood			
<p>Mobile equipment (e.g. Vehicles, heavy equipment, generators, dewatering pumps) maintenance and servicing activities.</p> <p>Storage and use of hydrocarbons and chemicals</p>	Hydrocarbons and chemicals	<p>Spills or leaks to ground, overflow during filling, breach of containment via infiltration through soil and/or runoff</p> <p>Impact may be contamination or reduced quality of soil, sediment and surface water</p> <p>Reduced vegetation health</p>	<p>Ephemeral creek lines</p> <p>Native vegetation</p>	Refer section 3.1.1	<p>C = Slight</p> <p>L = possible</p> <p>Low risk</p>	Y	N/A	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

3.3 Detailed Risk Assessment – discharge to Eclipse Pit

Hydrogeology

The geology underlying Comet project tenements comprise banded iron formation (BIF) units (Figure 3), which behave as unconfined aquifers due to their development of secondary porosity. The project area consists of sandy loams which have a slow infiltration rates of (5-109mm/day). The terrain is very flat and water flow spreads south towards Lake Austin in a wide shallow plume, tending to concentrate into rivulets and ponds (Westgold Resources Ltd 2021).

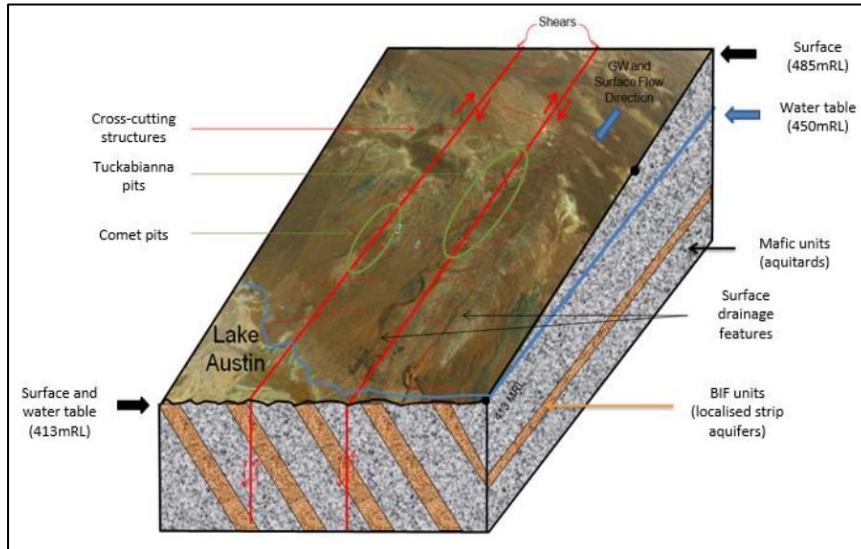


Figure 3: Conceptual hydrogeological model

The comet site has no groundwater monitoring bores and one production bore, “Pinnacles Well” located 1.2km north-west of Eclipse pit (Figure 4), associated with groundwater licence 182783(2). Figure 5 displays the current approximate groundwater depth, measured at Pinnacles Well from 2013 to March 2022.¹ The figure shows groundwater levels, on average, rising over time from ~18 m mbgl in 2013 to 11.40 mbgl in March 2022. More recent trends, between January 2019 and March 2022, show ground water levels dropping.

¹ The applicant provided data between January 2019 and March 2022 only. This has been compared to a measurement taken for Pinnacles well in 2013 (GRM, 2013).

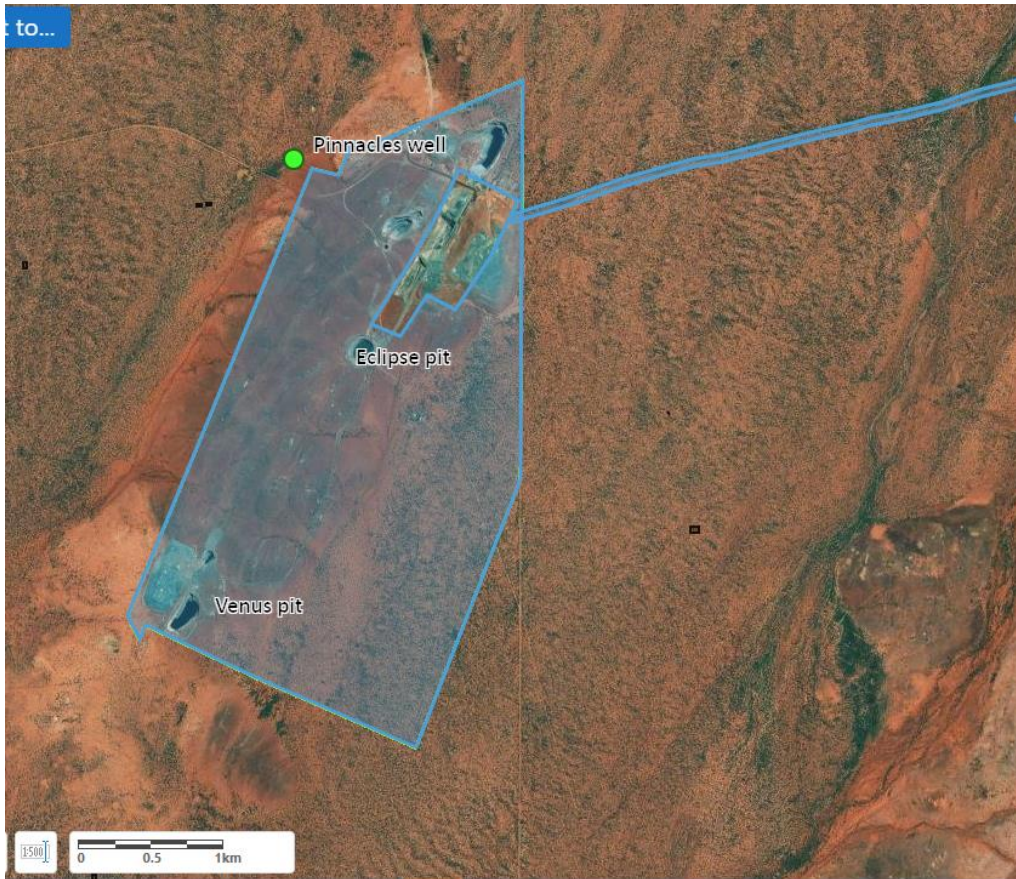


Figure 4: Location of Pinnacles Well

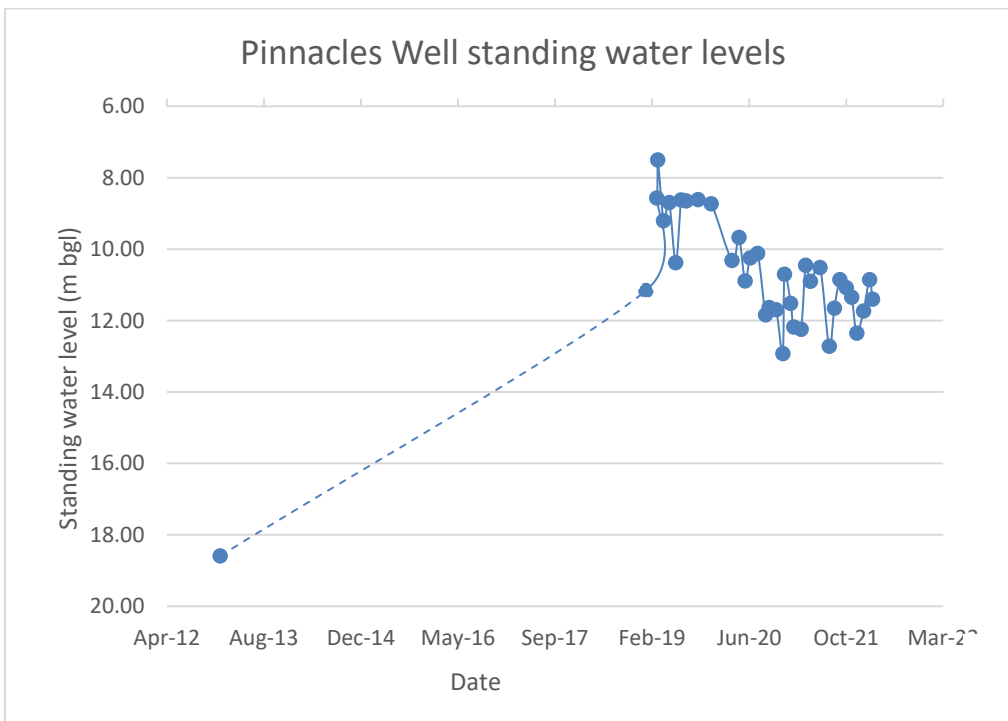


Figure 5: Pinnacles Well standing water levels (SWL) m bgl from 2013 to March 2022 (GRM, 2013; BBG, 2022)

Eclipse Pit Characteristics

The Eclipse pit is proposed for addition to the licence as a new emission point. The current volume of water contained in the pit is 204,575m³, with a maximum pit capacity of 476,183m³ (i.e. currently at 43% capacity) (Westgold Resources Ltd, 2021). Water levels in the Eclipse pit have been relatively stable over the last 6 years (Table 4 **Error! Reference source not found.**). Since the beginning of 2020, there have been increasing rates of seepage from the pit, averaging 190m³/d in 2021. Due to adjacent mine dewatering to greater depths the rate of seepage is likely to continue to increase from the increased hydraulic gradient (Rockwater, 2022).

Depth to water for pit lakes within the prescribed premises (Table 5 **Error! Reference source not found.**) are currently below the groundwater depth of 11.40 mbgl and root zones (above 6 mbgl). Taking into consideration the current pit water volume, average evaporation and seepage rates, it is considered possible the pit could overtop during a high rainfall event.

Table 4: Water balance, Eclipse Pit (Rockwater, 2022)

Date	No. Days	RLWL (m AHD)	Pond Area (m ²)	Pond Vol Change (m ³)	Evap. (m)	Evap Loss (m ³)	Rain Accum (m ³)	Net Pumped to Pit (m ³)	Inflow (m ³ /d)
25/02/2016	0	408.2	12,150						
16/09/2017	569	408.8	12,390	7,346	3.434	42,547	6,204	9183	61
16/08/2018	334	406.9	11,690	-22,804	2.348	27,453	3,043	-41,376	129
31/12/2018	137	406.9	11,690	0	0.976	11,409	2,124	-14,955	177
21/01/2020	386	408.3	12,180	16,672	2.679	32,630	2,663	29,941	43
14/01/2021	359	407.5	11,880	-9,608	2.499	29,688	3,771	66,638	-140
15/01/2022	366	407.6	11,920	1,188	2.499	29,788	4,854	94,333	-186

Table 5: Water level for all pits within the prescribed premises (Big Bell Gold, 2022)

Location	Pit Crest Level (mAHD)	Jan-22 Surveyed Water Level (mAHD)	Depth (mbgl)
Comet North	433.9	391.7	42.2
Eclipse	431.8	407.6	24.2
Venus	423.2	400.3	22.9

Water quality Eclipse pit

The water quality currently within Eclipse pit has been compared to ANZECC 2000 livestock criteria, ANZG 2018 freshwater guidelines and non-potable guidelines. A sample taken from Eclipse pit in 2021 indicates elevated levels of sulfate, chloride, nitrate and cobalt (Table 9 Schedule 2). Total dissolved solids were measured at 5,400mg/L.

Water quality Comet and Comet North

The water quality at Comet (Table 10, Schedule 2) and Comet North (Table 11, Schedule 2) pits, proposed for discharge to Eclipse pit, is saline (3000-5500 mg/L TDS), with similar water chemistry to that currently within Eclipse pit, with elevated levels of sulfate, chloride, nitrate and cobalt.

DWER Assessment and Regulatory Controls

The Delegated Officers considers that although the water quality proposed for discharge is similar to that already within Eclipse pit, the increased rate of seepage of saline dewater and rising groundwater table trends may present, over time, a risk to vegetation root zones. Seepage

from the Eclipse pit associated with the proposed dewatering is therefore considered to have a “moderate” consequence, with a likelihood of “unlikely”. The Delegated Officer therefore considers the overall risk rating associated with seepage to be “medium”. As there are no piezometers or groundwater monitoring bores to monitor groundwater levels directly adjacent to the Eclipse pit, or monitoring for vegetation health, a freeboard requirement of 4 m bgl has been conditioned for the pit.

Considering Eclipse pit’s 43% capacity, average evaporation rates and seepage rates, it has been determined that it would take approximately 3.2 years to reach maximum capacity from dewatering². This calculation is however, excluding any rainfall inputs. It is considered possible therefore, should extreme rainfall events occur, overtopping of the pit is possible. The consequence is deemed moderate because of the risk of impact to adjacent vegetation but also the potential for contamination of ephemeral creek lines. The overall risk rating for overtopping is therefore “medium” risk. The Delegated Officer considers a freeboard requirement of 4 m bgl sufficient to address the overtopping risk.

4. Consultation

Table 6 provides a summary of the consultation undertaken by the department.

Table 6: Consultation

Consultation method	Comments received	Department response
LGA - Shire of Cue (sent 1 April 2022)	N/A	N/A
Applicant supplied draft documents (17 May 2022)	Refer to Appendix 2	Refer to Appendix 2

5. Conclusion

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

5.1 Summary of amendments

Table 7 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process. Note that the licence has been updated to a new format and all references to “Licensee” updated to “Licence Holder”.

Table 7: Summary of licence amendments

Condition no.	Proposed amendments
Cover page	Updated to new format
1.1.2	Added definitions for AACR and AS/NZS standards of polyethylene pipes Changed definition of CEO

² This calculation assumes 430m³/day dewatering to Eclipse pit, 190m³/day average seepage, 10m³/day average evaporation and current capacity of 271,608m³ and exclude average rainfall.

1.2.3	Amended table 1.2.1 containment infrastructure to include Eclipse pit and freeboard requirement
1.2.5	Amended table 1.2.2 inspection of infrastructure to include daily freeboard capacity inspections at Eclipse pit
1.2.6	New table 1.2.3 construction requirements table added, for infrastructure of dewatering pipelines
1.2.7	New condition for Licence Holder to conduct compliance audit and provide a report after infrastructure is constructed
1.2.8	New condition added to include management of dust generation from mobile equipment movements during all dewatering pipeline constructions
2.2.1	Amended table 2.2.1 to include Eclipse pit as an emission point reference
3.2.1	Amended table 3.2.1 to include Eclipse pit as an emission point reference for monitoring
Schedule 1: Figure 1	Deleted original figure 1. Added new figure of prescribed premises, but requesting that a higher resolution figure be provided.
Schedule 1: Figure 2	Deleted existing figure 2 only displaying the Venus pit as an emission point. Added new figure displaying Venus pit and Eclipse pits as authorized emission points.
Schedule 2	Deleted redundant Annual Audit Compliance report

References

1. Coffey Environments (2012) Level 1 Flora and Fauna Assessment: Comet Project. Perth, WA: Unpublished report for Silver Lake Resources Pty Ltd.
2. DWER (2020) *Guideline: Risk Assessments*, Perth, Western Australia.
3. Groundwater Resource Management (2013) GWL 174233 Operating Strategy Murchison Goldfield
4. Rockwater Pty Ltd (2022) *Comet Mine: Seepage Losses from Venus & Eclipse Pits*. Perth, WA.
5. Western Ecological (2021) *Tuckabianna Project Basic Terrestrial Fauna Survey Report*. Perth.
6. Westgold Resources Ltd (2021) *Supporting Document: Amendment to Licence L8978/2016/1*. Perth, WA.

Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

Table 8: Summary of Licence Holder comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
Premises description	Licence holder has provided an updated premises description as requested	The premises description has been updated.
1.2.6	The licence holder queries the risk for pipeline leak/rupture and requests removal of requirements for pipeline to be equipped with telemetry/pressure sensors and automatic cut outs in the event of pipeline failure.	Uncontrolled discharge of saline dewater (TDS 3,000-5,500mg/L) presents a medium risk to adjacent native vegetation. As the pipeline will undergo daily inspections, the condition for pipeline construction has been modified to allow for the following options: "c) fitted with automated pressure/volume flow sensors to detect loss of pressure in the pipelines; or d) equipped with automatic cut-outs in the event of a pipeline failure; or e) provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections."
3.3.1	The licence holder queries the risk of seepage from Eclipse pit to adjacent native vegetation and requests removal of the condition requiring annual remote sensing of native vegetation.	As discussed in section 3.3, standing water levels measured at the pinnacles well, have risen over time from ~18 m mbgl in 2013 to 11.40 mbgl in March 2022. Rising groundwater levels associated with seepage from Eclipse pit presents a medium risk to adjacent native vegetation. As there are no groundwater monitoring bores or piezometers directly adjacent to Eclipse pit, a requirement for 4 mbgl freeboard has been conditioned for the pit.
Schedule 1, Figure 1	An updated premises map, adequately distinguishing between licences L8978/2016/1 and L8644/2012/1 has been provided as requested by DWER.	The premises map has been updated.

Appendix 2: Dewatering data Eclipse, Comet and Comet North Pits

Table 9: Eclipse pit water quality sampled 29/09/2021 (Westgold, 2021)

Sample ID	Units	Eclipse	ANZECC 2000 Livestock	ANZG 2018 Freshwater Guidelines 95% Protection	Non-Potable Groundwater Use DoH 2014
Calcium	mg/L	450	1000		
Magnesium	mg/L	210			
Sodium	mg/L	940			
Potassium	mg/L	44			
Bicarbonate	mg/L	59			
Sulphate	mg/L	1200	1000		1000
Chloride	mg/L	2000			250
Dissolved Solids	mg/L	5400	4000		
Conductivity	µS/cm	8000			
pH	pH	7.6			
Carbonate	mg/L	<1			
Alkalinity	mg/L	48			
Acidity	mg/L	10			
Fluoride	mg/L	0.8	2		15
Nitrite	mg/L	5.5	30		30
Nitrate	mg/L	560	400		500
Silicon	mg/L	15			
Hardness	mg/L	2000			
Aluminium	mg/L	<0.005	5	0.055	0.2
Arsenic	mg/L	0.002	0.5	0.024	0.1
Cadmium	mg/L	0.0004	0.01	0.0084*	0.02
Cobalt	mg/L	0.008	1	0.0014	
Chromium	mg /L	<0.001	1	0.0033	0.5
Copper	mg/L	0.001	1	0.0014	20
Iron	mg/L	< 0.005			0.3
Manganese	mg /L	0.23		1.9	5
Nickel	mg/L	0.06	1	0.39*	0.2
Lead	mg/L	<0.001	0.1	0.0034	0.1
Selenium	mg/L	0.004	0.02	0.011	0.1
Zinc	mg /L	0.037	20	0.28*	3
Molybdenum	mg/L	0.044	0.15	0.034	
Mercury	mg/L	<0.00005	0.002	0.00006	0.01

Note: Orange represents an exceedance of the guidelines

* ANZG 2018 Freshwater Guidelines 95% Protection limits have been adjusted for hardness, as per Table 3.4.3 of ANZECC & ARM CANZ, 2000

Table 10: Comet pit water quality sampled 29/09/2021 (Westgold, 2021)

Sample ID	Units	Comet	ANZECC 2000 Livestock	ANZG 2018 Freshwater Guidelines 95% Protection	Non-Potable Groundwater Use DoH 2014
Calcium	mg/L	420	1000		
Magnesium	mg/L	190			
Sodium	mg/L	860			
Potassium	mg/L	37			
Bicarbonate	mg/L	26			
Sulphate	mg/L	1000	1000		1000
Chloride	mg/L	1800			250
Dissolved Solids	mg/L	4900	4000		
Conductivity	µS/cm	7300			
pH	pH	7.0			
Carbonate	mg/L	<1			
Alkalinity	mg/L	21			
Acidity	mg/L	8			
Fluoride	mg/L	0.6	2		15
Nitrite	mg/L	5.2	30		30
Nitrate	mg/L	450	400		500
Silicon	mg/L	17			
Hardness	mg/L	1800			
Aluminium	mg/L	0.045	5	0.055	0.2
Arsenic	mg/L	0.004	0.5	0.024	0.1
Cadmium	mg/L	0.0006	0.01	0.0076*	0.02
Cobalt	mg/L	0.02	1	0.0014	
Chromium	mg /L	<0.001	1	0.0033	0.5
Copper	mg/L	<0.001	1	0.0014	20
Iron	mg/L	0.065			0.3
Manganese	mg /L	0.34		1.9	5
Nickel	mg/L	0.074	1	0.36*	0.2
Lead	mg/L	<0.001	0.1	0.0034	0.1
Selenium	mg/L	0.003	0.02	0.011	0.1
Zinc	mg /L	0.14	20	0.26*	3
Molybdenum	mg/L	0.018	0.15	0.034	
Mercury	mg/L	<0.00005	0.002	0.00006	0.01

Note: Orange represents an exceedance of the guidelines

* ANZG 2018 Freshwater Guidelines 95% Protection limits have been adjusted for hardness, as per Table 3.4.3 of ANZECC & ARMCANZ, 2000

Table 11: Comet North pit water quality sampled 12/3/2021 (Westgold, 2021)

Sample ID	Units	Comet North	ANZECC 2000 Livestock	ANZG 2018 Freshwater Guidelines 95% Protection	Non-Potable Groundwater Use (DoH, 2014)
Calcium	mg/L	200	1000		
Magnesium	mg/L	81			
Sodium	mg/L	720			
Potassium	mg/L	27			
Bicarbonate	mg/L	100			
Sulphate	mg/L	510	1000		1000
Chloride	mg/L	1400			250
Dissolved Solids	mg/L	3100	4000		
Conductivity	µS/cm	5300			
pH	pH	8.1			
Carbonate	mg/L	<1			
Alkalinity	mg/L	85			
Acidity	mg/L	<5			
Fluoride	mg/L	1.3	2		15
Nitrite	mg/L	0.4	30		30
Nitrate	mg/L	41	400		500
Silicon	mg/L	15			
Hardness	mg/L	840			
Aluminium	mg/L	0.016	5	0.055	0.2
Arsenic	mg/L	0.02	0.5	0.024	0.1
Cadmium	mg/L	0.0003	0.01	0.0039*	0.02
Cobalt	mg/L	<0.001	1	0.0014	
Chromium	mg /L	<0.001	1	0.051*	0.5
Copper	mg/L	0.002	1	0.0014	20
Iron	mg/L	<0.005			0.3
Manganese	mg /L	0.003		1.9	5
Nickel	mg/L	0.021	1	0.19*	0.2
Lead	mg/L	<0.001	0.1	0.0034	0.1
Selenium	mg/L	0.006	0.02	0.011	0.1
Zinc	mg /L	0.013	20	0.14	3
Molybdenum	mg/L	0.065	0.15	0.034	
Mercury	mg/L	<0.00005	0.002	0.00006	0.01

Note: Orange represents an exceedance of the guidelines

* ANZG 2018 Freshwater Guidelines 95% Protection limits have been adjusted for hardness, as per Table 3.4.3 of ANZECC & ARMCANZ, 2000

Appendix 3: Application validation summary

SECTION 1: APPLICATION SUMMARY			
Application type			
Amendment to licence	<input checked="" type="checkbox"/>	Current licence number:	L8978/2016/1
		Relevant works approval number:	N/A <input type="checkbox"/>
Date application received	9/12/2021		
Applicant and Premises details			
Applicant name/s (full legal name/s)	Big Bell Gold Operations Pty Ltd		
Premises name	Cue Gold Operations – Comet Project		
Premises location	M21/8, M21/72. To be added: M21/16 and M20/208		
Local Government Authority	Shire of Cue		
Application documents			
HPCM file reference number:	DER2016/000908-1		
Key application documents (additional to application form):	Murchison Goldfields Project Conceptual Hydrological Study		
Scope of application/assessment			
Summary of proposed activities or changes to existing operations.	<p><u>Licence amendment</u></p> <p>The current licence approves the dewatering of the Eclipse, Comet, Comet North and Pinnacles to the Venus pit. BBGO is requesting to add an additional groundwater discharge point at the Friars pit, Eclipse pit (discharge currently occurring but not on the licence) and a surface discharge point in an ephemeral drainage line adjacent to the Eclipse pit.</p> <p>Requesting addition of tenements M21/16 and M20/208 to licence.</p> <p>No change to the current category 6 throughput is being requested.</p>		
Category number/s (activities that cause the premises to become prescribed premises)			
Table 1: Prescribed premises categories			
Prescribed premises category and description	Assessed production or design capacity	Proposed changes to the production or design capacity (amendments only)	
Category 6 – Mine dewatering	500,000 tonnes per annual period	No change to throughput proposed	
Legislative context and other approvals			
Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	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"/>	

Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input checked="" type="checkbox"/> Expiry: mining lease certificates provided Other evidence <input type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Approval: Expiry date: If N/A explain why? Exempt under the <i>Mining Act 1978</i>
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input type="checkbox"/>	CPS No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Application reference No: Licence/permit No: GWL176056(4)
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Name: East Murchison Groundwater Area Type: RIWI Act Groundwater Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Regional office: Mid-West Gascoyne
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>

<p>Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i>, <i>Environmental Protection (Controlled Waste) Regulations 2004</i>, <i>State Agreement Act xxxx</i>)</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p><i>Mining Act 1978</i></p>
<p>Is the Premises within an Environmental Protection Policy (EPP) Area?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises subject to any EPP requirements?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Classification: Possibly contaminated – investigation required (PC–IR): Report not substantiated Date of classification: (15/4/2020)</p>