



Decision Document

Environmental Protection Act 1986, Part V

Proponent: **AngloGold Ashanti Australia Limited**

Licence: **L8579/2011/2**

Registered office: 44 St Georges Tce
PERTH WA 6000

ACN: 008 737 424

Premises address: Sunrise Dam Gold Mine
Mining tenements M39/376, M39/375, M39/374, M39/366, M39/357,
M39/348, M39/347, M39/217, M38/426, M39/766, M39/499, M39/373,
M39/1102, M39/1103 and L38/176
LAVERTON WA
as depicted in Schedule 1.

Issue date: Thursday, 10 July 2014

Commencement date: Monday, 21 July 2014

Expiry date: Friday, 20 July 2029

Decision

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue an amended licence. DER considers that in reaching this decision, it has taken into account all relevant considerations and legal requirements and that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by: Louise Lavery
Licensing Officer

Decision Document authorised by: Tim Gentle
Delegated Officer



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1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative details		
Application type	Works Approval <input type="checkbox"/> New Licence <input type="checkbox"/> Licence amendment <input checked="" type="checkbox"/> Works Approval amendment <input type="checkbox"/>	
Activities that cause the premises to become prescribed premises	Category number(s)	Assessed design capacity
	05	4 500 000 tonnes per year
	06	5 000 000 tonnes per year
	52	48 MW
	54	190 m ³ per day
	57	1 000 tyres
64	5 000 tonnes per year	
Application verified	Date: N/A	
Application fee paid	Date: N/A	
Works Approval has been complied with	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Compliance Certificate received	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No:



<i>Environmental Protection Act 1986?</i>		Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Is the proposal subject to Ministerial Conditions?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i>)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Department of Water consulted Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Is the Premises within an Environmental Protection Policy (EPP) Area Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes include details of which EPP(s) here.		
Is the Premises subject to any EPP requirements? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, include details here, eg Site is subject to SO ₂ requirements of Kwinana EPP.		

3 Executive summary of proposal and assessment

AngloGold Ashanti Australia Limited’s (AGAA) Sunrise Dam Gold Mine (SDGM) operation is located 55 km south of Laverton in Western Australia. It is located on the eastern shore of Lake Carey and lies within the Mt Weld Pastoral Lease. The project comprises of open cut and underground mining operations, processing operations and ancillary services including a natural gas/diesel power station, paste plant, administration facilities, aerodrome and accommodation village.

The following prescribed activities occur at SDGM:

Mine dewatering

Dewatering from SDGM occurs via a number of sumps and bores and is pumped from the open pit and underground workings into settling ponds located on the Sunrise Waste Dump. From the settling ponds, water can be fed to the process plant or discharged to Lake Carey as required. The discharge water is gravity fed to a discharge trench, which directs water around the edge of the waste dump and into a channel that opens onto the eastern shoreline of Lake Carey. Discharge to the lake began in 1996, at an unknown location, during operation of the site by Acacia Resources. Water generated by dewatering activities is also used across site for processing and dust suppression. SDGM is required to submit a dewatering discharge report as a condition of this Licence.

Processing

SDGM employs gravity/carbon-in-leach technology to recover gold through processing up to a previously maximum licensed rate of 3.7 mtpa. This capacity was increased by 21% to 4.5 mtpa as a result of existing plant optimisation and authorised in the September 2015 amendment.

The main unit operations in the processing plant are crushing, milling, gold leaching, gold recovery and tailings deposition. SDGM operates a central thickened discharge (CTD) TSF. Decant from this facility is recycled for the use as process water in the plant.

A paddock style TSF has been decommissioned and final rehabilitation works were completed in early 2013. No operational activities are conducted on this TSF other than monitoring.



Power Station

SDGM previously ran three power stations, a combination of diesel and LNG gensets. Power station A is owned by AGAA. Power stations B and C are owned by Energy Developments Limited (EDL). EDL operate all three power stations.

A fourth power station, Station D, has been authorised to be constructed and operated by EDL as part of the February 2017 amendment. The capacity of category 52 was increased by 12MW of gas generation to 48 MW, consisting of 10.5 MW back up diesel and 32.5 MW gas generation.

Landfill

The SDGM landfill facility is located within the footprint of the Cleo waste dump. The landfill is encapsulated within the Cleo waste dump and as such, is well above natural ground level. The risk of windblown waste is reduced by the high waste rock walls of the landfill cell.

Sewage Facility

The sewage system installed at the SDGM village is a straightforward septic system. Raw sewerage discharged from the plumbing fixtures throughout the village is a combination of black and grey water flows. The raw sewerage is plumbed to septic tanks where solids are collected and effluent is decanted off into pump pits. The pump pits downstream of the septic tanks collect and transfer the effluent to a series of seven evaporation ponds that are remote from the village. The evaporation ponds store the effluent whilst it is evaporating to the atmosphere. Five of the seven ponds are lined. The two unlined ponds are the original ponds that were first constructed in 1995/1996. They are the last ponds in the sequence and are only anticipated to fill in the winter months when evaporation is lowest or when village occupancy rates are high.

Gravity sewerage mains have been utilised to transfer the raw sewerage to the septic tanks except where gravity flows are not achievable, then sewerage pump pits have been installed to transfer the raw sewerage. As sludge accumulates within the septic tanks, it has been periodically pumped out and disposed at an approved site. There are three independent septic tanks collecting raw sewage from different areas of the village. The three independent effluent transfer pipes (one from each septic tank) all discharge into the evaporation ponds.

Used tyre storage

Used tyres are stored onsite until a suitable number are stockpiled. The used tyres are then disposed of at SDGM in accordance with Part 6 of the *Environmental Protection Regulations 1987* or transported offsite for appropriate disposal.

September 2015 Amendment

This Licence amendment (September 2015) authorised the construction of 2 gas fired generators of 4 MW capacity each, thereby increasing the power generation capacity under category 52. Existing diesel generation now provides provision for back up supply in the event of an outage to the gas supply to site. It is anticipated that the gas generators (existing and new) will supply 98% of the load.

An increase to the production capacity of category 5 was also included. This did not result in any change to the existing TSF operation, with the production increase achieved through optimisation of the existing plant. Associated with these Licensee requested amendments were DER changes to the standard conditions and formatting of the licence.

February 2017 Amendment

AGAA submitted an application on 30 November 2016 to amend their Licence to authorise two changes to their Premises:

1. Upgrade the processing plant by constructing and operating a new flotation circuit, a new ultra-fine grinding circuit, and additional flotation reagents storage and handling facilities.



2. Construct and operate 3 additional gas generators, thereby increasing the capacity of category 52 (electric power generation) to 48 MW.

There is no change to the authorised tailings discharge rates or the category 5 capacity due to the process plant upgrade.

As the process plant upgrade does not result in changes to the volume or nature of wastes already authorised by the Licence, section 53 of the Environmental Protection Act 1986 does not apply for these changes.

The Premises boundary has changed at this amendment, with the inclusion of M39/1102 and M39/1103, recently acquired by the Licensee.

In addition to the requested amendments, DER has removed conditions that relate to works completed (including improvements) since the amendment of September 2015.

DER has also made some administrative changes to standard conditions, including removal where deemed necessary, following review as to the conditions' validity and enforceability.



4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Premises boundary	- Schedule 1	February 2017 Amendment M39/1102 and M39/1103 are now included within the Premises boundary, having been acquired by the Licensee on 25/05/2016 and 3/6/2016, respectively. Expiry dates are 24/05/2037 and 02/06/2037.	Email from N Galli, AGAA "Proof of tenure for Sunrise Dam Licence Amendment" to DER sent 24/02/2017, 2:44 PM. DER document reference: A1383528
General conditions	L1.2.3	September 2015 Amendment Condition 1.2.5 of the previous licence has been included as condition 1.2.3 and not reassessed.	N/A
	Former condition L1.1.5	February 2017 Amendment DER has reviewed standard condition L1.1.5: <i>"Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:</i> (a) <i>pollution;</i> (b) <i>unreasonable emission;</i> (c) <i>discharge of waste in circumstances likely to cause pollution; or</i> (d) <i>being contrary to any written law."</i> and determined it is an explanatory statement designed to provide clarification on the operation of the Licence, and as such is not enforceable. DER has now removed this	



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Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
	Former condition L1.2.1 Former condition L1.2.3	<p>condition from the Licence.</p> <p>Former condition L1.2.1: <i>“The Licensee shall operate and maintain all pollution control and monitoring equipment to the manufacturer’s specification or any relevant and effective internal management system. “</i></p> <p>has been removed from the Licence as the pollution control and monitoring equipment that is subject to this condition is not specified and the internal management system is subject to a subjective test of being “effective”. Consequently the condition is considered not enforceable as it is not clear.</p> <p>Former condition L1.2.3: <i>“The Licensee shall implement all practical measures to prevent stormwater run-off becoming contaminated by the activities on the Premises.”</i></p> <p>has been removed from the Licence as the condition does not specify clearly which stormwater infrastructure is to be utilised or maintained and does not clearly specify which management actions are required to determine compliance with this condition. Existing provisions under the <i>Environmental Protection Act 1986</i> are considered to adequately regulate discharges to the environment potentially arising from contaminated stormwater.</p>	
Premises operation	L1.3.1	<p>September 2015 Amendment</p> <p>A change was made to Table 1.3.1 to increase the maximum amount of tailings permitted to be discharged into the TSF from 3.7 Mtpa to 4.5 Mtpa. Whilst the production capacity of category 5 increased to 4.5 Mtpa, this represented only a 21% increase and was due to optimisation within the plant. No infrastructure changes were required or changes to the existing TSF operation.</p> <p>No other changes have been made to this table and other waste management practices</p>	Application supporting documentation



DECISION TABLE			
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		have not been re-assessed at this time.	
	L1.3.2 – L1.3.3	These conditions relate to landfill management and have not been re-assessed.	N/A
	L1.3.4	This condition relates to pipeline operation and infrastructure at Sunrise Dam and has not been re-assessed.	N/A
	L1.3.5	This condition is as per the previous licence and has not been re-assessed.	N/A
	L1.3.6 – L1.3.9	This condition describes the containment infrastructure in use at the Premises. Complementary freeboard, TSF management and inspection requirements have not been re-assessed as part of this amendment.	N/A
	L1.3.10, L1.3.11	This condition is specified to require construction of the new gas generators in accord with the submitted application.	Application supporting documentation
Emissions general	L2.1.1	Descriptive limits will be set through the licence and therefore condition regarding recording and investigation of exceedances of limits has been included. February 2017 Amendment A minor wording change has been made to this condition to clarify that the requirement to investigate exceedances of any limit set is required for all sections of the Licence.	N/A
Point source emissions to air including monitoring	L2.2.1 and L3.2.1 L2.2.1 and L4.1.1	September 2015 Amendment Power Generation An application was received 26 June 2015 to install 2 x 4MW gas generators. DER's assessment and decision making is included as Appendix A. Gold Processing The September 2015 amendment identified that there are two existing point source emissions to air that were previously not on the Licence: emissions through a stack from	Appendix A



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p>the carbon regeneration kiln and emissions through a stack from the gold furnace. IR 2 of Table 4.1.1 in improvement condition L4.1.1 has been added to the Licence to require the Licensee to provide information to aid in assessment of the significance of these emission points.</p> <p>February 2017 Amendment Power Generation An application was received 30 November 2016 to install 3 x 4MW gas generators in a new power station building, Station D. DER's assessment and decision making is included as Appendix A.</p>	Appendix A
Point source emissions to surface water including monitoring	L 2.3.1, L3.3.1	Excess mine dewater is discharged into Lake Carey. This discharge is authorised under condition 2.3.1 and required to be monitored in accordance with condition 3.3.1. This emission has not been re-assessed as part of the Licence amendment.	General provisions of the <i>Environmental Protection Act 1986</i>
Point source emissions to groundwater including monitoring	N/A	No point source emissions to groundwater occur at the Premises and no conditions are included in this section.	N/A
Emissions to land including monitoring	N/A	No significant emissions to land occur at the Premises and there are no conditions in this section.	N/A
Fugitive emissions	N/A	September 2015 Amendment DER has made an administrative change to the conditions in relation to fugitive dust emissions. Where low risk exists, no licence conditions are specified.	N/A
Odour	N/A	No significant odour emissions occur at the Premises. No conditions relating to odour were included on the previous licence.	N/A
Noise	N/A	Noise conditions have not been re-assessed as part of this licence amendment. No	N/A



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		conditions relating to noise were included on the previous licence.	
Monitoring general	L3.1.1 - L3.1.5 L3.1.3	<p>September 2015 Amendment These conditions provide general requirements for conduct of the monitoring programs and related equipment in section 3 of the Licence. These conditions are unchanged from previous Licence.</p> <p>February 2017 Amendment DER has reviewed condition 3.1.3: <i>The Licensee shall record production or throughput data and any other process parameters relevant to any non-continuous or CEMS monitoring undertaken.</i> and has determined that it is not enforceable as it does not clearly specify the parameters that need to be recorded. It has been removed from the Licence.</p>	General provisions of the <i>Environmental Protection Act 1986</i>
Monitoring of inputs and outputs	N/A	No conditions relating to monitoring of inputs and outputs were included on the previous licence and this amendment does not require new conditions in this section	N/A
Process monitoring	L3.4.1	Recording of tailings deposited to the TSF and water recovery from the TSF is required by this condition. This condition is unchanged from the previous licence.	N/A
Ambient quality monitoring	L3.5.1, L3.5.2, L3.5.3	<p>September 2015 Amendment Quarterly ambient groundwater monitoring is detailed in condition 3.5.1 whilst condition 3.5.2 specifies the requirements for the assessment of ecological impact to Lake Carey due to discharge of mine dewater. Condition 3.5.3 details the vegetation monitoring program to assess potential impacts within the zone of influence of the TSF. These conditions have not been re-assessed as part of this amendment.</p> <p>February 2017 Amendment No changes have been made to the ambient quality monitoring program as a result of this amendment.</p>	N/A
Meteorological	N/A	No meteorological conditions are required for the Licence.	N/A



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
monitoring			
Improvements	L4.1.1	<p>September 2015 Amendment An improvement condition was included as part of the September 2015 amendment to require the Licensee to:</p> <ul style="list-style-type: none"> (a) submit a commissioning plan for the new gas generators, prior to the commencement of commissioning. The plan includes the requirement to detail the stack monitoring program to be completed to verify that new generators can meet the emission design criteria; and (b) submit information on gold processing rates and feed type(s) to allow an assessment of the significance of the emission points to air from the carbon regeneration kiln and gold furnace and basis for a decision to conduct investigatory stack testing. 	Application supporting information
	Former condition L4.1.1	<p>February 2017 Amendment Condition 4.1.1 has been removed from the Licence as the requested information has been received and deemed acceptable to DER. The commissioning plan for the gas generators installed in late 2015, as required by IR 1, was received 12 November 2015 (DER document reference: A1007051)</p> <p>IR2 information was received 18 November 2015 and indicated that processing rates for the carbon regeneration circuit was 8 t per day and the gold furnace was operated for approximately 20 hours per week at a rate of 30 kg per day. Due to the lack of close sensitive receptors (nearest is 32 km away) and low processing rates, no further action is required in terms of regulatory controls.</p>	<p>Energy Developments Ltd Australia (2015) <i>Project Delivery Commissioning Plan – Sunrise Dam</i>, November 2015. DER document reference: A1007051</p> <p>Letter from B Darby, AGAA to L Lavery, DER dated 18 November 2015. DER document reference: A1376610</p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Information	Former L5.1.1 – L5.1.4 Former condition 5.1.2	<p>These conditions are as for the previous licence.</p> <p>February 2017 Amendment DER has reviewed former condition 5.1.2: 5.1.2 <i>The Licensee shall ensure that:</i></p> <p>(a) <i>any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and</i></p> <p>(b) <i>any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing.</i></p> <p>and determined that it is not enforceable, as the requirements for compliance are not clear. The condition has been removed from the Licence.</p>	General provisions of the <i>Environmental Protection Act 1986</i>
	L4.1.3	<p>February 2017 Amendment Following DER review of the Annual Audit Compliance Report (AACR) procedure, the template for an AACR has been updated and is now available via DER's public website: der.wa.gov.au. Consequently the template is not included in the Licence and has been removed.</p>	<i>DER Guideline: Annual Audit Compliance Reports August 2016</i>
	Former L5.2.1 – L5.2.2	<p>September 2015 Amendment These conditions detail the requirements for submitting an annual environmental report to the CEO. Table 5.2.1 has been updated to reflect changes to the point source emissions to air monitoring program.</p>	General provisions of the <i>Environmental Protection Act 1986</i>
	Former L5.2.3 – L5.2.6 L4.2.3 – L4.2.6	<p>September 2015 Amendment These new conditions are associated with submission of compliance certificate for works authorised by condition 1.3.10 and reporting requirements associated with these works.</p> <p>February 2017 Amendment These conditions have been reinstated for submission of the compliance certificate and commissioning report for the new amendment to install an addition 3 x 4MW. A</p>	General provisions of the <i>Environmental Protection Act 1986</i>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		requirement to complete a commissioning plan is not included as the post commissioning monitoring requirement is specified in Table 3.2.1 and required to be reported in L4.2.6.	
	L4.3.1	September 2015 Amendment DER has made minor administrative changes to the notification requirements in this section.	General provisions of the <i>Environmental Protection Act 1986</i>
Licence Duration	N/A	29 April 2016 Amendment Notice The duration of the licence was extended to 20 July 2029 on April 29 2016 by amendment notice, to align with the Premises' mining tenement expiry dates.	Sections 59(1)(k) and s59B(9) of the <i>Environmental Protection Act 1986</i>



5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
07/08/2015	Proponent sent a copy of draft instrument	Clarification of generators' nomenclature; information on stack heights provided; edits suggested to premises description. Map supplied for emission points to air.	Comments adopted into draft; map added.
16/02/2017	Proponent sent a copy of draft instrument	Change suggested to condition 1.3.9 to allow for digital records, to align with Licensee's records system. Minor edits to gas generators nomenclature. Modification requested to Premises boundary map to include new mining tenements acquired by the Licensee.	Changes adopted.



6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High



Appendix A

Point source emissions to air including monitoring

Power Generation – September 2015 Amendment

The emissions to air from point sources at Sunrise Dam Gold Mine has altered with the proposal to install 2 x 4MW gas generators to replace existing diesel fired generators. The replacement of existing diesel generators (12.09 MW capacity) with new gas generation will result in a reduction in overall emissions from the current operation.

NOx emissions from the diesel generators were an order of magnitude larger than gas (in the range of 5000 – 8000 mg/m³)(AngloGold Ashanti Australia Limited 2015).

The diesel generators will only be used as a back up source of power generation, in the event of an interruption to the gas supply. This has been estimated to represent 2% of total overall capacity.

The new gas generators are an efficient design. Expected NOx emissions are approximately half of the NOx emissions from the existing gas fired generators (500 mg/m³ for new as compared to a range of 750 – 1200 mg/m³ for existing) (AngloGold Ashanti Australia Limited 2015).

Abnormal Operation

Emission Description

Emission: Combustion gases (NOx, CO, CO₂, CH₄) in excess of design criteria from gas generators via individual stacks.

Impact: Reduced local air quality. The design criteria for NOx emissions from the new gas generators is estimated at 500mg/Nm³. In the absence of any Western Australian criteria, Schedule 4 of the NSW Protection of the Environment Operations (Clean Air) Regulations has been used as a reference. The emission concentration limit for NOx emissions from new stationary combustion engines in NSW is 450mg/m³.

There are no adjacent receptors. The nearest population is at the accommodation camp for the mine which is located 5 km away from the power station. The nearest sensitive receptor is Granny Smith Gold Mine, located 32 km to the north of the Premises.

Controls: No specific emissions abatement is proposed. Regular maintenance will be conducted to ensure the generators are operating as per design.

Risk Assessment

Consequence: Minor, the nearest sensitive receptor is 32 km away

Likelihood: Unlikely, maintenance procedures are in place

Risk Rating: Moderate

Regulatory Controls

Condition 1.2.1 requires the equipment to be maintained on a regular basis. Quarterly emissions monitoring by stack testing has been imposed to validate emissions and maintenance of the combustion process for the first twelve months of operation for the new generators. Following results that indicate the operation of the generators is well managed, the frequency of monitoring will be reduced to an annual test, as per the requirements for the existing gas generators. The monitoring requirements are detailed in condition L3.2.1.



Given the change in duty to a back up system, stack testing of the diesel generators has been removed from the licence.

Residual Risk

Consequence: Minor

Likelihood: Unlikely

Residual Risk Rating: Moderate

References

Application supporting documentation: Letter from Emma Bamforth to Louise Lavery, DER dated 26 June 2015

Schedule 4 of *NSW Protection of the Environment Operations (Clean Air) Regulations 2010*

AngloGold Ashanti Australia Limited (2015) *Sunrise Dam Gold Mine Annual Environmental Report (AER) 2014*

Power Generation – February 2017 Amendment

To support the additional flotation and grinding circuit, an additional 3 x 4MW gas generators are planned to be installed and operated.

The new gas generators are an efficient design and the same model as those authorised by the Licence in September 2015. Expected NO_x emissions are approximately half of the NO_x emissions from the gas fired generators pre 2015 (500 mg/m³ for new as compared to a range of 750 – 1200 mg/m³ for generators installed before 2015) (AngloGold Ashanti 2015)).

Abnormal Operation

Emission Description

Emission: Combustion gases (NO_x, CO, CO₂, CH₄) in excess of design criteria from gas generators via individual stacks.

Impact: Reduced local air quality. The design criterion for NO_x emissions from the new gas generators is estimated at 500mg/Nm³ (AngloGold Ashanti 2016b). In the absence of any Western Australian criteria, Schedule 4 of the NSW Protection of the Environment Operations (Clean Air) Regulations has been used as a reference. The emission concentration limit for NO_x emissions from new stationary combustion engines in NSW is 450mg/m³.

There are no adjacent receptors. The nearest population is at the accommodation camp for the mine which is located 5 km away from the power station. The nearest sensitive receptor is Granny Smith Gold Mine, located 32 km to the north of the Premises.

Controls: No specific emissions abatement is proposed. Regular maintenance will be conducted to ensure the generators are operating as per design.

Risk Assessment

Consequence: Minor, the nearest sensitive receptor is 32 km away

Likelihood: Unlikely, maintenance procedures are in place

Risk Rating: Moderate



Regulatory Controls

Condition L1.3.10 specifies the works requirements to be adhered to for the installation works. Post commissioning monitoring of the generators' exhaust emissions by stack testing has been imposed to validate that the performance of the generators is as the design specification.

A compliance certificate and commissioning report are required to be submitted following construction and commissioning of the gas generators, respectively in conditions L4.2.3 and L4.2.5.

Given the lack of receptors, and past recent successful experience with commissioning the same type of generator where NO_x emissions from the new generators were recorded at concentrations of 280 mg/m³ and 320 mg/m³ (AngloGold Ashanti 2016a), the frequency of monitoring following the post commissioning period is set as annual, as per the requirements for the existing gas generators. The monitoring requirements are detailed in condition L3.2.1. This will ensure that the generators are operated as per design and maintained in order to maintain environmental performance.

Residual Risk

Consequence: Minor

Likelihood: Unlikely

Residual Risk Rating: Moderate

References

AngloGold Ashanti Australia Limited (2015) *Sunrise Dam Gold Mine Annual Environmental Report (AER) 2014*

AngloGold Ashanti Australia Limited (2016a) *Sunrise Dam Gold Mine Power Station Upgrade – Gas Generators Commissioning Report, March 2016* (DER document no: A1374528).

AngloGold Ashanti Australia Limited (2016b) *Application to amend licence L8579/2011/2, dated 3 November 2016* (DER reference CEO5259/16; DER document no: A1334822).

Schedule 4 of *NSW Protection of the Environment Operations (Clean Air) Regulations 2010*