Amendment Report

Application for Licence Amendment

Part V Division 3 of the Environmental Protection Act 1986

Licence Number L8676/2012/1

Licence Holder AngloGold Ashanti Australia Limited

ACN 008 737 424

File Number 2012/002666-3

Premises Tropicana Gold Mine

Legal description -

Part of Mining Tenement M39/1096

As defined by the Premises maps attached to the Revised

Licence

Date of Report 23 December 2021

Decision Revised licence granted

Lauren Edmands MANAGER, RESOURCE INDUSTRIES REGULATORY SERVICES

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

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Figure 1 Premises layout

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1. Decision summary

Licence L8676/2012/1 is held by AngloGold Ashanti Australia Limited (licence holder) for the Tropicana Gold Mine (the premises), located within Mining Tenement M39/1096 in the Shire of Menzies.

This amendment report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the construction and operation of the premises. As a result of this assessment, revised licence L8676/2012/1 has been granted.

The revised licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the premises. The revised licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Amendment summary

On 16 August 2021, the licence holder submitted an application to the department to amend licence L8676/2012/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act).

No changes to the current approved throughput for category 5 or category 64 is proposed.

This amendment is limited only to changes to Category 5 and 64 activities from the existing licence. No changes to the aspects of the existing licence relating to Category 12, 52, 54 and 73 have been requested by the licence holder. An overview of the premises and relevant infrastructure is shown in Figure 1.

The requested amendments are described below.

2.2.1 Category 5-Embankment raise

 Category 5: Embankment raise to 378 mRL for the existing Tailings Storage Facility (TSF)

The premises currently operates the downstream paddock TSF as part of the gold processing.

Due to an extension of the defined ore resource, additional capacity for tailings is required. A downstream embankment raise to 378 mRL is proposed.

An embankment raise of the TSF to 364 mRL was approved September 2017. According to the licence holder, the embankment raise to 364 mRL has not yet been completed and is currently under construction.

2.2.2 Category 64-Landfill expansion

The licence holder proposes an extension to the currently approved landfill at the premises. The additional landfill is to be constructed immediately adjacent to the existing landfill.



Figure 1 Premises layout

2.3 Part IV of the EP Act

The construction and operation of the Tropicana Gold Project was assessed and approved by the Environmental Protection Agency (EPA). The proposal included the construction and operation of the TSF.

Main findings were published in the EPA assessment report (ID: 1361), and Ministerial Statement (MS) 839 which was granted 24 September 2010.

MS 839 sets out following conditions, relevant to this licence amendment:

- Flora and vegetation
 - No loss of plants of Declared Rare Flora species due to construction or operational activities
 - Monitoring of condition and abundance of vegetation and flora at reference and potential impact sites
 - At 25 % of decline in cover or productivity, CEO of EPA to notified and implement action
- Threatened species
 - Minimise adverse impacts to conservation significant species and communities
- Groundwater and surface water quality
 - Run-off and/or seepage from the tailings storage facility does not impact the
 quality of surface water or groundwater within or adjacent to the proposal area
 to exceed the trigger values for a slightly to moderately disturbed ecosystem
 provided for in the Australian and New Zealand Environment and Conservation
 Council and Agriculture and Resource Management Council of Australia and
 New Zealand 2000, Australian Water Quality Guidelines for Fresh and Marine
 Waters (ANZECC 2000)
 - Monitoring results submitted annually to CEO of EPA
 - If triggers not met, findings reported to CEO of EPA, including cause and action undertaken

3. Risk assessment

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

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this amendment report are detailed in Table 3 below. Table 3 also details the proposed control measures the licence holder has proposed to assist in controlling these emissions, where necessary.

Table 1: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Earthworks associated with embankment lifts, increased vehicle movements Earthworks associated with landfill expansion	Air / windborne pathway	 Clays are conditioned with water to obtain optimal moisture content for application to embankments Water carts employed to control dust Speed limits controlled on the TSF The Delegated Officer considers it unlikely a risk event for dust emissions will occur as a source pathway receptor linkage does not exist based on the distance from proposed activities. Therefore, this emission is not further considered in the risk assessment below
Operation			
			Seepage from TSF (existing controls) 200 mm compacted low permeability soil liner across the TSF basin 1.5 mm HDRF lines under the superpotent.
	TSF	Direct infiltration into subsurface and groundwater through base via overtopping, pipeline bursts, impacting groundwater	 1.5 mm HDPE liner under the supernatant pond Cut-off trench installed at upstream toe of
			 TSF Collector and finger drains across the TSF basin reporting to an underdrainage sump
Tailings			Embankments constructed of Zone A (compacted selected saprolitic material) for minimum 2 m along upstream face and Zone C compacted run of mine waste for the remainder of the embankment
seepage and contaminated water			Supernatant water decants to the decant pond, pumped back to processing plant for re-use
			Seepage recovery bores and trench as part of the seepage mitigation programme
		quality and surrounding vegetation	Groundwater monitoring bores with a 4 mbgl limit
			Overtopping (existing controls)
			0.5 m freeboard
			Turret pumps used to pump water from supernatant pond to minimise its size
			Inspections twice daily
			Pipelines (existing controls)
			Tailings and return water pipelines located

Emission	Sources	Potential pathways	Proposed controls
			within a trench as primary containment
			Tailings and return water pipelines have flow meters at the process plant and TSF end of the pipeline, which alarms in the TGM Operations Centre in the event of substantial leak or failure
			Pipelines inspected twice per day
			PAF seepage (existing controls)
			Tailings deposited in saturated state
			Spigots placed every ~25 m with cycle times of 20 – 30 days
			Seepage recovery bores as part of the seepage mitigation programme
		Direct	Infiltration (existing controls)
Leachate		infiltration into subsurface and groundwater	Separation distance between base of landfill and highest groundwater level less than 3 m
			Windblown waste (existing controls)
Windblown	Landfill expansion		Covered by growth medium on at least weekly frequency
waste			Fenced area to capture windblown waste and keeping vermin out
		Air/windborne	Other relevant controls on licence apply.
Dust		pathway	The Delegated Officer considers it unlikely a risk event for dust emissions will occur as a source pathway receptor linkage does not exist based on the distance from proposed activities. Therefore, this emission is not further considered in the risk assessment below

3.1.2 Receptors

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

Table 4 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

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

Environmental receptors	Distance from prescribed activity
Threatened fauna Leipoa ocellata (malleefowl) Notoryctes typhlops (southern marsupial mole)	This receptor has been addressed in the EPA report and is regulated in the corresponding MS 839. The receptor is therefore not further assessed in this amendment report.
Native vegetation	Vegetation occurs adjacent to the northwestern and northeastern embankments of the TSF. The southwestern and southeastern sides have been previously cleared for the Processing Plant and Mine Services Area (southwestern side) and main part of the LTA Waste Landform on the southeastern side of the TSF.
	There is no threatened flora within the prescribed premises, however priority flora does occur, with a population of the Priority 3 <i>Acacia eremophila</i> occurring 1.2 km from the TSF.
	There are no Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) within the prescribed premises
	Potentially groundwater dependent vegetation has been mapped near the Lake Rason chain of palaeodrinage lakes approximately 7km north of the TSF.
Groundwater	Groundwater is predominately saline to hypersaline.
	The licence holder is the only groundwater user in the area. No other users of groundwater occur within 100 km of the Premises.
	Groundwater approximately 30 mbgl.
	Impacts of the TSF to this receptor has been addressed in the EPA report and is regulated in the corresponding MS 839. The receptor is therefore not further assessed in this context in this amendment report.
Surface water	Drainage is to the north-east toward a chain of ephemeral palaeochannel lakes (lakes are approximately 7 km north east of the TSF).
	There are no defined surface drainage features with runoff predominantly occurring as sheet wash.
	This receptor has been addressed in the EPA report and is regulated in the corresponding MS 839. The receptor is therefore not further assessed in this amendment report.

3.2 Risk ratings

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

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

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

The revised licence L8676/2012/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. deposition of tailings into TSF after embankment construction, construction and operation of additional landfill for putrescible waste.

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

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

Risk Event			Risk rating ¹	Licence		Justification for		
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood	Holder's controls sufficient?	Conditions ² of licence	additional regulatory controls
Operation								
							Existing condition 21 Current licence	
Deposition of tailings into TSF after embankment raise to 378 mRL	subsurface impacting surrounding vegetation Tailings and process water Direct infiltration into subsurface and groundwater through base via overtopping,	through the base into subsurface impacting surrounding		Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	Y	conditions set out a standing water level of 4 mbgl in monitoring bores in TSF proximity. Additionally, 22 seepage recovery bores are operational at the site for seepage management. No exceedances were reported in the most recent Annual Environmental Report (2020).	N/A
		Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	Y	Existing conditions 11, 12 (Table 4), Current licence conditions for TSF freeboard and inspection apply. Additional information confirming sufficient capacity and detailed water balance of the TSF has been provided by the	N/A		

Risk Event			Risk rating ¹	Licence		Justification for		
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood	controls	Conditions ² of licence	additional regulatory controls
							licence holder during the assessment.	
		Direct infiltration into subsurface via pipeline bursts, impacting surrounding vegetation		Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	Y	Existing conditions 10, 12 Current licence conditions for pipeline leak detection and containment apply.	N/A
Disposal of class II waste into expanded landfill	Leachate	Direct infiltration into subsurface and impacting groundwater quality	Groundwater	Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	Y	Existing conditions 4 (Table 1), 5, 6 Current licence conditions require 3 m distance between landfill base and groundwater	N/A

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

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

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (14/10/2021)	None received	N/A
Shire of Menzies advised of proposal (14/10/2021)	None received	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (14/10/2021)	None received	N/A
Licence holder was provided with draft amendment (10/12/2021)	Query about requirement to provide an Audit Report to confirm the construction of the landfill expansion.	The landfill expansion is required to comply with existing conditions in the licence, such as condition 4, Table 1 and requirements set out in condition 30, Table 4.
		While the landfill construction is of much less complex nature compared to the TSF embankment raise, an audit against the construction requirements is still required to demonstrate compliance.
		Condition 32 has been modified to only relate to items 1 to 6 of the infrastructure table (removing reference to the landfill item) so that the engineering report required by condition 33 no longer applies to the landfill.
		A new condition, condition 34, has now been included which relates specifically to audit and compliance requirements for the landfill expansion. This now removes the requirement to have the landfill expansion certified by an engineer but does still require compliance with construction conditions to be demonstrated.
		Providing construction compliance reports is a standard approach for all new constructed infrastructure

regulated under Part V of the <i>Environmental Protection Act 1986</i> .
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5. Conclusion

Based on the assessment in this amendment report, the Delegated Officer has determined that a revised licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 5 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the revised licence as part of the amendment process.

Table 5: Summary of licence amendments

Condition no.	Proposed amendments
30, Table 9	Inclusion of landfill expansion construction
Schedule 1 Maps, Figure 5	Updated map showing the expanded landfill area
30, Table 9	Inclusion of TSF embankment raise to 378 m RL
32	Condition updated to align with standard wording used by the department. Requirements remain unaltered to previous condition and refers to infrastructure listed in condition 30, Table 9.
34	This condition has been included to relate to construction compliance reporting for the landfill expansion.

References

- 1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
- 2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline:* Environmental Siting, Perth, Western Australia.
- 3. DWER 2020, Guideline: Risk Assessments, Perth, Western Australia.
- 4. AngloGold Ashanti Australia Limited 2021, Licence amendment application (DWERDT490851)
- 5. AngloGold Ashanti Australia Limited 2021, Licence amendment application, Request for further information response (DWERDT504523, A2049875)

Appendix 1: Application validation summary

SECTION 1: APPLICATION SUMMARY							
Application type							
Amendment to licence	\boxtimes	Current licence number:	L8676/2012/1				
Amendment to licence		Relevant works approval number:		N/A			
Date application received		16/8/2021					
Applicant and Premises details							
Applicant name/s (full legal name/s)		AngloGold Ashanti	Australia Ltd				
Premises name		Tropicana Gold Min	е				
Premises location		Part of tenement M3	39/1096				
Local Government Authority		Shire of Menzies					
Application documents							
HPCM file reference number:		2012/002666-3					
Key application documents (addition application form):	Landfill supporting documentation TSF supporting documentation Knight Piesold TSF expansion study Knight Piesold Groundwater assessment						
Scope of application/assessment							
Summary of proposed activities or changes to existing operations.	Licence amendment Category 5: TSF embankment raise(s) from 364 – 378. The TSF expansion to 378m RL will be conducted as single or combined multiples of 2m raises as a consolidated raise of the TSF perimeter embankment. No changes to category throughput proposed. Commencement planned for second quarter 2022. Category 64: Increase the footprint of category 64 landfill to an area immediately adjacent to the existing landfill. Construction activities include landfill trench excavation and fence extension.						
	Anticipate expansion for January 2023.						

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Assessed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 5: Processing or beneficiation of metallic or non-metallic ore	9,500,000 tonnes per annual period	N/A
Category 12: Screening etc. of material	5,000,000 tonnes per annual period	N/A
Category 52: Electrical power generation	54 MW	N/A
Category 54: Sewage facility	500 m ³ per day	N/A
Category 64: Class II putrescible landfill site	20,000 tonnes per annual period	N/A

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes □	No ⊠	Referral decision No: Managed under Part V Assessed under Part IV
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ⊠	No □	Ministerial statement No: MS 839 EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes □	No ⊠	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes 🗆	No ⊠	Certificate of title □ General lease □ Expiry: Mining lease / tenement ⊠ Expiry: 10 March 2036 Other evidence □ Expiry: Tenement live and registered with AngloGold on Minedex
Has the applicant obtained all relevant planning approvals?	Yes □	No □ N/A ⊠	Approval: Expiry date: If N/A explain why? Planning approvals exempt under the <i>Mining Act</i>
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes □	No ⊠	CPS No: N/A No clearing is proposed.

		1
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes □ No ⊠	Application reference No: N/A Licence/permit No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ⊠ No □	Application reference No: Licence/permit No: GWL 205012 (1)
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ⊠ No □	Name: Goldfields Groundwater Area Type: RIWI Groundwater Area Has Regulatory Services (Water) been consulted? Yes No N/A Regional office: Goldfields
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes □ No ⊠	Name: N/A Priority: P1 / P2 / P3 / N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes □ No □ N/A ☒
Is the Premises subject to any other Acts or subsidiary regulations (e.g. Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx)	Yes ⊠ No □	Mining Act 1978
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes □ No ⊠	
Is the Premises subject to any EPP requirements?	Yes □ No ⊠	
Is the Premises a known or suspected contaminated site under the Contaminated Sites Act 2003?	Yes ⊠ No □	Classification: contaminated – remediation required (C–RR) Date of classification: 22/7/2015