Government of Western Australia
Department of Water and Environmental Regulation

Amendment Notice 2

Licence Number	L8934/2015/1
Licensee	Big Bell Gold Operations Pty Ltd
ACN	090 642 809
File Number:	DER2015/002680
Premises	Central Murchison Gold Project – Big Bell Mining Tenements M20/17, M20/99, M20/192, L20/21, L20/40, G20/1, G20/2, G20/3, L20/39, L20/41, L21/14, M20/252, M20/307, M20/333, M20/418, M20/435 and G20/11 As depicted in Schedule 1
Date of Amendment	13 March 2019

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Alana Kidd

Digitally signed by Alana Kidd
Date: 2019.03.13 09:48:40 +08'00'

Alana Kidd

Manager, Resource Industries

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

Definitions and interpretation

Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
AER	Annual Environment Report
ANZECC (1997) guidelines	Means the Australian and New Zealand Environment and Conservation Council (ANZECC) 1997, Australian Guidelines for Sewage systems, Effluent Management, National Water Quality Management Strategy
ANZECC (2000)	Means the Australian and New Zealand Environment and Conservation Council (ANZECC) 2000, Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 1,October 2000
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples.*
AS/NZS 5667.10	means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters.*
Averaging period	means the time over which a limit is measured or a monitoring result is obtained.
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the *Environmental Protection Act 1986* Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
cfu/100 mL	means colony-forming units per 100 millilitres.
Decision Report	refers to this document
Delegated Officer	an officer under section 20 of the EP Act

DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
HDPE	means high density polyethylene
Licensee	Big Bell Gold Operations Pty Ltd
mg/L	Milligrams per Litre
NATA	National Association of Testing Authorities, Australia
Prescribed Premises	has the same meaning given to that term under the EP Act
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Risk Event	as described in *Guidance Statement: Risk Assessment*
Spot sample	means a discrete sample representative at the time and place at which the sample is taken
STV	Short-term Trigger Value. Up to 20 years
TDS	Total Dissolved Solids
TEC	Threatened Ecological Community
µs/cm	microsiemens per centimetre

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited to an amendment for the addition of a Category 64 Class II putrescible landfill and a Category 85 Sewage facility. No other amendment requests have been made by the Licensee in this application.

The following guidance statements have informed the decision made on this amendment

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

Amendment description

The Licensee has applied to amend Licence L8934/2015/1 (Licence) for the construction and operation of a Class II putrescible landfill site (Landfill 2) and a sewage facility at the Central Murchison Gold project – Big Bell (Big Bell). The Landfill 2 and sewage facility will be used to service a new 150 person accommodation camp. Additionally, the Licensee proposes to dispose of putrescible waste at the existing landfill (Landfill 1) which is not currently regulated due to low throughput volumes (further description provided below).

Putrescible Landfill

All putrescible wastes generated at Big Bell is currently transported to the Cue Landfill facility located 26 km away. With a proposed 150 person accommodation camp to be built at Big Bell, additional putrescible waste will be generated and therefore an onsite putrescible landfill is required.

The Landfill 2 which is located on mining tenement M20/17 (see Figure 1 below) will consist of trenches used for the burial of wastes. Each trench will be 30 m in length by 3 m wide by 4 m deep. The Landfill 2 will be fenced to prevent terrestrial fauna access and each trench will consists of earthen windrows around three sides to prevent stormwater ingress. A roll over bund will be constructed at the entrance of each trench to also prevent stormwater ingress.

Big Bell has an existing operational Class I inert landfill (Landfill 1), however the throughput of this facility is currently below the minimum threshold (500 tpa) as listed in Schedule 1 of the EP Regulations whereby a Licence or Registration would be required for operation. Big Bell now proposes to use a section of this landfill for the burial also of putrescible wastes. Receiving these additional wastes will trigger the requirements for regulating the Landfill 1 in accordance with the EP Regs. The method of disposal is the same as the proposed Landfill 2 whereby trenches of the same dimension are used for the burial of waste.

Two trenches at the Landfill 2 will also be used for the disposal of inert wastes (non-hazardous, non putrescible inert industrial wastes) only.

An estimated combined total of 354 tonnes, which is made up of 92 tonnes of putrescible waste and 262 tonnes of inert wastes, will be buried at both landfills per year.

Sewage facility

The Licensee proposes to construct and operate a sewage facility for the treatment of up to 50 m^3 per day of wastewater generated at the 150 person accommodation camp.

The sewage facility will be located on mining tenement M20/435 (see Figure 1 below) and will

consist of a packaged sewage treatment plant for the treatment of the waste water before the treated effluent is discharged to a 1.2 hectare area via spray irrigation.

The treatment process is arranged in a sequential batch reacting configuration consisting of a primary balance front end which features a combined anoxic/aerobic biological suspended growth treatment process. The process relies on bacterial action to achieve the following:

- Coagulate and remove the colloidal solids and carbonaceous organic matter;
- Convert the colloidal and dissolved carbonaceous organic matter into various gases cell masses; and
- Reduce the nutrients such as nitrogen and phosphorus and other trace organic compounds.

The table below sets out the expected effluent quality following the treatment process.

Table 2: Sewage facility water quality parameters

Parameter	Influent	Effluent
Treatment Capacity (m^3/day)	50	50
Biochemical Oxygen Demand (mg/L)	260	20
Total Suspended Solids (mg/L)	300	30
Total Nitrogen (mg/L)	80	20
Ammonia (mg/L)	70	5
Total Phosphorous (mg/L)	10	10
Faecal Coliforms (units/100mL)	10^8	100
Chlorine (mg/L)	0	1
Dissolved Oxygen (mg/L)	0.1	2

The Irrigation field will be constructed in a fenced sign posted area which is located at a minimum 150 m from the nearest camp residence. The Licensee has committed to the following management measures for the operation of the Irrigation field.

- Effluent will be evenly discharged into the Irrigation field to reduce the likelihood of waterlogging and/or run-off;
- No spray drift will occur beyond the fenced area;
- Pipelines will be equipped with an automatic cut-out system, or otherwise secondary containment may be installed which is sufficient to contain any spill for a period equal to the time between routine inspections; and
- Pipelines will be visually monitored daily to check for integrity.

Figure 1: Locational diagram of the Big Bell Landfill 1 & 2 and Sewage Facility

Legislative context

Table 3 summarises approvals relevant to the assessment.

Table 3: Relevant approvals and tenure

Legislation	Number	Subsidiary	Approval
Health Act 1911 – Health (Treatment of sewage and disposal of effluent and liquid waste) Regulations 1974	203.18 (25 January 2019)	Big Bell Gold Operations Pty Ltd	Department of Health
Mining Act 1978	REG ID 72655 (March 2018) – Landfill Pending – REG ID 76540 – Accommodation camp	Big Bell Gold Operations Pty Ltd	Mining approval has been granted for the Landfill to be located on M20/17. An application has also been submitted to DMIRS for approval of the accommodation camp (decision pending).
Rights in Water and Irrigation Act 1914	GWL 175108(1) and GWL 176056(1)	Big Bell Gold Operations Pty Ltd	280,000 kL and 5,000,000 kL per year for pit dewatering, dust suppression and mineral processing.
EP Act – Clearing of Native Veg	Purpose permit CPS 8087/1	Big Bell Gold Operations Pty Ltd	Granted for the clearing of 80 hectares at Big Bell.

Amendment history

Licence L8934/2015/1 was amended on 19 December 2018 to include the dewatering of the Black Swan pit with the discharge to Lake Austin.

Table 4: Licence amendments

Issued	Amendment
29/4/2016	Notice of amendment of licence expiry date
19/12/2018	Amendment Notice 1 to include dewatering of the Black Swan pit with dewatering effluent discharged to Lake Austin.

Location and receptors

Table 5 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 5: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Austin Downs Station Homestead	10 km south east
Coodardy Homestead	9 km north
Town of Cue	26 km south east

Table 6 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 6: Environmental receptors and distance from activity boundary

Specified ecosystems	Distance from the Premises
Lake Austin	11 km south A regional significant ephemeral salt lake system covering 773 km^2 (including islands).
Public Drinking Water Source Area – Cue Water Reserve	30 km south east
Environmentally Sensitive Areas (ESA)	No nearby ESA's
Native Vegetation	No remaining native vegetation in the immediate area of the Landfill or sewage facility due to mining activities and/or clearing. Open *Acacia* woodland south of the proposed accommodation camp.

Risk assessment

Tables 7 and 8 below describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*, and whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 7: Risk assessment for proposed amendments during construction

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**				
Category 64 Class II Putrescible landfill	Earthworks and construction of new landfill	Dust	No residences or other sensitive receptors in close proximity to the Premises. Nearest residence is 10 km away. No nearby threatened or priority flora.	Air / wind dispersion	Amenity Smothering of vegetation	Slight	Unlikely	Low	No receptor present. Water cart will be used when required. The distance to sensitive receptors is considered to be too great for dust impacts from construction of the landfill to occur. The Delegated Officer considers that a pathway for dust emissions does not exist. Any potential dust emissions can be regulated by section 49 of the EP Act.
		Noise	No residences or other sensitive receptors in close proximity to the Premises. Nearest residence is 10 km away.	Air / wind dispersion	Amenity	Slight	Rare	Low	No receptor present The construction works are minimal with only the excavation of a trench and installation of a perimeter fence required. The distance to residential receptors is considered to be too great for noise impacts from construction to occur. The Delegated Officer considers that a pathway for dust emissions does not exist. The provisions of the *Environmental Protection (Noise) Regulations 1997* are applicable.

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**				
Category 85 Sewage Facility	Installation of sewage plant and construction of Irrigation field	Dust	No residences or other sensitive receptors in close proximity to the Premises. Nearest residence is 10 km away. No nearby threatened or priority flora.	Air / wind dispersion	Amenity Smothering of vegetation	Slight	Unlikely	Low	No receptor present. Water cart will be used when required. The distance to sensitive receptors is considered to be too great for dust impacts from construction of the sewage facility and Irrigation field to occur. The Delegated Officer considers that a pathway for dust emissions does not exist. Any potential dust emissions can be regulated by section 49 of the EP Act.
		Noise	No residences or other sensitive receptors in close proximity to the Premises. Nearest residence is 10 km away.	Air / wind dispersion	Amenity	Slight	Rare	Low	No receptor present The construction works are minimal with only the installation of a sewage package plant and Irrigation field required. The distance to residential receptors is considered to be too great for noise impacts from construction to occur. The Delegated Officer considers that a pathway for dust emissions does not exist. The provisions of the *Environmental Protection (Noise) Regulations 1997* are applicable.

Table 8: Risk assessment for proposed amendments during commissioning and operation

Risk Events						Consequence rating	Likelihood rating	Risk	Reasoning
Sources/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**				
Landfill operations	Earthmoving activities when waste is covered, dust lift off from cover stockpiles and from vehicle movement on unsealed roads	Dust	No residences or other sensitive receptors in proximity Nearest residence is 10 km away No nearby threatened or priority flora	Air / wind dispersion	Amenity Vegetation smothering	Slight	Unlikely	Low	No receptor present. Water cart will be used when required. The distance to sensitive receptors is considered to be too great for dust impacts from operation of the landfill to occur. The Delegated Officer considers that a pathway for dust emissions does not exist. Any potential dust emissions can be regulated by section 49 of the EP Act.
	Operation of earthmoving equipment and movement of vehicles	Noise	No residences or other sensitive receptors in proximity Nearest residence is 10 km away		Amenity	Slight	Rare	Low	No receptor present. Minimal noise emissions are expected to occur during the operation of the landfill. Noise emissions will be intermittent and of short duration (covering events, tipping). The provisions of the *Environmental Protection (Noise) Regulations 1997* are applicable.
	Disposal of Class II waste into a trench	Odour	No nearby sensitive premises Nearest residence is 10 km away	Air / wind dispersion	Amenity	Slight	Rare	Low	No receptor present. Waste will be covered on a monthly basis or more regularly if required. The distance to sensitive receptors is considered to be too great for odour impacts from operation of the landfill to occur. The Delegated Officer considers that a pathway for odour emissions does not exist. Any potential odour emissions can be regulated by section 49 of the EP Act.

Risk Events						Consequence rating	Likelihood rating	Risk	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
		Windblown waste	Surrounding environment Nearest residence is 10 km away	Air / wind dispersion	Amenity	Slight	Possible	Low	Landfill area will be enclosed within a 1.8 m high ring lock fence which will assist in collecting windblown waste. Wastes are disposed into a below ground trench which reduces the exposure of the wastes to the wind. The earthen bunds around the trench perimeter also assist in diverting the wind.
		Leachate	Depth to groundwater is greater than 30 mbgl	Seepage through soil to groundwater	Contamination of groundwater	Slight	Rare	Low	No receptor present. A combined total of less than 92 tpa of putrescible waste is expected to be buried at both landfills and is therefore only expected to generate small quantities of leachate. Stormwater that assists in leachate formation is diverted away from each landfill trench through the use of an earthen bund around the trench perimeter and a roll over bund at the entrance to each trench. The depth to groundwater is approximately 30 mbgl. This separation distance is considered too great for any leachate to have an impact on the groundwater. The Delegated Officer considers that a pathway for leachate does not exist.

Risk Events						Consequence rating	Likelihood rating	Risk	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
		Contaminated stormwater	Local soils Lake Austin is located 11 km to the south of the Premises and is considered too far to be a potential receptor	Overland flow	Contamination of soils	Slight	Rare	Low	Stormwater is diverted away from each landfill trench through the use of an earthen bund around the perimeter and a roll over bund at the entrance to each trench. Any stormwater that comes into direct contact with the waste remains within the below ground trench. Any discharge of contaminated stormwater can be regulated through the provisions of the EP Act or the UDR's.
Waste Water Treatment Plant	Treatment of sewage	Odour	No nearby sensitive premises Nearest residence is 10 km away	Air / wind dispersion	Amenity	Slight	Rare	Low	No receptor present. The Delegated Officer considers the distance to sensitive receptors is considered to be too great for odour impacts from the treatment of sewage to occur. The Delegated Officer considers that a pathway for odour emissions does not exist. Any potential odour emissions can be regulated by section 49 of the EP Act.

Risk Events						Consequence rating	Likelihood rating	Risk	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
	Sewage pipes and holding tanks	Rupture of pipes / overtopping of holding tanks resulting in sewage discharge to land	Local soil The depth to groundwater is approximately 30 mbgl. This separation distance is considered too far to be a potential receptor Lake Austin is located 11 km to the south of the Premises and is considered too far to be a potential receptor	Direct discharge	Increase in nutrient levels in soils affecting growth of native vegetation	Slight	Possible	Low	The sewage facility and pipelines will be inspected daily. Any defects will be repaired immediately. Spill equipment will be maintained onsite. Any contaminated soils will be removed and disposed of at the Landfill 2. Any accidental discharge of sewage due to equipment or pipeline failure can be regulated through the provisions of the UDR's.
	Irrigation of treated effluent to sparsely vegetated land	Treated effluent to land	Terrestrial ecosystems Vegetation in the irrigation area Depth to groundwater is approximately 30 mbgl. The Delegated Officer considers the separation distance is too great for groundwater to be considered a potential receptor. Lake Austin is located 11 km away. The Delegated Officer considers the separation distance is too far for surface	Discharge to land via irrigation	Facilitated growth of weeds Increase nutrient levels within soils Impacts on native vegetation due to increased nutrients within the soils	Slight	Possible	Low	The Spray irrigation field will be designed so spray drift remains within the fenced area. Therefore, weed growth is expected to be limited to the irrigated area. The spray irrigation area is sparsely vegetated with no threatened or priority flora. This area is within the boundary of clearing permit CPS 8087/1. This area experiences high evaporation rates with low rainfall. Combined with loamy sands, a large amount of the wastewater discharged is expected to experience evapotranspiration with minimal infiltration to the ground expected. The ANZECC (2000) guidelines establishes the STV's (20 years) for Nitrogen and Phosphorus in irrigated treated effluent at 125 mg/L and 12 mg/L respectively, when impacts to

Risk Events						Consequence rating	Likelihood rating	Risk	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
			water to be considered a potential receptor.						native vegetation could occur if concentrations are over these values. The Licensee expects the maximum concentration levels for Nitrogen and Phosphorous in the discharged effluent will be 20 mg/L and 10 mg/L respectively. The WWTP with a throughput of up to 50 m^3/day is expected to have an effluent discharge quality as shown in Table 2 above. These results are within the guidelines set out in the ANZECC (1997) Category C – secondary treatment for infiltration (Appendix 6). The US EPA 'Process design manual for the land treatment of municipal wastewater effluents' (US EPA, 2006), sets the method in determining the minimum size of the spray irrigation land required to enable the water and its dissolved constituents are taken up by vegetation or retained within the soil profile without excessive seepage into groundwater. In accordance with this advice, disregarding the nutrient loading rates, the estimated irrigation land area required to manage the rate of wastewater discharge has been calculated as 0.87 hectares. The size of the proposed spray irrigation land area will be 1.2 hectares which is approximately 27.5 percent larger than recommended. The quality of the discharged treated effluent will be monitored quarterly. The Licensee has committed to daily inspections of the WWTP and spray irrigation area. The Delegated officer considers as

Risk Events						Consequence rating	Likelihood rating	Risk	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
									there is no nearby threatened or priority flora, the effluent discharge quality satisfies the requirements of the ANZECC (1997) and ANZECC (2000) guidelines for the irrigation of effluent to land, and the applicants proposed controls, the risk of impacts on vegetation and increased weed growth outside of the irrigation area as not foreseeable.

Decision and key considerations

The Delegated Officer has determined to grant the amendment for addition of new categories 64 and 85. Conditions have been updated, changed or added, as follows. Key considerations have been outlined in Tables 7 and 8 above.

Front cover page

The Front cover page Prescribed premises category table is amended to include categories 64 and 85.

Definitions

Definitions are updated and new definitions included where applicable to the amended conditions.

Infrastructure and equipment requirements

Condition 1.2.6 is amended to include the works required for the installation and construction of the Landfill 2, sewage facility and irrigation field.

Landfill management

Condition 1.2.7 is included as a new condition for the types of wastes that can be accepted at the Landfill 1 and Landfill 2 for burial.

Condition 1.2.8 is included as a new condition which sets out the processes required, along with any limits, for the handling and disposal of wastes at the Landfill 1 and Landfill 2.

Condition 1.2.9 is included as a new condition which sets out the waste cover requirements at the Landfill 1 and Landfill 2.

Inspection of infrastructure

Table 1.3.2 has been amended to include the requirement for routine inspections of the infrastructure associated with the sewage facility.

Emissions to land

Condition 2.4.1 is included as a new condition to allow the discharge of treated effluent to land during commissioning and normal operations.

Condition 3.6.1 is included as a new condition which requires routine monitoring of the effluent discharge during commissioning and normal operations.

Condition 3.6.2 is included as a new condition which requires the submission of a commissioning report following the completion of the commissioning period for the sewage facility.

Reporting

Table 4.2.1 has been amended to include the Annual Environmental Report reporting requirements for table 3.6.1.

Schedule 1: Premises map

The Schedule 1 maps are updated to include the location of the sewage irrigation field and the Landfill 1 and Landfill 2.

Licensee’s comments

The Licensee was provided with the draft Amendment Notice on 7 March 2019. Comments received from the Licensee have been considered by the Delegated Officer as shown in Appendix 2.

Amendment

1. The approved Premises production capacity on page 1 of the Licence is amended by the insertion of the bold text shown in underline below:

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*	*5,324,556 tonnes per annual period (discharged)*
64	***Putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer, as amended from time to time) is accepted for burial.***	***More than 20 but less than 5,000 tonnes per year***	***354 tonnes per annual period***
85	***Sewage facility***	***More than 20 but less than 100 cubic metres per day***	***50 cubic metres per day***

2. Definitions of the Licence is amended by the insertion of the text shown in bold underline below:

'***Commission' means the process of operation and testing that verifies the works and all relevant systems, plant, machinery and equipment associated with the sewage facility and irrigation field have been installed and are performing in accordance with Table 1.3.3.***

'Inert Waste Type 1' as defined in the Landfill Definitions;

'Inert Waste Type 2' as defined in the Landfill Definitions;

'Landfill definitions' means the *Landfill Waste Classification and Waste Definitions 1996 (as amended 2018)*;

'Putrescible Waste' as defined in the Landfill Definitions;

'Special Waste Type 2' as defined in the Landfill Definitions;

'Waste type' identified in the Landfill Definitions, or in Schedule 1 of the Controlled Waste Regulations (as applicable).

3. Condition 1.2.6 is amended by the insertion of the text shown in bold and underline below:

1.2.6 The Licensee must install and undertake the works for the infrastructure and equipment:

(a) specified in Column 1; and

(b) to the requirements specified in Column 2;

of Table 1.3.3 below.

Table 1.3.3: Infrastructure and equipment requirements table

<table>
<tr><td>Column 1</td><td>Column 2</td></tr>
<tr><td>Infrastructure</td><td>Requirements (design and construction)</td></tr>
<tr><td>Duplicate dewatering pipeline to Lake Austin</td><td>

built with butt welded polyvinylchloride;
is located within the existing dewatering pipeline corridor whereby the piping will be buried, except in areas of caprock, with catch pits and bunding installed along the length of the pipeline;
discharges to the same location as the existing dewatering pipeline discharge point on Lake Austin; and
includes energy diffusion devices to minimise scouring and erosion of the lake bed.

</td></tr>
<tr><td><u>Landfill 2</u></td><td>

<u>Area is fenced to prevent access to terrestrial fauna;</u>
<u>Each trench is a maximum of 30 m in length, 3 m in width and 4 m deep;</u>
<u>A minimum 0.5 m high earthen windrow is placed around three sides of each trench to prevent the ingress of stormwater; and</u>
<u>A roll over bund is provided at the entrance to the facility to prevent the ingress of stormwater.</u>

</td></tr>
<tr><td><u>Sewage facility</u></td><td>

<u>Installed as per manufacturer specifications;</u>
<u>26,000 litre primary tank;</u>
<u>Two 26,000 litre balance tanks;</u>
<u>54,000 litre Sequential Batch Reactor;</u>
<u>26,000 litre final effluent tank;</u>
<u>Mag flow meter installed directly on the outlet of the treated effluent tank (irrigation calculation);</u>
<u>All storage components are corrosion resistant and impermeable (i.e. polyethylene, concrete or lined with HDPE);</u>
<u>Master control panel equipped with an audible and visual alarm; and</u>
<u>Designed and constructed to meet the following emission standards:</u>

<table>
<tr><th><u>Parameter</u></th><th><u>Discharge Concentration including units</u></th></tr>
<tr><td><u>Biochemical Oxygen Demand</u></td><td><u><20 mg/L</u></td></tr>
<tr><td><u>Total Suspended Solids</u></td><td><u><30 mg/L</u></td></tr>
<tr><td><u>Total Nitrogen</u></td><td><u><20 mg/L</u></td></tr>
<tr><td><u>Total Phosphorus</u></td><td><u><10 mg/L</u></td></tr>
<tr><td><u>E.coli</u></td><td><u><150 cfu/100 mL</u></td></tr>
</table>
</td></tr>
</table>

Column 1	Column 2	
Infrastructure	*Requirements (design and construction)*	
	Residual chlorine	***0.2 – 2.0 mg/L***
	pH	***6.5 – 8.5 pH units***
Irrigation field	• ***Irrigation area is 1.2 hectares;*** • ***As a minimum the irrigation area is enclosed with a two strand 1.2 m high wire fence;*** • ***Danger signs fitted to all sides of the perimeter fence;*** • ***Irrigation area not to be prone to inundation or flooding;*** • ***Irrigation field is designed so run-off, spray drift and discharge remain within the fenced irrigation area;*** • ***A minimum distance of 5 m is maintained between the fence and the sprinkler spray pattern; and*** • ***Pipelines are constructed with HDPE material.***	

4. New condition 1.2.7 is inserted and is shown in bold and underline below:

1.2.7 The Licensee shall only accept waste to Landfill 1 and Landfill 2 if:
(a) it is of a type listed in Table 1.3.4;
(b) the quantity accepted is below any quantity limit listed in Table 1.3.4; and
(c) it meets any specification listed in Table 1.3.4.

Table 1.3.4: Waste acceptance		
Category 64 landfill waste type	***Quantity limit***	***Specification[1]***
Inert Waste Type 1	***262 tonnes per annual period***	***Waste containing visible asbestos or ACM shall not be accepted***
		Non-biodegradable organic materials
Putrescible Waste	***92 tonnes per annual period***	***None Specified***
Contaminated Solid Waste		***Must meet the acceptance criteria for Class II landfill***
Inert Waste Type 2	***100 used tyres are stored***	***Used tyres only***

Note 1: Additional requirements for the acceptance of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

5. New condition 1.2.8 is inserted and is shown in bold and underline below:

1.2.8 The Licensee shall ensure that wastes accepted onto Landfill 1, Landfill 2 and the sewage facility are only subjected to the processes set out in Table 1.3.5 and in accordance with any process limits described in that Table.

Table 1.3.5: Waste processing		
Landfill and waste	***Process(es)***	***Process limits[1, 2]***
Putrescible Waste; Inert Waste Type 1; and Contaminated Solid Waste	***Receipt, handling and disposal of waste by landfilling***	• ***Disposal of waste by landfilling shall only take place within the landfill areas shown on the Landfill 1 and Landfill 2 location map in Schedule 1.*** • ***The tipping area shall be no greater than 30 metres in length.*** • ***Waste shall be disposed of in a defined trench.*** • ***The tipping area shall be no greater than 30 metres in length.*** • ***Surface water drainage shall be designed and maintained to divert surface water runoff away from areas where there is waste; and water that has come in contact with waste shall be retained on the landfill.*** • ***No waste shall be burnt at the landfill area.*** • ***A minimum separation distance of 3 m is maintained between the base of the trench and the highest level of the water table aquifer; and*** • ***A firebreak of at least 3 metres shall be maintained around the landfill.***
Inert Waste Type 2		• ***Tyres stored in a pile of up to 100 units prior to burial***
Sewage	***Wastewater treatment plant***	• ***Biological and physical treatment***

Note 1: Requirements for landfilling tyres are set out in Part 6 of the Environmental Protection Regulations1987.
Note 2: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the Environmental Protection (Controlled Waste) Regulations 2004.

6. New condition 1.2.9 is inserted and is shown in bold and underline below:

1.2.9 The Licensee shall ensure that cover is applied and maintained on all accessible waste in accordance with Table 1.3.6 and that sufficient stockpiles of cover are maintained on site at all times.

Table 1.3.6: Cover requirements [1]			
Waste Type	***Material***	***Depth***	***Timescales***
Inert Waste Type 1	***Dense, inert and incombustible material or such other material as is approved in respect of a particular landfill site, and totally covered.***	***200 mm***	***Monthly or as soon as practicable after deposit.***
Putrescible Waste		***500mm***	***Monthly or as soon as practicable after deposit.***
Inert Waste Type 2			
Contaminated solid wastes		***200mm***	***Fortnightly or as soon as practicable after deposit.***

Note 1: Additional requirements for the covering of tyres are set out in Part 6 of the Environmental Protection Regulations 1987.

7. Table 1.3.2 is amended by the insertion of the text shown in bold and underline below:

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
Sewage facility, pipelines and Irrigation field	***Visual integrity***	***Daily***

8. New condition 2.4 is inserted and is shown in bold and underline below:

2.4 Emissions to land

2.4.1 The Licensee shall ensure that where waste is emitted to land from the emission point in Table 2.4.1, and identified on the map of emission points in Schedule 1, it is done so in accordance with the conditions of this licence.

Table 2.4.1: Emission points to land		
Emission point reference	***Description***	***Source including abatement***
Irrigation field	***Discharge of treated wastewater by irrigation to land during commissioning period***	***Accommodation camp sewage facility*** ***Commissioning of the sewage facility no longer than three months in duration***
	Discharge of treated wastewater by irrigation to land	***Accommodation camp sewage facility***

9. New conditions 3.6.1 and 3.6.2 are inserted and is shown in bold and underline below:

3.6 Monitoring of emissions to land

3.6.1 The Licensee shall undertake the monitoring in Table 3.6.1 according to the specifications in that table.

Table 3.6.1: Monitoring of point source emissions to land			
Monitoring point reference	***Parameter***	***Units***	***Frequency***
Discharge to irrigation field	***pH[1]***	***-***	***Weekly during commissioning***
	E.coli	***cfu/100mL***	
	Biochemical Oxygen Demand	***mg/L***	***Quarterly following the completion of commissioning***
	Residual chlorine[2]		
	Total Phosphorus		
	Total Nitrogen		
	Total Suspended Solids		
	Volumes of wastewater discharged to the environment	***m^3***	***Continuous***

Note 1: In-field non-NATA accredited analysis permitted for pH measurement.
Note 2: In-field non-NATA accredited analysis permitted for residual chlorine measurement.

3.6.2 The Licensee shall submit a commissioning report for the Sewage Facility and irrigation field to the CEO within 30 days of the completion of commissioning. The report shall include but not be limited to:

(a) a summary of the monitoring results recorded under Condition 3.6.1;
(b) a list of any original monitoring reports submitted to the Licensee from third parties for the commissioning period
(c) a summary of the environmental performance of the plant as installed, against the design specification set out in condition 1.2.6; and
(d) where they have not been met, measures proposed to meet the design specification together with timescales for implementing the proposed measures.

10. Table 4.2.1 is amended by insertion of the text shown in underline and bold below:

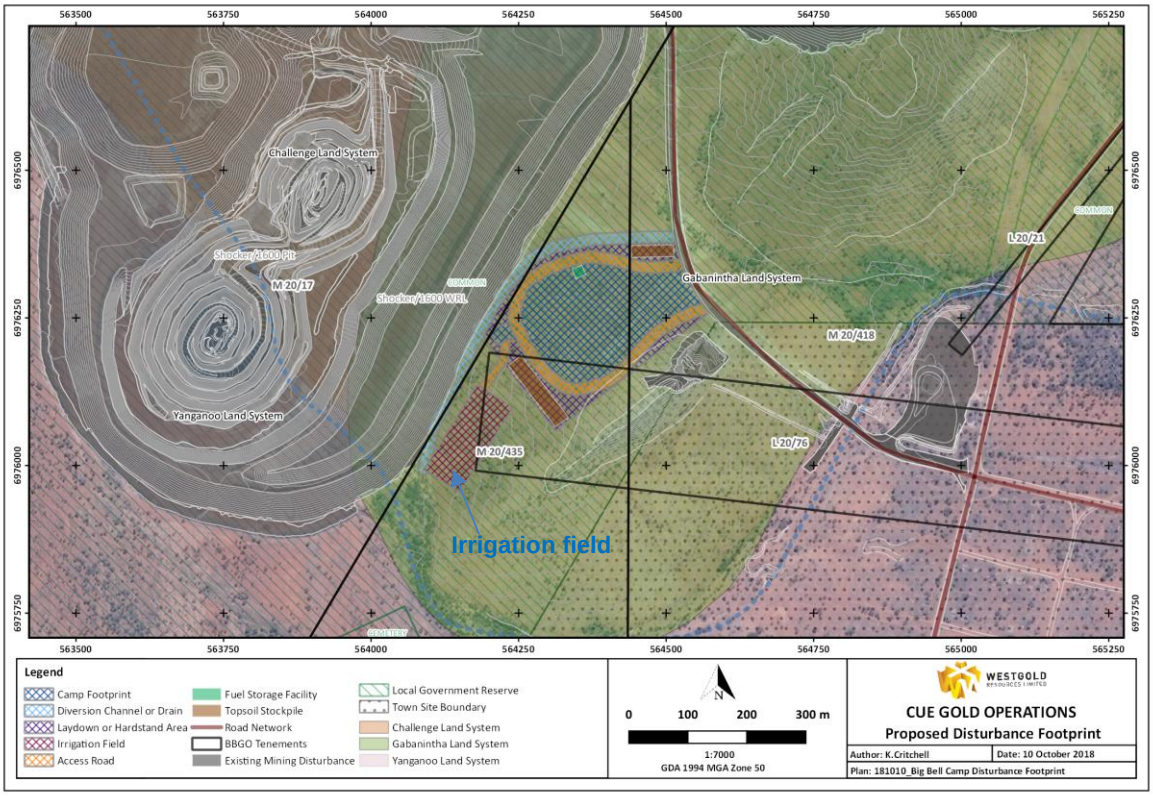
Table 4.2.1 Annual Environmental Report		
Condition or table	***Parameter***	***Format of Form***
-	*Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken*	*None specified*
Table 3.2.1	*Point source emissions to surface water monitoring results*	*None specified*
Table 3.3.1	*Point source emissions to groundwater monitoring results*	*None specified*
Table 3.4.1	*Monitoring of sediment results*	*None specified*
Table 3.5.1	*Aquatic assessment monitoring results*	*None specified*
Table 3.6.1	***Point source emissions to land 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

11. Schedule 1 Maps is amended by adding in the figures and the text shown in underline and bold below.

Map of containment infrastructure, emission and monitoring points

<u>The location of the Irrigation field as defined in conditions 2.4.1 and 3.6.1 is shown below.</u>



<u>Landfill 1 and Landfill 2 location map</u>

Appendix 1: Key documents

	Document title	Availability
1.	Licence L8934/2015/1	accessed at www.dwer.wa.gov.au
2.	Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*	Accessed at http://www.agriculture.gov.au/water/quality/guidelines
3.	Australian and New Zealand Environment and Conservation Council (ANZECC) 1997 Australian Guidelines for Sewage systems, Effluent Management, National Water Quality Management Strategy	Accessed at http://www.waterquality.gov.au
4.	Licence amendment application and supporting documentation	DWER records (A1729492)
5.	Supplementary information email L8934 – Sewage facility details and location map	DWER records (A1738337)
6.	DWER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	Accessed at www.dwer.wa.gov.au
7.	DWER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	
8.	DWER, November 2016. *Guidance Statement: Environmental Siting*. Department of Environment Regulation, Perth.	
9.	DWER, February 2017. *Guidance Statement: Decision Making.* Department of Environment Regulation, Perth.	
10.	DWER, February 2017. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	
11.	US EPA, Process design manual, land treatment of municipal wastewater effluents, 2006	accessed at www.epa.gov/nrmrl/pubs/625r06016/625r06016whole.pdf

Appendix 2: Summary of Licensee comments

The Licensee was provided with the draft Amendment Notice on 7 March 2019 for review and comment. The Licensee responded on 7 March 2019. The following comments were received on the draft Amendment Notice.

Condition	Summary of Licensee comment	DWER response
Table 1.3.4 of condition 1.2.7 and category throughput on page 1	The throughput for Category 64 (combined total throughput of Landfill 1 and Landfill 2) was incorrectly shown as 222 tpa. The correct throughput for category 64 is 354 tpa.	Licence amendment updated to reflect correct throughput for category 64.