Application for Works Approval

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

Works Approval Number	W6572/2021/1
Applicant	Agnew Gold Mining Pty Ltd
ACN	098 385 883
File number	DER2021/000395
Premises	Agnew Gold Mining Company Pty Ltd Legal description Mining tenement M36/53 LEINSTER WA 6437
Date of report	24 September 2021
Decision	Granted

Christine Pustkuchen
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Christine Pustkuchen
A/SENIOR ENVIRONMENTAL OFFICER – RESOURCE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, works approval W6572/2021/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary and overview of premises

On 15 June 2021, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction and operation of four additional anaerobic wastewater treatment tanks at the premises (category 85 activities) in addition to the existing wastewater treatment plant (WWTP) within the Waroonga site of the premises (mining tenement M36/53). Two of the four tanks will be used to increase the treatment plant capacity from 60kL/day to 80kL/day. The other two tanks will be added to include a contingency storage capacity to allow up to two days of normal flow in the event discharge is suspended. Treated wastewater will then be discharged to a 4 hectare (ha) spray field adjacent to and partly overlying a waste rock dump.

It should be noted that the existing premises licence L4611/1987/11 does not include category 85, although the existing wastewater treatment facility is above the prescribed premises category threshold (>20kL/day). DWER compliance has been notified. Following completion of the works approval, an amendment to licence L4611/1987/11 to include category 85 will be required.

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6572/2021/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6572/2021/1.

2.3 Other approvals

Department of Health (DoH) approval 221.20 was granted on 17 September 2021 for the modified wastewater treatment plant (including two additional treatment tanks and two contingency tanks) and 4 ha irrigation field.

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 decision report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary. The premises is approximately 17 km south-west of Leinster, which contains the closest human receptors. Due to this distance, the Delegated Officer considers that no pathway exists to human receptors.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Placement of WWTP tanks and associated infrastructure (pipelines etc)	Air/windborne pathway causing impacts to adjacent native vegetation (sparce)	No controls proposed
Operation			
Sewage Partially treated sewage Treated wastewater Treatment chemicals	Containment loss from WWTP and associated pipelines	Overland flow potential causing impacts to adjacent native vegetation (sparce) or surface water quality	• WWTP to be maintained and serviced adequately • Inspection of facility • Audible alarms
Treated wastewater	Discharge to the irrigation spray field (4 ha)	Overland flow potential causing impacts to adjacent native vegetation (sparce) or surface water quality	• WWTP to be maintained and serviced adequately to ensure the water quality targets as per the designed specifications (Table 2) are achieved and maintained in the final treated effluent. • Monitoring of discharged treated effluent to identify exceeding of water quality targets. • Irrigation area is fenced to restrict access.

The applicant proposed minimum effluent quality performance criteria are listed in Table 2 below. The proposed nitrogen and phosphorous application to the four hectare spray field will be below the maximum application rate for Risk Category D listed in Water Quality Protection Note 22: Irrigation with Nutrient-rich Wastewater (DoW 2008)

Table 2 Applicant proposed minimum effluent quality performance criteria

Parameter	Applicant proposed specifications
Total suspended solids	<30mg/L
Biological oxygen demand	<20mg/L
*E.*coli	<1000cfu/100mL
Residual free chlorine	0.5mg/L – 2.0mg/L
pH	6.5 – 8.5

3.1.2 Receptors

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

Table 3 and Figure 1 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 3: Sensitive environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Ephemeral creek lines	Within prescribed premises. Closest creek line ~470m from proposed biomax facility.
Groundwater	<u>Groundwater depth:</u> Agnew Gold (2021) indicate in their supporting documentation that "Pre-mining groundwater levels across the AGM areas generally ranged from 20-30 mbgl… however water levels have been mounding in the vicinity of the tailings storage facility (TSF)". The TSF is ~1.4km south-west of the WWTP. Monitoring bores within the Waroonga precinct were reported with standing water levels ranging from 35.99 to 50.70metres below top of casing (mbTOC). <u>Groundwater quality:</u> The monitoring bores within the Waroonga precinct range indicate groundwater quality ranges from fresh to brackish. Elevated arsenic and weak acid dissociable cyanide are expected to occur in groundwater in the vicinity of the TSF.

	<u>Groundwater users:</u> No groundwater bore users aside from Agnew Gold Mining and other nearby mining operations, registered within 500m of prescribed premises boundary (Agnew Gold, 2021)
Native vegetation	There is sparce vegetation adjacent to proposed activities

Figure 1: Distance to sensitive receptors (figure prepared by DWER Environmental Officer)

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source 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 applicant 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 applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

Works approval W6572/2021/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 4 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence amendment is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises i.e. category 85 activities. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 4: Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Placement of WWTP tanks and associated infrastructure (pipelines etc)	Dust	Air/windborne pathway causing impacts to adjacent native vegetation	Adjacent native vegetation (sparce)	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	N/A
Operation **(including time-limited-operations operations)**								
Containment loss from WWTP and associated pipelines	Sewage Partially treated sewage Treated wastewater Treatment chemicals	Overland flow causing impacts to adjacent native vegetation or surface water quality	Seasonal minor creek 470m north-east Adjacent native vegetation (sparce)	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	N	**Condition 1 – design and installation requirements** **Condition 6 – operational requirements**	Licence holder proposed controls placed on the licence as regulatory controls. Additional controls added: Condition 1: - Total nitrogen and total phosphorus are standard analytes for monitoring the performance criteria of WWTP's and have been added to applicant proposed performance criteria. - An alarm system to notify the operator in the event of faults, high tank levels and overflows has been added as a requirement to mitigate risk of containment loss, being a standard control for WWTP's. - A requirement for the WWTP to have a contingency storage capacity of two days in the event discharge is suspended is a standard control for WWTP's and has been added to the licence to mitigate risk of containment loss/overflow.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
								Condition 6 - To track inflow/outflow from the WWTP – a requirement for flow meters on inlet/outlet has been added. - A requirement for WWTP sludge removal and immediate clean up of any spills has also been added to mitigate risk of containment loss.
Discharge to the irrigation spray field	Treated wastewater	Overland flow potential causing impacts to adjacent native vegetation or surface water quality	Seasonal minor creek 470m north-east Adjacent native vegetation (sparce)	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	N	**Condition 1 – design and installation requirements** **Condition 6 – operational requirements** Condition 7 – authorised discharge to spray field Condition 8 – monitoring of emissions **Condition 9 – monitoring recording and quality**	Licence holder proposed controls placed on the licence as regulatory controls. Additional controls added: Condition 1 and Condition 6 - A design and operational requirement for sprinklers to be positioned to ensure even distribution of wastewater in the spray field, to reduce the risk of overland flow. Condition 9 - Quality controls and NATA accredited laboratory added to applicant proposed monitoring to ensure quality data collected and reported.

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

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

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 5 August 2021	None received	N/A
Local Government Authority (Shire of Leonora) advised of proposal on 5/8/21	None received	N/A
Department of Mines, Industry Regulation and Safety advised of proposal on 5/8/21	None received	N/A
Applicant was provided with draft documents on 14/9/21	See Appendix 1	See Appendix 1

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Agnew Gold 2021, Application supporting documentation, DWER reference DWERDT464556
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water (DoW) 2008, Water Quality Protection Note 22 – *Irrigation with nutrient-rich wastewater*
4. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
5. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

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

Condition	Summary of applicant's comment	Department's response
Cover page	The applicant notes that the facility has been designed to treat 80m^3 per day, whereas the assessed design capacity has been listed as 100 m^3 per day.	The cover page and capacity references have been updated to reflect a treatment capacity of 80m^3 per day.
Condition 1	In order to accommodate two days contingency storage capacity, the applicant has requested addition of two tanks (four tanks in total). The applicant has requested modification of the spray field area from initially proposed 8 hectares to 4 hectares.	Condition 1 has been updated to allow two additional contingency storage tanks. The applicant has provided DoH approval for a 4 hectare spray field. DWER notes that the proposed nitrogen and phosphorous loading rates to the four hectare spray field will be below the maximum application rate for Risk Category D listed in Water Quality Protection Note 22: Irrigation with Nutrient-rich Wastewater (DoW 2008) and therefore is acceptable. The spray field area will be modified to 4 hectares.
Schedule 1 Maps	The applicant requests modification of Figure 3 to reflect the amended spray field area. The applicant requests update of Figure 4, Schedule 1 maps to reflect two additional contingency tanks.	Figures 3 and 4 have been updated.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	☐				
Licence	☐	Relevant works approval number:		None	☐
		Has the works approval been complied with?		Yes ☐ No ☐	
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes ☐ No ☐ N/A ☐	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes ☐ No ☐	
		Date Report received:			
Renewal	☐	Current licence number:			
Amendment to works approval	☐	Current works approval number:			
Amendment to licence	☒	Current licence number:	L4611/1987/11		
		Relevant works approval number:		N/A	☐
Registration	☐	Current works approval number:		None	☐
Date application received		14/6/21			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Agnew Gold Mining Company Pty Ltd			
Premises name		Agnew Gold Mine			
Premises location		M36/27, M36/32, M36/53, M36/55, M36/65, M36/150, M36/174, M36/248, M36/314, M36/450 and L36/174			
Local Government Authority		Shire of Leonora			
Application documents					
HPCM file reference number:		2012/006836-1			
Key application documents (additional to application form):		Supporting document			
Scope of application/assessment					

Summary of proposed activities or changes to existing operations.	<u>Application for a licence amendment (DWER to process as a works approval)</u> AGMC propose to expand the current Biomax facility with the addition of two extra anaerobic tanks to accommodate the expansion of the Waroonga office precinct. The expansions will increase the design capacity of the facility from 60 kL/day to 80 kL/day. Following a works approval, a licence amendment is required for Agnew L4611/1987/11 to include the following categories: Category 85: Sewage facility: premises (not currently on the licence)

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	1,400,000 tonnes per annual period	
Category 6: Mine dewatering	2,000,000 tonnes per annual period	
Category 89 Putrescible landfill	4,000 tonnes per annual period	
Category 85 Sewage facility (new category)	**Not currently on licence**	**80kL/day**

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: 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:

		Other evidence ☐ Expiry:
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☐ N/A ☒	Approval: Expiry date: If N/A explain why? Exempt under the *Mining Act 1978*
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.
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: Licence / permit not required ed. GWL64335(10) expires 4/1/26
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☐ No ☒	Name: RIWI Goldfields Groundwater Area Type: RIWI Groundwater 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 ☒	

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: Mining Tenements listed as "Awaiting classification" Date of classification: N/A