

Decision Report

Application for Licence

Part V Division 3 of the Environmental Protection Act 1986

Licence Number	L9247/2020/1
Applicant	Beacon Mining Pty Ltd
ACN	603 853 916
File Number	DER2020/000120
Premises	Jaurdi Gold Project
	Mining tenements: M16/115, M16/529, M16/34 and L16/120
	SHIRE OF COOLGARDIE WA
Date of Report	17 September 2020
Decision	Licence granted

Carmen Standring A/MANAGER, RESOURCE INDUSTRIES REGULATORY SERVICES

An officer delegated by the CEO under section 20 of the EP Act

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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 operation of the Premises. As a result of this assessment, Licence L9247/2020/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Application summary and overview of Premises

On 3 March 2020, Beacon Mining Pty Ltd (the applicant) submitted an application for a licence to the department under section 57 of the *Environmental Protection Act 1986* (EP Act).

The application is to seek a licence relating to processing of gold ore at Jaurdi Gold Project (the premises) located approximately 49 km west of Kalgoorlie-Boulder and 35 km north-west of Coolgardie.

The premises relates to the categories and assessed production/design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in Licence <u>L9247/2020/1</u>. The infrastructure and equipment relating to the premises categories and any associated activities which the Department of Water and Environmental Regulation (the department) has considered in line with *Guidance Statement: Risk Assessments* (DER 2017) are outlined in Licence L9247/2020/1.

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 *Guidance Statement: Risk Assessments* (DER 2017).

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 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.

Table 1: Proposed	applicant controls
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Emission	Sources	Potential pathways	Proposed controls
Operation			
Tailings, saline water or tailings return (decant) water	Hypersaline, Process water or tailings spill or seepage	Seepage from containment dams/TSF to	Tailings Operating Manual and Section 8 of the Lost Dog Pit Panel 1 TSF geotechnical review as referenced in page 10
(decant) water		groundwater	 Minimisation of the surface area of the decant pond during operations
			 Groundwater monitoring – bores installed at Black Cat in pit TSF and Lost Dog Panel 1 in pit TSF
			Proposed recovery bores to be commissioned if mounding requires action
		Direct discharge to soil with potential infiltration to groundwater	• Telemetry system attached to the tailings line and the return water pumping system has automated shutoff of return water pump from the pit after 45 minutes of the alarm for 10% variance in water being received at the process water settling dam and/or 30% variance of the return water being received
			• Pipeline is positioned within an earthen bunded trench, formed by the excavation of a trench with placement of the spoil as bunds either side of the trench. Works, including the installation of a sump, culverts and increased bund capacity is to be completed by 15 September 2020 at the points identified by a pipeline audit conducted in July 2020. The criteria for the bund capacity assumed the largest possible spill that could occur if a tails leak was at 29% variation in flow meters, this would not trigger the auto shut off and could possibly not be found by processing personnel for a maximum of 6 hours
			Daily inspections – once per shift
			 Mill storage tanks bunded – Bunding to be 110% of largest tank within the compound
			 Process water dam has a freeboard designed for 1 in 100 year average recurrence interval (ARI) return period, 72 hour rainfall event
			 Tailings Operating Manual Tailings Operating Manual and Section 8 of the Lost Dog Pit Panel 1 TSF geotechnical review as referenced in page 10
Material contaminated with heavy metals and processing chemicals	Processing plant infrastructure	Surface water flow Water from the stormwater dam used for dust suppression	 A stormwater dam downstream of the plant to capture stormwater in the plant/workshop area not contained by bunding. The dam is designed to retain a 1 in 100 year average recurrence interval (ARI) return period, 72 hour rainfall event
		suppression Water from stormwater	A diversion bund constructed around the northern and eastern perimeters of the project to ensure the natural surface flow is diverted

Emission	Sources	Potential pathways	Proposed controls
		dam released	around the project.
		into downstream waterway	Water collected in the stormwater dams will be reused in processing. Licence Holder please confirm if stormwater will be re-used in process stream
			• The CIL circuit and grinding circuit are placed on concrete pads. The areas are bunded with a containment capacity equivalent to 110% of the capacity of the largest tank with pumps installed in the concrete flooring to collect and pump any spilled material back into the process stream
			Pipelines fitted with pressure transmitters at both ends of pipelines with alarms to indicate variation in flow pressure
			 Process water dam has a freeboard designed for 1 in 100 year ARI return period, 72 hour rainfall event
			Freeboard of 300mm will be maintained in the process and raw water dam which has a level indicator alarm
Hydrocarbon contamination of soil and Washdown bays and Washdown bays and	Diesel stored in double skinned tanks which are self bunding		
of soil and water	workshop sumps Bioremediation facility	soil with potential infiltration to	Overfill protection valves are fitted on all diesel tanks
		groundwater	Storage and refueling of vehicles at the diesel tanks are on lined pad
			• Spill kits available for use to contain hydrocarbon spills. In the event of a spill the contaminated soil will be collected and disposed of in the bioremediation facility and other contaminated material will be or as per other site procedures
			 Sludge from sumps at workshops and washdown bays directed to the bioremediation facility
			• The bioremediation pad is situated with the Lost Dog Waste Landform where it is separated from surface or stormwater. It is bunded to divert clean stormwater and capture contaminated runoff and it is monitored weekly
Fugitive dust	ROM pad, crushing	Air/windborne	Monitoring of road conditions
	plant, stockpiling, traffic/mobile plant,		Water cart use
	TSF.		Speed restrictions on roads
			• Water sprays on ROM pad and stockpiles
			High moisture content in ore
			Dust covers on feed hopper chute
			Water sprays on feed hopper used as required
			Tailings deposition managed to maintain

Emission	Sources	Potential pathways	Proposed controls
			moisture levels to prevent dustingTailings deposition below ground level,
			reducing exposure to wind
Windblown putrescible or	Landfill	Air/windborne	Weekly coverage of landfill
inert waste			Weekly inspections
			Internal procedures
			Narrow trench
Hazardous chemicals	Bulk chemical storage	Direct discharge to soil with potential infiltration to groundwater or contamination of stormwater	 All chemical and reagents classed as dangerous goods are stored in accordance with the requirements of the Dangerous Goods Safety Act 2004 and the Dangerous Goods Safety (Storage and Handling of Non- explosives) Regulations 2007 Fuel and chemical handling will be in accordance with the current Australian Standards for the storage and handling of flammable and combustible liquids under the Dangerous Goods Safety Act 2004 and associated Dangerous Goods Safety Regulations 2007

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors and contractors of the applicant'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 2 below provides a summary of environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guidance Statement: Environmental Siting* (DER 2016)). There are no human receptors located within 35km of the Premises (the town of Coolgardie is located 35km south east and the Ora Banda Historical Inn is located 35km north east of the Premises).

Table 2: Sensitive environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Groundwater	Depth to groundwater encountered at Black Cat Pit (BCP) is approximately 37 metres below ground level (mbgl) and 7 to 11 mbgl at Lost Dog Pit (LDP) – (based on information within works approval application W6150/2018/1).

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for each identified emission source 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 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 licence 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 3.

Licence L9247/2020/1 that accompanies this Decision Report authorises emissions associated with the operation of the Premises i.e. Category 5: Processing or beneficiation of metallic or non-metallic ore and Category 64: Putrescible landfill activities.

The conditions in the issued Licence, as outlined in Table 3 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 operation

Risk Event					Risk rating ¹	Annlinent		Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	
Operation								
Crushing and screening Vehicle movements	Dust	Air/windborne pathway causing impacts to vegetation health.	Vegetation	Refer to Section 3.1	Low C =Slight L = Possible	Y	Condition 1 – Infrastructure table	Condition 1 is a standard condition to outline the equipment and controls required to control emissions from the infrastructure associated with prescribed activities.
Processing Plant	Material contaminated with heavy metals and processing chemicals	Direct discharge to land causing contamination of freshwater runoff and soils due to rain. Containment of the runoff can cause infiltration to groundwater.	Surface water	Refer to Section 3.1, Table 1	Medium C = Moderate L = Possible	Ν	Condition 1 – Infrastructure table Condition 4 – Authorised discharge points	 Condition 1 is a standard condition to outline the equipment and controls required to control emissions from the infrastructure associated with prescribed activities. Condition 4 stipulates the only discharge point for contaminated stormwater as the stormwater dam indicated in the Schedule 1 Figure 2 of the licence. This is to ensure contaminated stormwater is not discharged into the environment but is contained and, if necessary, reused in processing operations.
Bulk storage of chemicals	Environmentally hazardous chemicals including hydrocarbons	Direct discharge to land causing contamination of soil and freshwater runoff due to rain	Surface water	Refer to Section 3.1, Table 1	Medium C = Moderate L =Possible	Y	Condition 1 – Infrastructure table	Condition 1 is a standard condition to outline the equipment and controls required to control emissions from the infrastructure associated with prescribed activities.
Ancillary activities: Bioremediation	Hydrocarbon contaminated soil	Direct contact with contaminated soil causing contamination of freshwater runoff due to rain	Surface water	Refer to Section 3.1, Table 1	Low C =Slight L = Possible	Y	Condition 3 – Waste processing	Condition 3 includes the requirement for the bioremediation pad to be bunded to divert clean stormwater away and capture contaminated runoff within the facility.

Risk Event					Risk rating ¹	Annligent	Applicant controls sufficient?	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	equence controls sufficient?		
		Overtopping of	Native vegetation		Medium C = Moderate L =Possible			Condition 1 is a standard condition to list key infrastructure and equipment required to control emissions, its location and to
	Tailings	the tailings storage facilities onto ground surface causing direct contact with vegetation, fauna and groundwater	Fauna	Refer to Section 3.1, Table 1	Medium C = Moderate L =Possible	Y	Condition 1 – Infrastructure table Condition 4 – Authorised discharge points	specify how it must be operated. Condition 4 stipulates the only authorised discharge point for tailings as Black Cat and Lost Dog Panel 1 in-pit TSFs depicted in the Schedule 1 Figures 1, 3 and 4 of the licence. This is to support the intention of the licence holder that the tailings is not discharged into the environment but is contained within the appropriate facilities.
			Surface water	-	Medium C = Moderate L =Possible			
Discharge of tailings into BCP and LDPP1 In-Pit TSF	Groundwater mounding	Seepage of contaminated water from tailings into the ground causing mounding of hypersaline and contaminated water at the level of vegetation rootzones	Native vegetation	Refer to Section 3.1, Table 1	Medium C = Moderate L =Possible	Ν	Condition 1 – infrastructure table Condition 5 – Ambient water quality trigger values Conditions 6 to 11 - Monitoring	Condition 1 is a standard condition to list key infrastructure and equipment required to control emissions, its location and to specify how it must be operated. For assessment of seepage around the TSFs the number of monitoring bores required for each facility is stated and the figure detailing their position is referenced. Condition 5 sets a standing water level (SWL) trigger value on the monitoring bores surrounding the Lost Dog Panel 1 in-pit TSF. This is to provide for the potential mounding of groundwater levels of the bores range from approx. 7.5 – 11 mbgl. These levels are not consistent with nearby areas and is likely as a result of the tailings properties which have been found to be significantly wetter than what was anticipated and assessed in the works approval. Filling of the TSF is proceeding at a more rapid rate than calculated for during design of the TSF. A trigger limit of 6mbgl is proposed to

Risk Event					Risk rating ¹	Applicant		
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
								protect the root zones of vegetation. This level is consistent with other licences within the Goldfields region. Condition 7 provides the monitoring program for the TSF bores. The applicant proposed a larger suite of parameters but these have been reduced to: SWL, pH, conductivity, total dissolved solids, WAD cyanide and total cyanide. These parameters allow for assessment of the potential for the groundwater/seepage to impact vegetation and the level of contamination by tailings in the groundwater. Condition 9 requires effective management of groundwater mounding in the vicinity of the Lost Dog facility in the event of a monitoring bore exceeding the trigger level set in condition 5. Condition 10 restricts the applicant from using bores being actively used as recovery bores for the purposes of monitoring. This is to prevent the key parameter of SWL returning a false measure due to drawdown in the pumped bore that is not reflective of the ambient condition. Condition 11 provides for the assessment of the monthly water balance as the geotechnical information regarding the tailings used during the initial planning of the tailings facilities was significantly different to the actual tailings produced in operation of the plant, making ongoing assessment of the material essential for managing the risks to the environment from this activity.

Risk Event	Risk Event							
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
	Tailings and contaminated return water	Direct contact with vegetation from leaks and spills from pipelines carrying tailings and return water between processing plant and TSFs	Native vegetation	Refer to Section 3.1, Table 1	Medium C = Moderate L =Possible	Y	Condition 1 – Infrastructure table Condition 2 – secondary containment of pipelines	 Condition 1 is a standard condition to list key infrastructure and equipment required to control emissions, its location and to specify how it must be operated. For pipelines telemetry is conditioned for operation of the pipelines. Condition 2 is a standard condition to ensure the containment of spills between inspections.
	Wind blown waste	Air/windborne pathway causing waste to come into contact with fauna causing harm from ingestion or trapping	Fauna	Refer to Section 3.1, Table 1	Low C =Slight L = Possible	Y	Condition 1 – Infrastructure table Condition 3 – Waste processing	 Condition 1 is a standard condition to outline the equipment and controls required to control emissions from the infrastructure associated with prescribed activities. Condition 3 includes requirement to cover waste at least weekly. This is consistent with other licences with Category 89 or 64 facilities at this level of throughput.
Landfill	Putrescible waste	Uncovered direct discharge to land attracting increased predatory and feral animal activity.	Fauna	Refer to Section 3.1, Table 1	Medium C = Moderate L =Possible	N	Condition 3 – Waste processing	 Condition 1 is a standard condition to outline the equipment and controls required to control emissions from the landfill. It provides for the establishment and closure of the landfill trenches and signage to manage disposal activities. It conditions key measures in the Landfill Facility Procedure document to allow for consistency in development of the facility over time. Condition 3 provides further details on processing limits and specifications, including the separation of tyres and directions to the relevant regulations for management of tyres. This is consistent with other licences with Category 89 or 64 facilities with this level of throughput.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Guidance Statement: Risk Assessments (DER 2017).

Note 2: Proposed applicant 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 (6/7/2020)	None received	N/A
Local Government Authority advised of proposal (3/7/2020)	None received.	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (3/7/2020)	DMIRS replied on 9/7/2020 advising that the application is generally consistent with mining proposals under the <i>Mining Act</i> 1978 for the Jaurdi Gold Project	N/A
Applicant was provided with draft documents on 2/9/2020.	Number of monitoring bores surrounding Black Cat Pit clarified.	Bores referenced in conditions corrected.

5. Conclusion

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

References

- Land and Marine Geological Services Pty Ltd (L&MGSPL) 2020, Early access to Lost Dog Pit Panel 1 – tailings storage facility geotechnical review, Cowaramup, Western Australia.
- 2. L&MGSPL 2018, Jaurdi Gold Project In-Pit tailings storage facilities operations manual management, Cowaramup, Western Australia.
- 3. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
- 4. DER 2017, Guidance Statement: Risk Assessments, Perth, Western Australia.
- 5. DER 2015, Guidance Statement: Setting Conditions, Perth, Western Australia.

Appendix 1: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)							
Application type							
Works approval							
	×	Relevant works approval number:	W6150/2018/1	None			
		Has the works approval been complied with?		Yes 🛛 No 🗆			
Licence		Has time limited operations under the works approval demonstrated acceptable operations?		Yes □	No □ N/A ⊠		
		Environmental Compliance Report submitted?		Yes ⊠	No 🗆		
		Date Report received: 30/04/2020					
Renewal		Current licence number:					
Amendment to works approval		Current works approval number:					
Amendment to licence		Current licence number:					
Amenament to licence		Relevant works approval number:		N/A			
Registration		Current works approval number:		None			
Date application received		04/03/2020					
Applicant and Premises details							
Applicant name/s (full legal name/s)		Beacon Mining Pty Ltd					
Premises name		Jaurdi Gold Project					
Premises location		M16/115, M16/529, M16/34 and L16/120					
Local Government Authority		Shire of Coolgardie					
Application documents							
HPCM file reference number:		DER2020/000120					
	Application for operating licence supporting document Maps of premises Responses to DWER request for further information						
Key application documents (addition application form):	Process dam and raw water dam construction report Lost Dog TSF Panel 1 construction report						
		Lost Dog TSF telemetry construction report					
		Early access to Lost Dog Pit Panel 1: Talings storage geotechnical review					
Scope of application/assessment							

Summary of proposed activities or changes to existing operations.Operation of Jaurdi Gold Project processing plant includin tailings storage facilities Black Cat in-pit TSF and Lost Do 1 in-pit TSF.						
Category number/s (activities that cause the premises to become prescribed premises)						
Table 1: Prescribed premises categories						
Prescribed premises category and description Prop		oosed production or design acity	Proposed changes to the production or design capacity (amendments only)			
Category 5: Processing or 750, beneficiation of metallic or non- metallic ores		,000 tonnes per annual od	NA			
Category 89: Putrescible landfill site 5,00 period		•	I NA			
Legislative context and other approv	/als					
Has the applicant referred, or do they			Referral decision No:			
intend to refer, their proposal to the El under Part IV of the EP Act as a	PA	Yes 🗆 No 🖂	Managed under Part V			
significant proposal?			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 🗆	Mining lease / tenement ⊠ Expiry: 2023			
Has the applicant obtained all relevan	t		Approval:			
planning approvals?		Yes 🗆 No 🗆 N/A 🖂	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 🛛 No 🗆	CPS No: CPS7794			
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?		Yes 🗆 No 🖂	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 🗆	Licence/permit No: GWL201802(3)			

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 Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes □ No ⊠ N/A □ Regional office: Swan Avon 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 <u>WQPN 25</u>)? 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 🗆	<i>Mining Act 1978 Dangerous Goods Safety Act 2004</i>
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 <i>Contaminated Sites Act 2003</i> ?	Yes □ No ⊠	N/A