



## Application for Licence Amendment

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

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<b>Licence Number</b>	L9112/2018/1
<b>Licence Holder</b>	Silver Lake (Integra) Pty Limited
<b>ACN</b>	093 278 436
<b>File Number</b>	DER2017/002150
<b>Premises</b>	Aldiss Gold Project Mining Tenement M28/43, M28/208, M28/171, M28/289 Mining Lease L28/55 EMU FLAT WA 6431
<b>Date of Report</b>	11 July 2023
<b>Decision</b>	Revised licence granted

#### **A/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

Licence L9112/2018/1 is held by Silver Lake (Integra) Pty Limited (Licence Holder) for the Aldiss Gold Project (the Premises), located at Mining Tenement M28/43, M28/208, M28/171, M28/289 Mining Lease L28/55, Emu Flat Western Australia.

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 L9112/2018/1 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 Application summary

On 20 March 2023, the Licence Holder submitted an application to the department to amend Licence L9112/2018/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Authorisation for surplus mine dewater to be discharge from Tank underground operations into Atreides open pit. Pipeline and discharge point into Atreides open pit has already been constructed.

This amendment is limited only to changes to Category 6 activities from the existing licence. No changes to the aspects of the existing Licence relating to Category 12 and 64 have been requested by the Licence Holder.

Table 1 below outlines the proposed changes to the existing Licence.

**Table 1: Proposed changes**

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
6	450,000 tonnes per annual period	No change proposed	Surplus mine dewater (less than 220,000 tonnes per annum) from Tank underground operation to be discharged into Atreides open pit for temporary storage. This water to be utilised towards the end of underground mining in the paste backfill plant operations.

## 2.3 Proposed Activities

Dewatering of an underground mine is necessary to maintain dry mining condition. Mine dewater from Tank underground operation is usually reused for underground operation, with storage occurring in a series of header tanks at the surface. However, as expected as shown by a hydrogeological assessment carried out in 2019, dewatering volumes have now increased due to the interception of some structural features such as fractures and shears, which was not identified during drilling. Surplus groundwater from the Tank underground operations is therefore required to be discharged into the Atreides open pit for temporary storage. This groundwater will be utilised towards the end of underground mining in the paste backfill plant operations.

This dewatering operation has commenced as the licence holder was anticipating the volumes to be less than 50,000 tonnes per annum. However, now the volumes have increased to greater than this volume and is expected to be up to 20,000 tonnes per month. Therefore, a licence is required to discharge this mine dewater into Atreides open pit. There is no increase to the prescribed premise total discharge volume (450K tonnes per annum) and volumes discharged to Atreides open pit are expected to be less than 220,000 tonnes per annum. The Atreides open pit has sufficient capacity (1.1 million cubic meters) to hold this discharge and has estimated that the maximum discharging volume will be 660,000 cubic meters (m<sup>3</sup>) over 3 years.

HDPE pipelines have been constructed from Tank underground operations into Atreides open pit. These pipelines are located within "V" drains or bunded to contain any spills and flowmeters have been installed to measure the volumes of mine dewater discharged. The pipeline has extended away from the Atreides pit wall to avoid erosion of the pit wall.

### 2.3.1 Hydrogeology and the Groundwater quality

A hydrogeological assessment was carried out in 2019 to identify the hydrogeology and the groundwater quality in the Aldiss Gold Project area. Based on the report, it is stated that the groundwater recharge is low, as majority of the rainfall in the area is either evaporating or taken up by the vegetation. The rainfall recharge is likely happened during high rainfall events such as local flooding. The depth to the groundwater ranges from less than 1m in the playa areas and more than 50m in elevated areas. Groundwater in the region is typically saline to hypersaline with small amounts of fresh to brackish water in some areas. Groundwater occurrences in the region are typically associated with fractured bedrock aquifers and Tertiary palaeochannel aquifers. During the assessment, a review of groundwater dependant ecosystems was carried out and no aquatic, terrestrial or subterranean groundwater dependant ecosystems were identified within the project area.

Based on the field data monitored by the Licence Holder, it was expected that the inflow to the underground mine will also be low and presumed to be 5 to 10 L/s. However, it has also stated in the report that high groundwater inflows can also be expected, potentially up to 20 L/s, when intercepting unidentified structural features during the hydrogeological assessment. As expected, now the Licence holder is experiencing high inflows and is required to store this surplus water in another place that can be reuse at a later stage.

Water quality characteristics of the Tank pit was derived from the water samples analysed in 2019 during the hydrogeological assessment. The results have indicated that the groundwater in the pit area is saline, and the pH has classified as neutral. Some of the metals including aluminium, boron, nickel and iron, have an elevated concentration compared to the drinking water guidelines. Groundwater quality in the Atreides open pit is similar to the quality of the groundwater in Tank pit, as they are from the same fractured rock aquifer. Thus, any significant impact from the proposed discharge is not expected.

### 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 2 below. Table 2 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

**Table 2: Licence Holder controls**

Emission	Sources	Potential pathways	Proposed controls
<b>Operation</b>			
Hypersaline mine dewater	Discharging mine dewater from Tank underground operations into Atreides open pit	Direct discharge to land due to rupture of dewatering pipelines	<ul style="list-style-type: none"> <li>All pipelines are bunded or located in 'V' drains to contain any spills.</li> <li>Flowmeters are installed on all pipelines.</li> </ul>
		Overtopping of Atreides open pit	<ul style="list-style-type: none"> <li>Atreides pit contains sufficient volume to contain mine water discharge over 3 years. It will be still half filled after 3-year discharge.</li> </ul>
		Seepage of mine dewater through base and walls of the pits	<ul style="list-style-type: none"> <li>Quality of the mine dewater in the pits and the local area is similar as the pit water of Tank and Atreides pits are from the same fractured rock aquifer (Goldfields Combined - Fractured Rock West - Fractured Rock).</li> </ul>

##### 3.1.2 Receptors

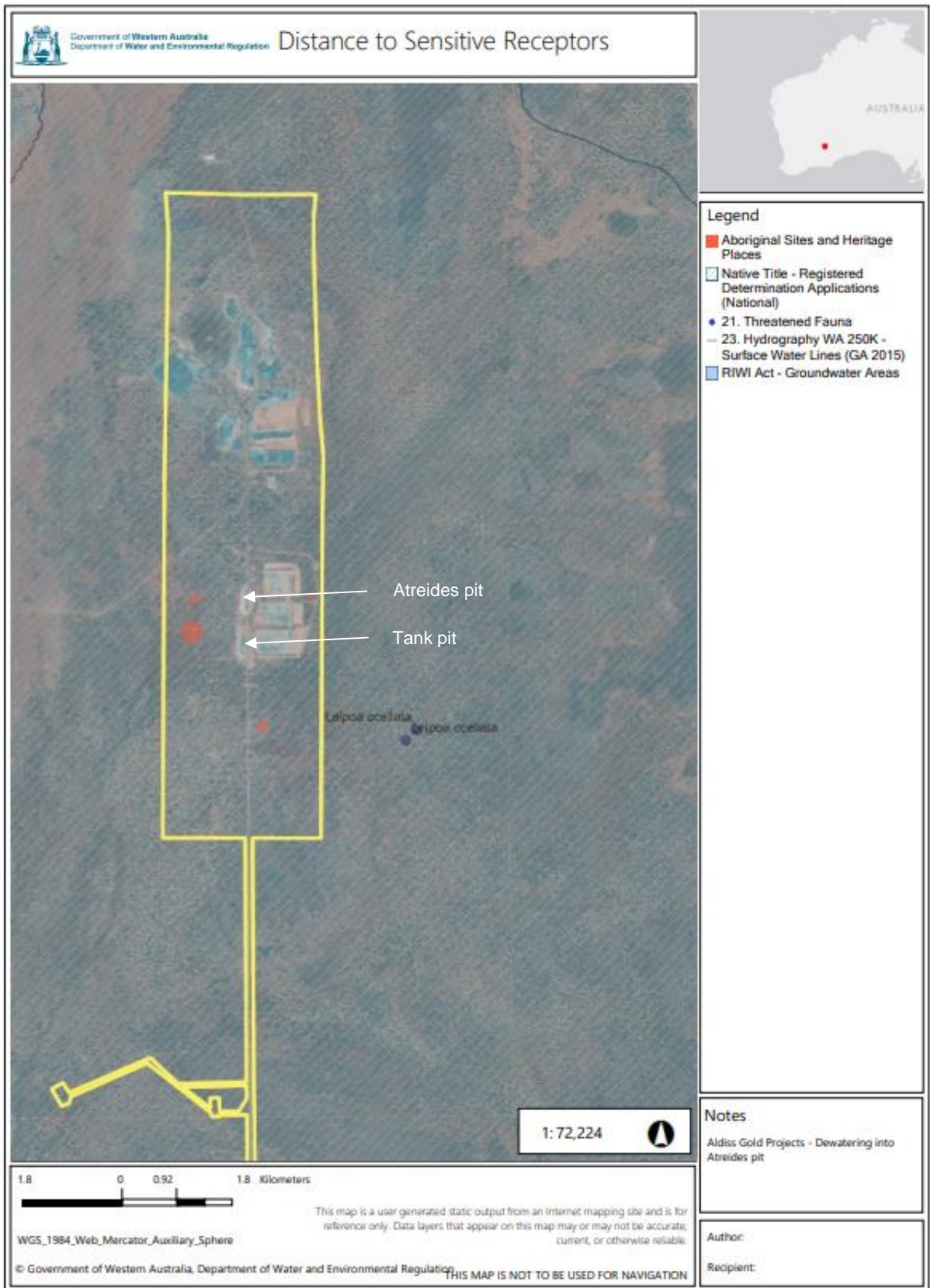
**In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under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

Table 3 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 human and environmental receptors and distance from prescribed activity**

Human receptors	Distance from prescribed activity
Residential Premises – Cowarna Downs Homestead	Residential Premises – Cowarna Downs Homestead The nearest residential premises is approximately 32.5 km northwest from the premises.  Screened out as a receptor due to distance.
Environmental receptors	Distance from prescribed activity
Threatened/Priority Flora	No threatened flora located within the premises.
Threatened/Priority Fauna	No threatened fauna located within the premises. However, <i>Leipoa ocellata</i> (Mallefowl) were recorded in few locations in the vicinity of the prescribe premises.
Goldfields Groundwater Area	Premises boundary is located within this proclaimed groundwater area.  The nearest groundwater licence holder (excluding other Silverlake licences) is located approximately 19 km southwest. The depth to groundwater varies regionally from less than 1 m in the playa lakes to more than 50 m in elevated areas.  There are other groundwater users in the vicinity and there are 7 registered bores within 5km of the Atreides pit where the closest bore is locating 2.5km north of the pit within the Silverlake’s tenement M28/043. Static water level is 44 meters below ground level (mbgl). The bore records a salinity level of 32,000 mg/L total dissolved solids (TDS) which would prevent their use as a stock watering supply.
Lake Lefroy	Internally draining ephemeral Salt Lake located approximately 15 km from the premises.  Screened out as a receptor due to distance.
Aboriginal Heritage sites	Four lodged sites within the prescribed premises





**Figure 1: Distance to sensitive receptors**

### 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 in-complete 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 4.

The Revised Licence L9112/2018/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. dewatering activities.

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

**Table 4. Risk assessment of potential emissions and discharges from the Premises during construction and operation**

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
<b>Operation</b>								
Operation of dewatering new pipelines: Discharging saline water into Atreides open pit	Saline mine dewater	Rupture of pipeline causing hypersaline water discharge into the environment Impact: Soil contamination and plant stress or death	Soil Surrounding Native Vegetation	Refer to Section 3.1.1	C = Minor L = Unlikely <b>Medium Risk</b>	Y	Condition 3 - Infrastructure operational requirements Condition 11 – Reportable events	Existing condition 3 has been updated to ensure pipelines are located within secondary containment as proposed by the licence holder.
		Overtopping of Atreides open pit Impact: Soil contamination and plant stress or death	Soil Surrounding Native Vegetation	Refer to Section 3.1.1	C = Minor L = Unlikely <b>Medium Risk</b>	Y	Condition 1 - Authorised emissions <b>Condition 3 - Operational requirements - freeboard</b> Condition 4 - Dewatering monitoring Condition 5 – Dewater quality monitoring	A recent dewatering assessment has estimated that the total volume of Atreides open pit is 1.1 million m <sup>3</sup> . The proposed dewatering volume into Atreides pit will be approximately 660,000 m <sup>3</sup> over 3 years and thus will occupy 50% of the capacity of the Atreides pit. Therefore, no overtopping of the Atreides pit will be expected as a consequence of the proposed dewatering activities.  However, maintaining a freeboard requirement at the discharging pits has been added into the licence which is a standard regulatory requirement that manage any potential risk of overtopping of the dewatering discharge pits.
		Seepage of mine dewater through base and walls of the pit to soil and groundwater Impact: Contamination of groundwater, groundwater mounding	Groundwater Surrounding Native vegetation	Refer to Section 3.1.1	C = Minor L = Unlikely <b>Medium Risk</b>	Y	Condition 1 - Authorised emissions Condition 5 – Dewater quality monitoring	Based on the water quality data, it has been identified that the water quality within the underground operations and the Atreides pit is very similar as they are from the same fractured rock aquifer. Therefore it is unlikely that a significant impact will occur due to any potential seepage of mine dewater through the pit.  Additionally, there are no known groundwater dependent ecosystems, sensitive aquifers or groundwater users nearby. The nearest bore is located approximately 2.5 km from the pit and within Licence holder's tenure. Thus, it is believed that the water from this bore is currently not utilised by third parties. Due to the salinity of the water of this bore (32,000 mg/L TDS), it would preclude its use as a stock watering supply. Therefore, it is evident that there are no any receptors that could be affected by any potential change in water level or quality.



										Due to the depth to the groundwater in the project area, no groundwater mounding resulting in impacts to native vegetation at the surface is expected.
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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 5 provides a summary of the consultation undertaken by the department.

**Table 5: Consultation**

Consultation method	Comments received	Department response
Local Government Authority advised of proposal on 24 April 2023 (City of Kalgoorlie-Boulder)	None received	N/A
Licence holder was provided with draft documents on 11 July 2023	None received. Licence Holder has waived the 21 day comment period and wishes for the licence to be issues.	Noted.

## 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 6 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 6: Summary of licence amendments**

Condition no. / Description	Proposed amendments
Cover page	Prescribed premises description categories table has included on to the cover page to align with the current DWER licence format
Explanatory notes	“Explanatory Notes” section in the previous licence has been remove as this section is already redundant from the current DWER licence format
Licence History	“Licence History” section, which summarises all the changes conducted to the licence, has added to align with the current format
Table number	Table numbers of the licence has updated to align with the new numbering of the tables
Condition numbering	Condition numbering updated due to deletion on condition 2.
Condition 1 Table 1	Mine dewater discharge at the Atrides pit has authorized and added to the licence
Condition 2 Table 2	Deleted as all infrastructure has been constructed.
Condition 3 Table 3	Freeboard requirement at the discharge pits was added into the licence Minor typographical changes has been done

Condition 4 Table 4	Monitoring requirement of mine dewater discharge volume at Atreides pit discharge point was added to the licence
Definition Table	Definition table has moved to the back of the licence to match with the current licence format
Figure 2 of Schedule 1	Mine dewatering discharge points map was updated to include dewatering discharge point at Atreides pit.
Schedule 2	Schedule 2 of the previous licence was removed as the details of the prescribed premises activities are shown in the cover page

## References

1. Email titled “L9112/2018/1 - Silver Lake Resources Mount Monger - Aldiss Operations - Amendment Application” and supporting documents dated 20/03/2023 authored by Joanna Kiddie, available at DWER records (DWERDT752737).
2. DER 2015, Guidance Statement: Setting Conditions, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2019, Guideline: Decision Making, Joondalup, Western Australia.
4. DWER 2020(a), Guideline: Risk assessments, Joondalup, Western Australia.
5. DWER 2020(b), Guideline: Environmental siting, Joondalup, Western Australia

## Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)				
Application type				
Works approval	<input type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:		None <input type="checkbox"/>
		Has the works approval been complied with?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Date Report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input checked="" type="checkbox"/>	Current licence number:	L9112/2018/1	
		Relevant works approval number:	N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:	None	<input type="checkbox"/>
Date application received	20 March 2023			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Silver Lake (Integra) Pty Ltd			
Premises name	Aldiss Gold Project			
Premises location	Within Mining Tenement M28/43, M28/208, M28/171, M28/289 Mining Lease L28/55			
Local Government Authority	City of Kalgoorlie Boulder			
Application documents				
HPCM file reference number:	DER2017/002150-1			
Key application documents (additional to application form):	Attachment 3B Groundwater Assessment Tank Attachment 2 Premises and Discharge Locations			
Scope of application/assessment				
Summary of proposed activities or changes to existing operations.	<p><i>Licence amendment</i></p> <p>Operation of dewatering activities</p> <p>Construction and installation of a HDPE pipeline from Tank open pit to Atreides open pit and a new discharge point at Atreides open pit to be included into the licence</p>			

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

**Table 1: Prescribed premises categories**

Prescribed premises category and description	production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 12: Screening etc. of material	438,000 tonnes per annual period	<i>No changes proposed</i>
Category 64: Class II putrescible landfill	2,500 tonnes per annual period	<i>No changes proposed</i>
Category 6: Mine dewatering	450,000 tonnes per annual period	<i>No changes proposed</i>

**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"/>	Mining lease / tenement <input checked="" type="checkbox"/> Expiry: M28/43 - 30 December 2029 M28/208 - 31 August 2030 M28/171 - 10 August 2025 M28/289 - 14 July 2037 L28/55 - 11 April 2038 Checked on MINEDEX. Licence Holder has not provided any documents within this application.
Has the applicant obtained all relevant planning approvals?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	Approval: Mining Act approvals Mining Proposal Reg ID 113934
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CPS No: CPS 7429 Licence Holder have an already approved clearing permit. But no clearing is proposed for this proposal. Pipeline to be build withing an already disturbed area.



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"/>	Licence/permit No: No licence required.
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: GWL200257 <a href="#">A valid Licence / permit applies.</a>
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 checked="" type="checkbox"/> N/A <input type="checkbox"/> Regional office: Goldfields <a href="#">No consultation ire required to this proposal.</a>
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to <a href="#">WQPN 25</a> )? 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, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxx</i> )	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>Mining Act 1978</i>
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Classification: N/A Date of classification: N/A