



# Amendment Notice 2

<b>Licence Number</b>	L8579/2011/2
<b>Licence Holder</b>	AngloGold Ashanti Australia Limited
<b>ACN</b>	008 737 424
<b>File Number:</b>	2012/006902
<b>Premises</b>	Sunrise Dam Gold Mine Mining tenements M39/1116 and L38/176 LAVERTON WA
<b>Date of Amendment</b>	13 September 2018

## 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* (EP Act) 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.

Date signed: 13 September 2018

**Tim Gentle**

**MANAGER – RESOURCES 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
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
Amendment Notice	refers to this document
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 <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 <a href="mailto:info@dwer.wa.gov.au">info@dwer.wa.gov.au</a>
CS Act	<i>Contaminated Sites Act 2003 (WA)</i>
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
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	High-density polyethylene
Licence Holder	AngloGold Ashanti Australia Limited
m <sup>2</sup>	square metres
m <sup>3</sup>	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
MS	Ministerial Statement
mtpa	million tonnes per annum
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
Occupier	has the same meaning given to that term under the EP Act.
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 <i>Guidance Statement: Risk Assessment</i>
UDR	<i>Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)</i>

## 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 only to an amendment for Category 54. No changes to the aspects of the original Licence relating to Category's 5, 6, 52, 57 and 64 have been requested by the Licence Holder.

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: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

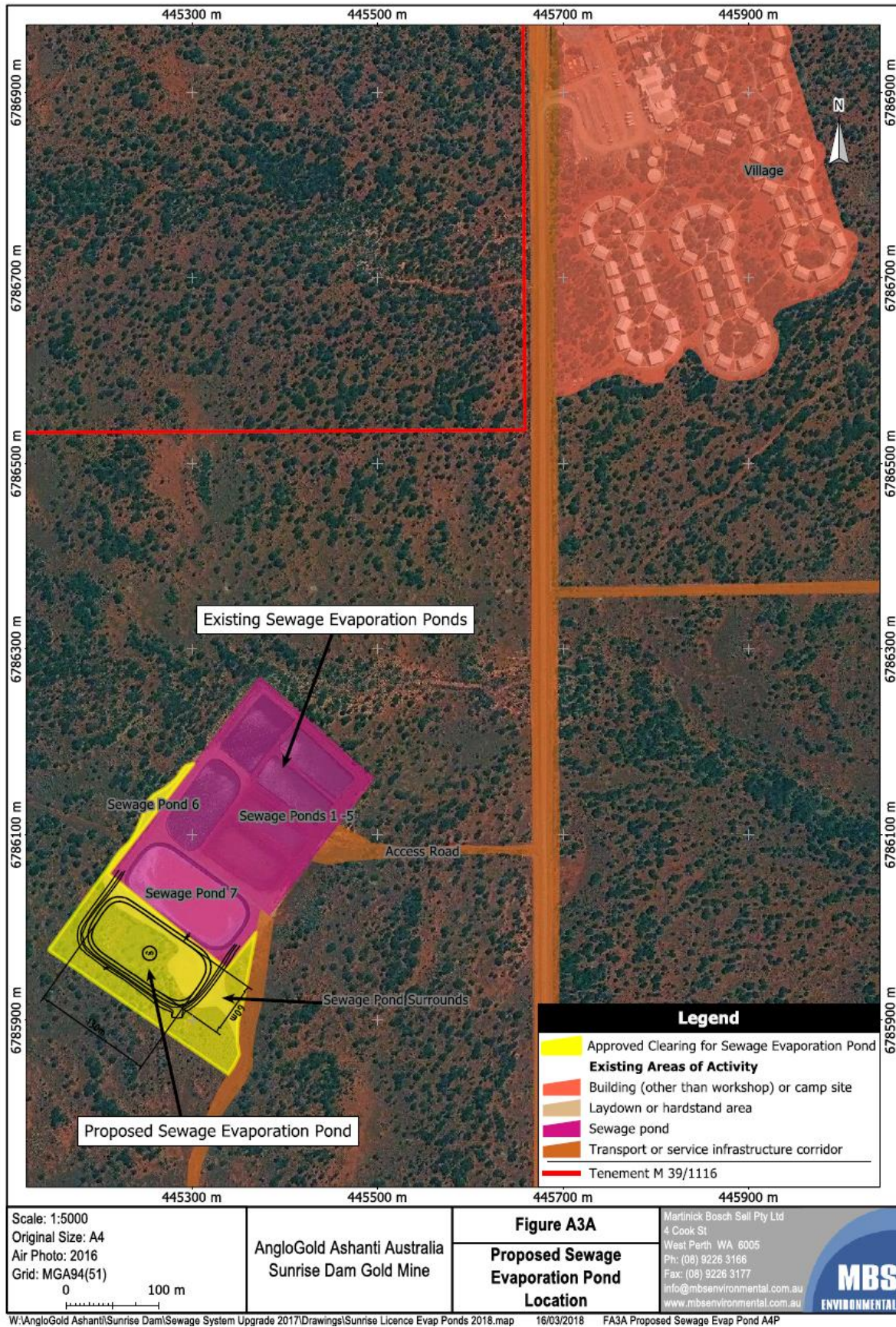
## Amendment description

This amendment is the result of an application made by the Licence Holder on 21 March 2018 to construct and operate a new sewage evaporation pond. There are currently 7 evaporation ponds utilised at the Premises. Five of these ponds are lined, two are unlined and are only used when the lined ponds are at capacity. The sewage system at the Premises is a septic system. Effluent leaves the septic tanks (four) and is sent to evaporation ponds which stores the effluent while evaporating.

The proposed eighth pond will be HDPE lined and will reduce the need to use the unlined ponds. The pond will have a storage capacity of 10,400 m<sup>3</sup> and a surface area of 8,000 m<sup>2</sup>. It is proposed to be located immediately southwest of the seven existing ponds. Figure 1 shows the proposed location of the pond and the location of the existing ponds.

The Licence Holder is not proposing any further changes to the sewage treatment system other than the additional evaporation pond and to increase the capacity throughput from 190 m<sup>3</sup> per day to 250 m<sup>3</sup> per day. The overflow ponds will remain on the licence to be used if/when required.

Works to be authorised by this Amendment Notice are shown in Figure 2.



**Figure 1:** Location of proposed sewage evaporation pond (MBS Environmental 2018)

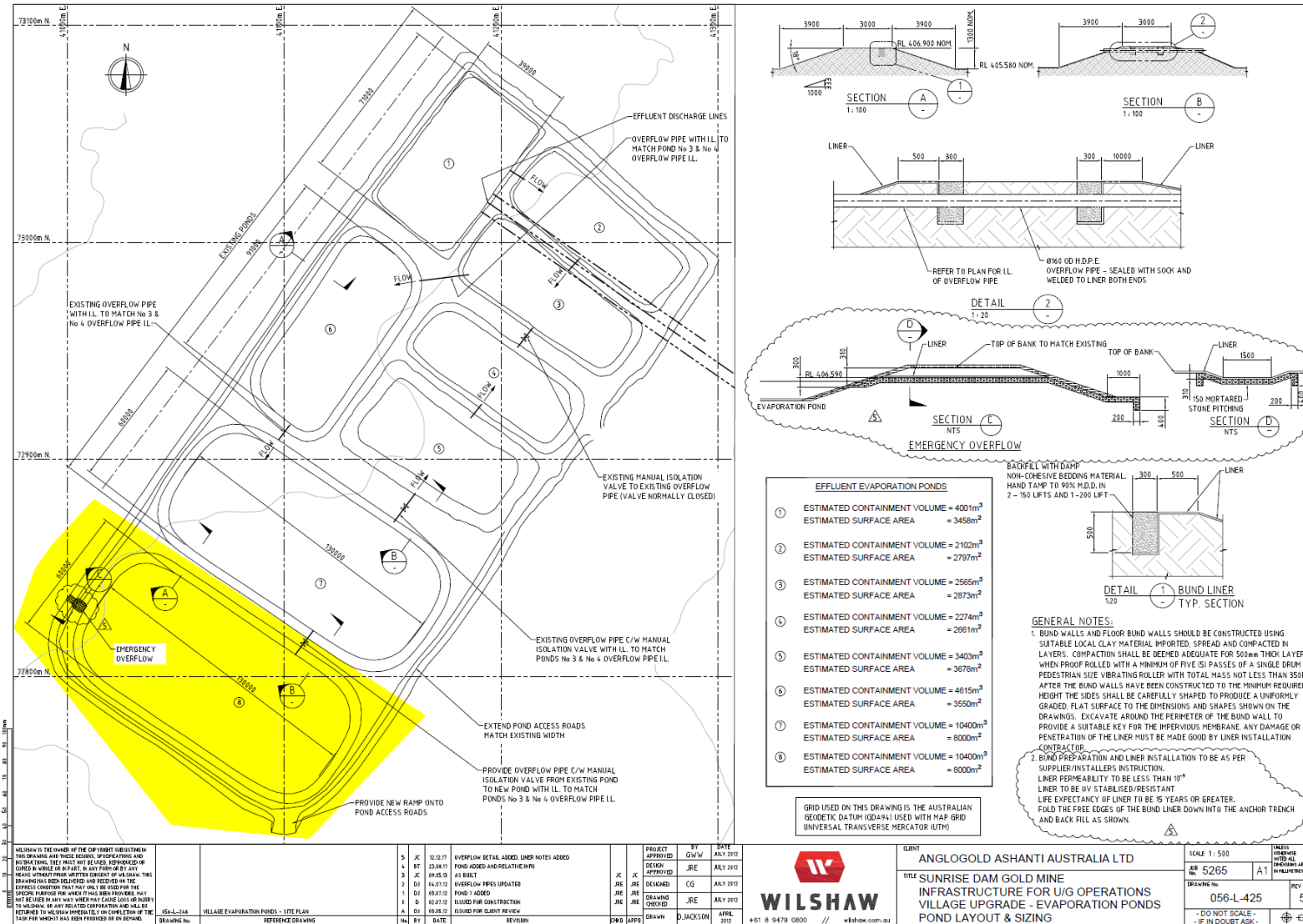


Figure 2: Proposed construction works for the sewage evaporation pond (highlighted yellow) (Wilshaw 2018)

Licence: L8579/2011/2

IR-T08 Amendment Notice (Major) template v2.0 (July 2017)

## Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 2.

**Table 2: Relevant approvals**

Legislation	Number	Approval
<i>Mining Act 1978 (WA)</i>	Mining Proposal Reg ID 70491	This includes clearing approval for up to 1.65 ha of native vegetation which is required for the construction of the pond. (Allows for clearing of up to 10 ha of land authorised under the Mining Act 1978 per tenement per year).

## Amendment history

Table 3 provides the amendment history for L8579/2011/2.

**Table 3: Licence amendments**

Instrument	Issued	Amendment
L8579/2011/2	10/09/2015	Amendment to increase capacity of categories 5 and 52 and authorize construction of additional gas generators.
L8579/2011/2	27/02/2017	Amendment to increase capacity of category 52 and authorize construction of 3 additional gas generators. Change to premises boundary and DER administrative changes.
L8579/2011/2	12/09/2017	Amendment Notice 1 to authorise Stage 11 perimeter embankment raise to the CTD TSF. Prescribed premises location amended to reflect recent consolidation of mining tenements into one tenement.
L8579/2011/2	DRAFT	Amendment Notice 2 to authorise construction and operation of a new sewage evaporation pond

## Location and receptors

Table 4 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 4: Receptors and distance from activity boundary**

Residential and sensitive premises	Distance from Prescribed Premises
Granny Smith Gold Mine and accommodation camp	32 km to the north of the Premises
Mt Margaret Aboriginal Community	40 km to the north west of the Premises

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

**Table 5: Environmental receptors and distance from activity boundary**

Environmental receptors	Distance from Prescribed Premises
Lake Carey	On the Premises boundary; approximately 3 km from the evaporation pond

## Risk Assessment Methodology

The risk assessment following utilizes the risk rating matrix as shown in Table 6, recently updated in accord with DER's *Guidance Statement: Risk Assessments (February 2017)*. The risk criteria used in the matrix below is further defined in Table 7 and 8 below.

**Table 6: Risk Rating Matrix**

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 7 following:

**Table 7: Risk criteria definitions (taken from DER's Guidance Statement: Risk Assessments)**

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		The following criteria has been used to determine the consequences of a Risk Event occurring:		
			Environment	Public health* and amenity (such as air and water quality, noise, and odour)
Almost Certain	The risk event is expected to occur in most circumstances	Severe	<ul style="list-style-type: none"> <li>onsite impacts: catastrophic</li> <li>offsite impacts local scale: high level or above</li> <li>offsite impacts wider scale: mid-level or above</li> <li>Mid to long-term or permanent impact to an area of high conservation value or special significance^</li> <li>Specific Consequence Criteria (for environment) are significantly exceeded</li> </ul>	<ul style="list-style-type: none"> <li>Loss of life</li> <li>Adverse health effects: high level or ongoing medical treatment</li> <li>Specific Consequence Criteria (for public health) are significantly exceeded</li> <li>Local scale impacts: permanent loss of amenity</li> </ul>
Likely	The risk event will probably occur in most circumstances	Major	<ul style="list-style-type: none"> <li>onsite impacts: high level</li> <li>offsite impacts local scale: mid-level</li> <li>offsite impacts wider scale: low level</li> <li>Short-term impact to an area of high conservation value or</li> </ul>	<ul style="list-style-type: none"> <li>Adverse health effects: mid-level or frequent medical treatment</li> <li>Specific Consequence Criteria (for public health) are exceeded</li> <li>Local scale impacts: high</li> </ul>



Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		The following criteria has been used to determine the consequences of a Risk Event occurring:		
			Environment	Public health* and amenity (such as air and water quality, noise, and odour)
Almost Certain	The risk event is expected to occur in most circumstances	Severe	<ul style="list-style-type: none"> <li>• <b>onsite impacts:</b> catastrophic</li> <li>• <b>offsite impacts local scale:</b> high level or above</li> <li>• <b>offsite impacts wider scale:</b> mid-level or above</li> <li>• Mid to long-term or permanent impact to an area of high conservation value or special significance<sup>^</sup></li> <li>• Specific Consequence Criteria (for environment) are significantly exceeded</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of life</li> <li>• <b>Adverse health effects:</b> high level or ongoing medical treatment</li> <li>• Specific Consequence Criteria (for public health) are significantly exceeded</li> <li>• <b>Local scale impacts:</b> permanent loss of amenity</li> </ul>
			<ul style="list-style-type: none"> <li>• special significance<sup>^</sup></li> <li>• Specific Consequence Criteria (for environment) are exceeded</li> </ul>	level impact to amenity
Possible	The risk event could occur at some time	Moderate	<ul style="list-style-type: none"> <li>• <b>onsite impacts:</b> mid-level</li> <li>• <b>offsite impacts local scale:</b> low level</li> <li>• <b>offsite impacts wider scale:</b> minimal</li> <li>• Specific Consequence Criteria (for environment) are at risk of not being met</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Adverse health effects:</b> low level or occasional medical treatment</li> <li>• Specific Consequence Criteria (for public health) are at risk of not being met</li> <li>• <b>Local scale impacts:</b> mid-level impact to amenity</li> </ul>
Unlikely	The risk event will probably not occur in most circumstances	Minor	<ul style="list-style-type: none"> <li>• <b>onsite impacts:</b> low level</li> <li>• <b>offsite impacts local scale:</b> minimal</li> <li>• <b>offsite impacts wider scale:</b> not detectable</li> <li>• Specific Consequence Criteria (for environment) likely to be met</li> </ul>	<ul style="list-style-type: none"> <li>• Specific Consequence Criteria (for public health) are likely to be met</li> <li>• <b>Local scale impacts:</b> low level impact to amenity</li> </ul>
Rare	The risk event may only occur in exceptional circumstances	Slight	<ul style="list-style-type: none"> <li>• <b>onsite impact:</b> minimal</li> <li>• Specific Consequence Criteria (for environment) met</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Local scale:</b> minimal to amenity</li> <li>• Specific Consequence Criteria (for public health) met</li> </ul>

<sup>^</sup> Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting*.

\* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines*.

"onsite" means within the Prescribed Premises boundary.

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment table below:

**Table 8: Risk treatment table**

Rating of Risk Event	Acceptability	Treatment
<b>Extreme</b>	Unacceptable.	Risk Event will not be tolerated. DWER may refuse application.
<b>High</b>	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.

<b>Medium</b>	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
<b>Low</b>	Acceptable, generally not controlled.	Risk Event is acceptable and will generally not be subject to regulatory controls.

## Risk assessment

Tables 9 and 10 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

**Table 9: 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					
Cat 54: Sewage facility	Construction of sewage evaporation pond	<b>Dust:</b> associated with construction activities	No residential premises within 32 km of the Premises	Air	Health and amenity impacts	Slight	Rare	Low	The Premises is isolated with the nearest residential receptor 32 km away. The Licence Holder has stated that any dust generated will be managed using standard sit procedures which includes water trucks and restriction of earthmoving during periods of high winds.
		<b>Noise:</b> associated with constructive activities							

**Table 10: Risk assessment for proposed amendments during operation**

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts					
Cat 54: Sewage facility	Sewage evaporation pond	<b>Odour:</b> associated with increased effluent treatment and disposal	No residential premises within 32 km of the Premises	Air	Health and amenity impacts	Slight	Rare	Low	The Premises is isolated with the nearest residential receptor 32 km away.

		<p><b>Waste Leachate:</b> associated with disposal into evaporation pond</p>	<p>Land/soil Groundwater</p>	<p>Direct discharge  Seepage of leachate</p>		<p>Minor</p>	<p>Rare</p>	<p>Low</p>	<p>The risk of waste leachate are expected to be low given the following controls in place by the Licence Holder:</p> <ul style="list-style-type: none"> <li>• The sewage pond will be HDPE lined</li> <li>• Liner permeability to be less than 10<sup>-9</sup> m/s.</li> <li>• Liner will be installed as per supplier's specifications.</li> </ul>
		<p><b>Overtopping of pond:</b> associated with storage of treated wastewater and with increased throughput of 190 m<sup>3</sup> to 250 m<sup>3</sup> per day.</p>	<p>Adjacent soils and vegetation</p>	<p>Direct discharge</p>	<p>Poor vegetation health from treated wastewater inundation</p>	<p>Minor</p>	<p>Unlikely</p>	<p>Medium</p>	<p>The risk of overtopping of the pond is considered to be low given the following controls in place by the Licence Holder:</p> <ul style="list-style-type: none"> <li>• The new eighth pond will provide an extra 10,400 m<sup>3</sup> of capacity, providing a total pond volume of 40,000 m<sup>3</sup>. A water balance has been provided by the Applicant (consultant Wilshaw Engineering) which demonstrates the daily maximum capacity of the four septic tanks and the eight evaporation ponds will be able to function sufficiently in compliance with the current freeboard requirement on the licence (300 mm).</li> <li>• A minimum embankment freeboard of 300 mm will be maintained which has been</li> </ul>

									<p>calculated as greater than a 100 year ARI, 72 hour rainfall event.</p> <ul style="list-style-type: none"> <li>• A visual inspection of freeboard is required daily as per current licence condition 1.3.9.</li> </ul>
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## Decision

The Delegated Officer has considered the overall risk of the emissions upon local receptors together with AngloGold's proposed management controls and determined, the proposed amendments will not result in emissions which are unacceptable to public health or the environment and therefore grants the Licence amendment.

Licence Holder controls for the construction of the works are conditioned on the Licence to ensure that construction occurs as per the application supporting documentation and that a compliance certificate is submitted upon completion of construction. Condition 1.3.6 has been updated to include the eighth evaporation pond as a storage vessel for treated sewage.

## Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 3 August 2018. Comments received from the Licence Holder have been considered by the Delegated Officer as shown in Appendix 2.

## Amendment

- The Prescribed Premises Category table of the Licence is amended by the insertion of the red text shown in underline and the deletion of text shown in strikethrough.

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
05	Processing or beneficiation of metallic or non-metallic ore	50 000 tonnes or more per year	4 500 000 tonnes per year
06	Mine dewatering	50 000 tonnes or more per year	5 000 000 tonnes per year
52	Electric power generation	10 megawatts or more in aggregate (using a fuel other than natural gas)	48 MW
54	Sewage facility	100 m <sup>3</sup> or more per day	<del>100 m<sup>3</sup> per day</del> <u>250 m<sup>3</sup> per day</u>
57	Used tyre storage	100 tyres or more	1 000 tyres
64	Class II putrescible landfill site	20 tonnes or more per year	5 000 tonnes per year

- Condition 1.3.1 of the Licence is amended by the insertion of the red text shown in underline and the deletion of text shown in strikethrough in Table 1.3.1

Waste type	Management strategy	Requirements
Clean fill <sup>3</sup>	Receipt, handling and disposal of waste by landfilling	<b>All waste types</b> Disposal of waste by landfilling shall only take place within the landfill area shown on the Premises map in Schedule 1. The separation distance between the base of the landfill and the highest groundwater level shall be not less than 3 metres. No waste shall be temporarily stored or landfilled within 35 metres from the boundary of the Premises. Must meet the acceptance criteria for a Class II <sup>3</sup> landfill
Type 1 inert waste <sup>3</sup>		
Putrescible waste <sup>3</sup>		
Contaminated solid waste		
Sewage	Biological and physical treatment	<del>131 m<sup>3</sup> per day</del> <u>250 m<sup>3</sup> per day</u>
Tailings	Thickening and containment in TSF	No more than 4.5 Mtpa Disposal of waste shall only take place within the TSF labelled CTD as shown on the Premises map in Schedule 1.

Used tyres	Storage and burial	Not more than 1000 tyres shall be stored at the premises at any one time; Used tyre stacks shall not exceed 100 m <sup>2</sup> in area and 4 metres in height; Used tyres must be stacked on their side walls or if stored on their treads, area baled with a securing device made from a non-combustible material; Used tyres shall only be buried in the waste rock dump.
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3. Condition 1.3.6 of the Licence is amended by the insertion of the red text shown in underline below in Table 1.3.3:

Table 1.3.3: Containment infrastructure		
Storage vessel or compound	Material	Requirements
WWTP evaporation ponds one, two, three, six, seven <u>and eight</u>	Primary treated sewage	Clay lined or equivalent WWTP pond eight HDPE lined
WWTP over-flow ponds four and five	Over-flow of primary treated sewage from evaporation ponds	None specified
Process water pond	CTD TSF return water, borefield and mine dewater	Lined with at least 0.5 m of clay with a permeability of <10 <sup>-9</sup> m/s or equivalent
Water storage ponds/dewatering ponds	Mine dewater	None specified
CTD TSF	Tailings	Lined with clay to achieve a permeability of at least <10 <sup>-7</sup> m/s or equivalent

4. Condition 1.3.10 of the Licence is amended by the insertion of the red text shown underline below in Table 1.3.5:

Table 1.3.5: Works specifications	
Column 1	Column 2
Infrastructure	Specifications (Design and Construction)
4 MW Gas generator engine x 3	3 x 4MW CAT CG260-16
	Located in new building (Station D), 30m north of existing Station C, as shown in Figure 2
	Vent emissions to be exhausted to air via a 13m high stack
Stage 11 CTD TSF perimeter embankment raise	CTD TSF upstream perimeter embankment raise of between 0.7m (at the spillway) and 2.5m at the highest point (total heights equivalent to the range between 8.1m and 14.7m).
	Zone 1 low permeability material (hydraulic conductivity of not less than 1 x 10 <sup>-8</sup> m/s) to be placed on the inner embankment.
	Stormwater storage pond embankment raise to ensure capacity to store a 1 in 100 year, 72 hour rainfall event generated from the CTD TSF.
<u>Sewage evaporation pond eight</u>	<u>HDPE lined to a permeability of 10<sup>-9</sup> m/s or less.</u> <u>Constructed as per design shown in Figure 2 of this Amendment Notice 2.</u> <u>Integrity of liner to be tested at completion of construction.</u> <u>Pond will have storage capacity of 10,400 m<sup>3</sup> allowing capacity to store a 1 in 100 year, 72 hour rainfall event.</u> <u>Located to the southwest of existing ponds as depicted in Figure 1 of this Amendment Notice 2.</u>

5. Condition 4.2.3 of the Licence is amended by the deletion of text in strikethrough and the insertion of the red text shown in underline below:

- 4.2.3 The Licensee shall submit a-compliance documents to the CEO, following the construction of the power station upgrade, ~~and~~ TSF embankment raise and sewage evaporation pond works as specified in Table 1.3.5 and prior to commissioning of the same.



## Appendix 1: Key documents

	Document title	In text ref	Availability
1	Wilshaw (2018) <i>Anglogold Ashanti Australia Ltd Sunrise Dam Gold Mine Village Sewage System Overview and Design Capacity</i> , January 2018	Wilshaw 2018	DWER records (A1684005)
2	Licence L8579/2011/2 – Sunrise Dam Gold Mine	L8579/2011/2	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
3	L8579 Licence Amendment Application and attachments signed 21 March 2018	Application	DWER records A1684005
4	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	DER 2015a	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
5	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.	DER 2015b	
6	DER, August 2016. <i>Guidance Statement: Licence duration</i> . Department of Environment Regulation, Perth.	DER 2016a	
7	DER, February 2017. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	DER 2017a	
8	DER, February 2017. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.	DER 2017b	

## Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 3 August 2018 for review and comment. The Licence Holder responded on 30 August 2018. The following comments were received on the draft Amendment Notice.

Summary of Licence Holder comment	DWER response
<p>The Licence Holder requested the throughput capacity be increased to 250 m<sup>3</sup> per day due to occupation fluctuation in the Village, particularly during high intensity maintenance shutdowns.</p>	<p>Accepted. DWER confirmed the increase from 190 m<sup>3</sup> per day to 250 m<sup>3</sup> per day will not affect the emission or risk assessment outcomes due to the capacity of the septic tanks and sufficient capacity of the evaporation ponds. The Licence Holder supporting documentation included an Overview and Design Capacity Report, completed by Wilshaw Engineering (2018) which demonstrates the design capacity of the septic tanks and evaporation ponds.</p> <p>The volumes of each of the septic tanks are as follows:</p> <p>Septic tank 1: 46,800 litres per day            Septic tank 2: 30,000 litres per day (estimate)            Septic tank 3: 39,000 litres per day            Septic tank 4: 23,600 litres per day</p>
<p>DWER queried whether the over flow ponds four and five could be removed in this Amendment Notice. The Licence Holder has requested they remain on the licence to enable them to be used if required.</p>	<p>Accepted. Ponds four and five will remain on the licence.</p>