



Application for Works Approval Amendment

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

Works Approval Number	W6575/2021/1
Works Approval Holder	Premium Gold Recovery Services Pty Ltd
ACN	616 884 827
File Number	DER2021/000374
Premises	Zelica Mine Site Legal description – Within mining tenement M39/1101 As defined by the coordinates in Schedule 2 of the works approval
Date of Report	17 June 2022
Decision	Revised works approval granted

**MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES**

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

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1. Decision summary

Works Approval W6575/2021/1 is held by Premium Gold Recovery Services Pty Ltd (Works Approval Holder; Applicant) for the Zelica Mine Site (the Premises), located mining tenement M39/1101.

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 Works Approval W6575/2021/1 has been granted.

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 03 May 2022, the Works Approval Holder submitted an application to the department to amend Works Approval W6575/2021/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). This followed initial works on the premises, and the submission of an environmental compliance report, and critical containment infrastructure report.

The following amendments are being sought:

- Removal of references to Cell 2 of the Vat Leach Dam. The works approval holder advised that Cell 2, as referenced and assessed in the original works approval, was not currently intended to be constructed, and therefore is seeking the removal of this component from the works approval, as well as reference to this cell with construction compliance documentation.
- Removal of the requirement for monitoring bore 4.

2.2.1 Vat Leach Dam Cell 2

Works approval W6575/2021/1 authorised the construction of 2 individual vat leach cells, constructed within existing dams on the premises. The works approval specified construction, lining and QA/QC requirements for both cells, as well as time limited operations linked to the construction of both cells. Following submission of the Critical Containment Infrastructure Report for the vat leach dam, the department identified that the applicant had only constructed Cell 1 of the original design. Following discussions with the applicant, the Department was advised that the construction of Cell 2 was not progressing at this stage, and that references to Cell 2 should be removed to allow completion of the construction and reporting requirements of W6575/2021/1 to be met, and to allow time limited operations for Cell 1 to commence. This application for amendment is therefore requesting the removal of references to Cell 2 from W6575/2021/1.

The Delegated Officer considers that this request is largely administrative, and will remove the references to Cell 2 within W6575/2021/1 as requested. The Delegated Officer notes that should the Works Approval Holder wish to include Cell 2 back into the works approval at a future stage, an amendment to the works approval will be required.

2.2.2 Monitoring Bore 4

Works Approval W6575/2021/1 required the construction of one additional monitoring bore (monitoring bore 4) to assist with monitoring impacts to groundwater and nearby receptors to the vat leach dam. Following the granting of W6575/2021/1, the applicant attempted to install this bore at the location specified in the works approval, and provided the environmental compliance report (ECR) to the department. Within the ECR, the Works Approval Holder identified that the bore installed at this location was dry, and no groundwater samples were able to be obtained. Due to the nature of the fractured rock at the premises and surrounds, the Works Approval Holder considers that further drilling campaigns in the area identified for monitoring bore 4 will achieve the same result. As an alternative, the applicant is proposing the installation of a series of leak detention bores, surrounding the vat leach dam, that will act as a secondary measure (in addition to the undercell leak detection system installed) for the vat leach dam to identify potential leaks. These bores will consist of 150mm cased bore holes surrounding the perimeter of the vat leach dam, spaced at proposed 30m intervals.

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 1 below. Table 1 also details the proposed control measures the Works Approval Holder has proposed to assist in controlling these emissions, where necessary.

Table 1: Works Approval Holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Excavation works and the movement of vehicles	Air/windborne pathway	No controls proposed by applicant.
Noise			
Operation			
Seepage	Lixiviant infiltration from base of vat leach dam cells or evaporation pond	Infiltration to underlying soils and groundwater potentially causing ecosystem disturbance	<u>Existing controls on works approval</u> <ul style="list-style-type: none"> - The vat leach dam and evaporation pond will be lined with 1mm thick HDPE. - The vat leach dam will incorporate a leak detection system beneath the 1mm HDPE liner consisting of: <ul style="list-style-type: none"> ▪ Sub drainage HDPE slotted

Emission	Sources	Potential pathways	Proposed controls
			<p>pipework, which will drain to a nearby concrete sump</p> <ul style="list-style-type: none"> ▪ 500 x 500mm drainage layer of gravel underlaid by sand bedding ▪ A 1mm thick HDPE liner underlying the sand bedding and pipework. <ul style="list-style-type: none"> - The cyanide concentration of the lixiviant will not exceed 100mg/L. - The neutralisation of the cyanide lixiviant with hydrogen peroxide and copper will only occur within the vat leach dam. - Prior to transfer to the evaporation pond, the lixiviant will demonstrate that cyanide concentrations are below 0.08 mg/L. - Lixiviant and ambient groundwater monitoring will be undertaken at the site. <p><u>New controls</u></p> <ul style="list-style-type: none"> - Installation of leak detection bores surrounding the perimeter of the vat leach dam (in place of the monitoring bore 4); - 150mm cased bore to a depth of 2 m; - Spaced at 30 m intervals surrounding the vat leach dam; - Capped to prevent surface water ingress; and - Inspected weekly to evidence of seepage.

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Works Approval 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. There are no human receptors located within 69 km of the premises.

Table 2 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 environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Underlying groundwater	Aquifer is combined fractured rock west – calcrete. Groundwater is approximately 45 mbgl across the site, with an inferred flow direction to the north across the premises. Groundwater samples obtained in February 2022 indicate the groundwater is saline to hypersaline (TDS 16,000mg/L).
Threatened flora	<i>Hybanthus floribundus</i> subsp. <i>Chloroxanthus</i> mapped within 2 km radius of the Premises. Surrounding vegetation consists of very Open Low Woodland of <i>Acacia</i> spp. (Associated species: <i>Acacia aneura</i> , <i>Acacia ramulosa</i> , <i>Eremophila oppositifolia</i> , <i>Ptilotus obovatus</i>).

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 Works Approval 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 Works Approval Holder'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 Works Approval 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 Works Approval W6575/2021/1 that accompanies this Amendment Report authorises construction and time-limited operations. The conditions in the Revised Works Approval have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence 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 7 activities. A risk assessment for the operational phase has been included in this Amendment Report, however licence conditions will not be finalised until the department assesses the licence application.

As there are no human receptors likely to be impacted by construction activities and operations, emissions or discharges that would normally impact on human receptors (such as dust and noise) have not been assessed in this document. Therefore, emissions and discharges associated with construction activities are not assessed in the risk table below as there is either no pathway or no receptor to support a Risk Event occurring.

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

Risk Event					Risk rating ¹ C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
Construction								
Excavation works and the movement of vehicles	Dust	Air/windborne pathway causing impacts to health and amenity	No nearby human receptors	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A
	Noise				C = Slight L = Unlikely Low Risk	Y	N/A	N/A
Operation (including time-limited-operations operations)								
Vat leaching of gold ore	Seepage: lixiviant infiltration from base of vat leach dam or the evaporation pond	Infiltration to underlying soils and groundwater potentially causing ecosystem disturbance	Underlying soils and groundwater Surrounding vegetation and threatened flora	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	N	Condition 1 (Table 1), Condition 2 (Table 2), Condition 18 (Table 6)	<p>The Delegated Officer notes the submission of the ECR for the originally proposed monitoring bore 4, and notes the fractured rock environment of the premises.</p> <p>The Delegated Officer considers the applicants proposed amendment to the groundwater monitoring acceptable, noting the depth to groundwater, the saline nature of groundwater, and the existing controls to manage and monitor seepage from the facility. The requirements for additional leak detection bores adjacent to the Vat Leach Dam have been conditioned within the works approval.</p> <p>The Delegated Officer notes however that the proposed controls for monitoring will only</p>

Risk Event					Risk rating ¹ C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
								identify seepage risks from the Vat Leach Dam and not the Evaporation Pond. The Delegated Officer therefore considers that additional leak detection bores are required in the vicinity of the evaporation pond (comparable to that installed for the Vat Leach Dam). These have also been conditioned within the works approval.

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

Note 2: Proposed Works Approval 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
Works Approval Holder was provided with draft amendment on 02 June 2022	Comments received on 13 June 2022 accepting the proposed amendments to the works approval and waiving the remainder of the comment period.	Noted.

5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Works Approval 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 Works Approval as part of the amendment process.

Table 5: Summary of works approval amendments

Condition no.	Proposed amendments
1 (table 1)	Inclusion of construction requirements of the leak detection bores for the evaporation pond
2 (table 2)	Removal of reference to Vat Leach Dam Cell 2 and update to Cell 1 dimensions
2 (table 2)	Inclusion of construction requirements of the leak detection bores for the vat leach dam
5 and 6	Removal of Monitoring bore 4 installation requirements
7 (table 4)	Removal of monitoring bore 4 monitoring requirements
throughout	Updates to condition numbering and linked references

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.

Appendix 1: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)			
Application type			
Amendment to works approval	<input checked="" type="checkbox"/>	Current works approval number:	W6575/2021/1
Date application received	03 May 2022		
Applicant and Premises details			
Applicant name/s (full legal name/s)	Premium Gold Recovery Services Pty Ltd		
Premises name	Zelica Minesite		
Premises location	M39/1101		
Local Government Authority	Shire of Leonora		
Application documents			
HPCM file reference number:	DER2021/000374		
Key application documents (additional to application form):	Attachment 8A: proposed amended site plan Attachment 8B: proposed coordinates of new leak detection bores Attachment 8C: Vat leach dam design drawing Attachment 8D: Monitoring well design Attachment 8E: Letter from Mr Robbie Money, Senior Exploration Geologist		
Scope of application/assessment			
Summary of proposed activities or changes to existing operations.	<p>Works approval amendment:</p> <ul style="list-style-type: none"> Removal of 'Cell 2' from the vat leach dam design. (The vat leach dam in the current works approval is made up of Cell 1 and Cell 2). Removal of the requirement to construct monitoring bore 4. The construction of eight new leak detection bores around the Cell 1. 		
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		
Category 7: Vat or in situ leaching of material	25,000 tonnes per annual period		
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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>	
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:	
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No:	

Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input checked="" type="checkbox"/> Expiry: 19 May 2037 Other evidence <input type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	Approval: Expiry date: If N/A explain why?
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	Licence/permit No: GWL205578(1)
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Name: Goldfields Groundwater Area Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office: Goldfields
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i> , <i>Environmental Protection (Controlled Waste) Regulations 2004</i> , <i>State Agreement Act xxxx</i>)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Mining Act 1978
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Classification: N/A Date of classification: N/A