



Application for Licence Amendment

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

Licence Number	L9247/2020/1
Licence Holder	Beacon Mining Pty Ltd
ACN	603 853 916
File Number	DER2020/000120
Premises	Jaurdi Gold Project Legal description – Mining tenements: M16/115, M16/529, M16/34 and L16/120 As defined by the Premises maps attached to the Revised Licence
Date of Report	20 August 2021
Decision	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 L9247/2020/1 is held by Beacon Mining Pty Ltd (Licence Holder) for the Jaurdi Gold Project (the Premises), located at Mining tenements M16/115, M16/529, M16/34 and L16/120, Shire of Coolgardie.

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 operation of the Premises. As a result of this assessment, Revised Licence L9247 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 11 May 2021, the Licence Holder submitted an application to the department to amend Licence L9247/2020/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- The inclusion of the infrastructure approved under Works Approval W6439/2020/1, the Panther in-pit tailings storage facility (TSF), tailings and return water pipelines and related infrastructure/equipment; and
- Extension of the Premises to include the mining tenement M16/365 and part of mining tenement M16/204.

These amendments are the result of the works authorised under the works approval W6439/2020/1 being completed and commissioned. The construction and commissioning reports were assessed for compliance with the works approval conditions. Non-compliances were noted as minor with no expected environmental impacts.

Changes to the assessed parameters of the facility prior to construction were minor with the main difference being the volume of the pit prior to discharge. Prior to completion of the works authorised under the works approval W6439/2020/1 the pit was expanded by mining a cutback. The application supporting documents for the works approval assessment estimated the final Panther in-pit TSF to be 915,000m³ sufficient to hold 685,000 tonnes of tailings and be actively discharge to for 1.2 years. The environmental compliance report submitted post construction has usable storage volume of 941,702m³ sufficient to hold 760,000 tonnes of tailings with active discharge over a lifespan of 15 months. This change in volume is not considered as significantly effecting the environmental performance of the facility.

This amendment is limited only to changes to Category 5 activities from the Existing Licence. No changes to the aspects of the existing Licence relating to Category 89 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
5	750,000 tonnes per annual period	No changes	The addition of Panther Pit TSF to contain the tailings produced by the Jaurdi Gold Project processing

			plant. No changes to the processing of ore and no increase in throughput of ore for processing is proposed under this application.
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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 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
Leachate	Storage of tailings in TSF	Through pit wall	<p>A network of five groundwater monitoring/recovery bores has been established around the Panther in-pit TSF. The bores were installed with the capacity to act as recovery bores in the event that seepage occurs. These bores will be monitored at regular intervals and sampled for water quality on a quarterly basis in order to allow early detection and remediation of excessive seepage if this occurs.</p> <p>A recovery system has been constructed to return the surface water (decant) from the deposited tailings to the Lost Dog Processing Plant.</p>
Tailings	Spill/leaks of liquid tailings from the pipeline failure	Direct deposit	<p>The pipelines have been fitted with a leak detection system (telemetry system), which is operated in the control room at the processing plant. The telemetry system has two alarm systems that are to be calibrated on an annual basis:</p> <ul style="list-style-type: none"> • 10% variation in flow-visual alarm in processing control room and automatic shutdown of tails pumps after 45 minutes; and • 30% variation in flow- visual alarm in processing control room and automatic shutdown of tails pumps after 15 minutes. <p>The pipeline is positioned in a trench designed to contain the largest possible spill that could occur if a tails leak occurs (i.e. up to 29% capacity of the maximum pipeline flow). (Refer to Figure 1)</p>
	Tailings as dust from surface of TSF	Air/windborne pathway	Tailings deposition will be managed to ensure the conditions of the TSF beach minimise dust (i.e. moisture conditions)
Soil and rock waste – blocking	Earthworks to maintain road and pipeline	Direct discharge	Maintenance of culverts at ephemeral drainage line crossings

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Emission	Sources	Potential pathways	Proposed controls
of surface water flow	corridor		
Dust	Vehicle movements	Air/windborne pathway	<p>The applicant proposes to manage dust through road condition monitoring, water cart use and vehicle speed conditions.</p> <p>The speed limit or capacity of the water truck have not been specified in the supporting documentation.</p>

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
Aboriginal heritage site – Nguparna Rock	Heritage site boundary located within existing licenced premise boundary for the Jaurdi Gold Project, however correspondence with DPLH has confirmed the actual boundary of this heritage site is not located within Beacon tenure/ premise boundary. The available location of this site will be presented on site clearing maps to prevent clearing within this heritage site.
Environmental receptors	Distance from prescribed activity
Groundwater – Hypersaline aquifers	<p>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).</p> <p>Depth to groundwater encountered at Panther Pit is between 43 mbgl to greater than 50 mbgl. The monitoring bores were sunk to a depth of 50m and bores PTSFMON04 and PTSFMON05 have remained dry with the other monitoring bores providing initial standing water levels between 42.86 mbgl and 45.92 mbgl.</p> <p>The groundwater is in a fractured rock aquifer, groundwater flows encountered during resource drilling are assumed to be associated with discrete fractures in the bedrock or local shear structures.</p> <p>Bedding and a local shear structure strike northwest to southeast and dip from 40 to 60 degrees to the west. It is assumed that the preferential direction of groundwater flow would be along strike. Groundwater flow against the bedding strike (east to west) would be to a lesser extent. The local direction of groundwater flow would follow the local topography which drops in a north to south direction.</p> <p>The water quality data provided by the Panther in-pit TSF monitoring bores shows the salinity in initial readings as 34,800 mg/L total dissolved solids (TDS) in PTSFMON03, 83,900 mg/L TDS in PTSFMON02, and 84,100 mg/L in PTSFMON01.</p>

Fauna - Malleefowl	Reporting from 1985 but no active nesting mounds
Flora – <i>Eremophila praecox</i> (P2)	Four plants within premise boundary located within the existing licenced premise boundary for the Jaurdi Gold Project. Minimum 10m exclusion zone surrounding Priority Flora records. Exclusion zone presented on site clearing maps to prevent clearing within this zone.
Non-priority native vegetation	<p>The vegetation grows less than 100m from the TSF. The infrastructure corridor is not covered by clearing permits along the entire length but the Works Approval Holder has advised that the clearing for the pipeline corridor within M16/204 is exempt from requiring a clearing permit in accordance with the 10 ha exemption under Schedule 1, Item 2, Subclause 2 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004'.</p> <p>The following clearing permits have been granted:</p> <ul style="list-style-type: none"> •CPS7794/2 (expiry 31 December 2022) covering mining tenements M16/34 and M16/115; and •CPS8907/1 (expiry 31 July 2025) covering mining tenement M16/365. <p>The vegetation assessment for both permits was derived from a survey provided for the assessment of CPS7794/2. This study found no Threatened species during the survey and one Priority species was identified, <i>Eremophila praecox</i> (P2).</p>
Ephemeral surface water flowlines	Several intersecting the proposed pipeline corridor

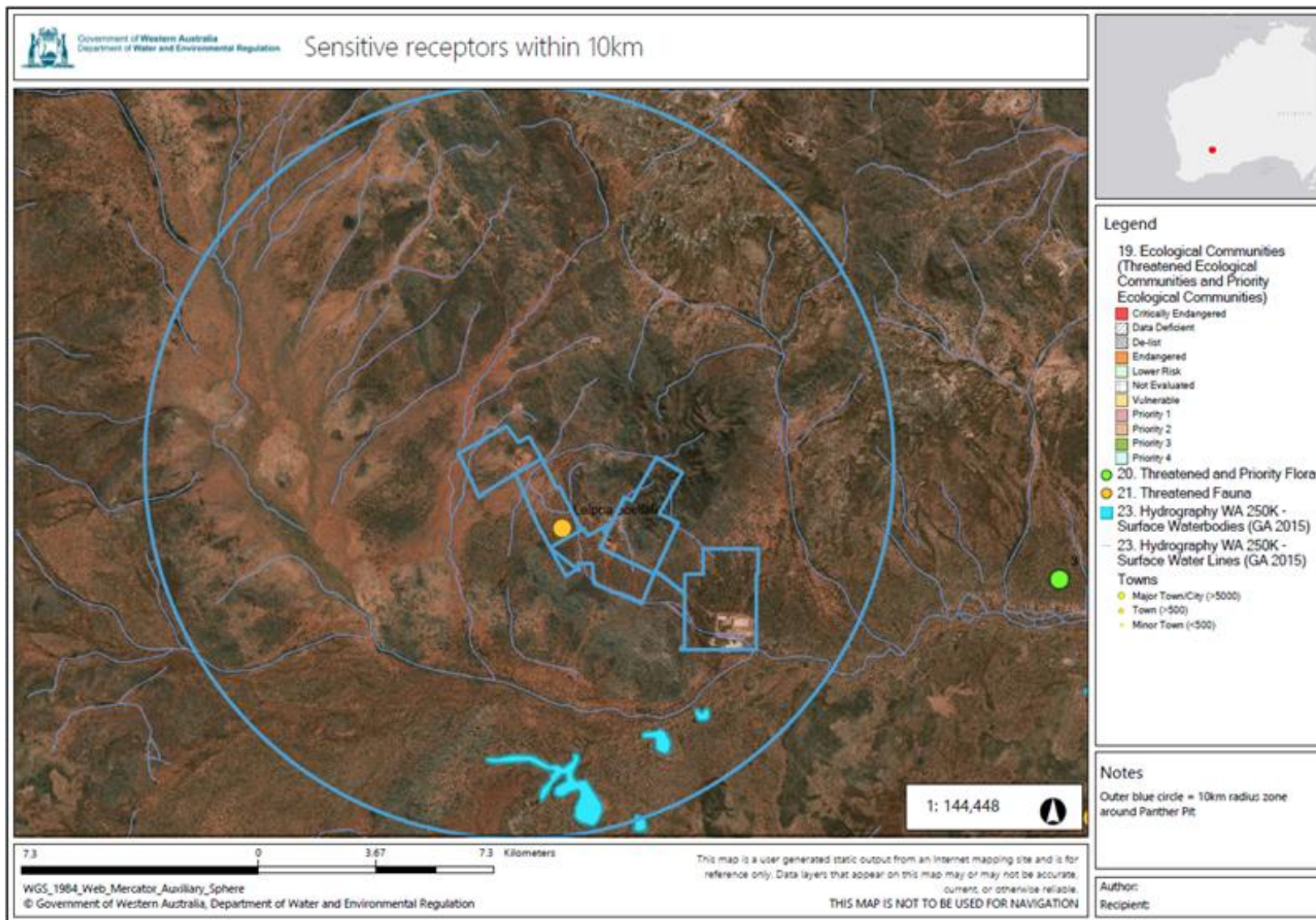


Figure 1: Distance to sensitive receptors

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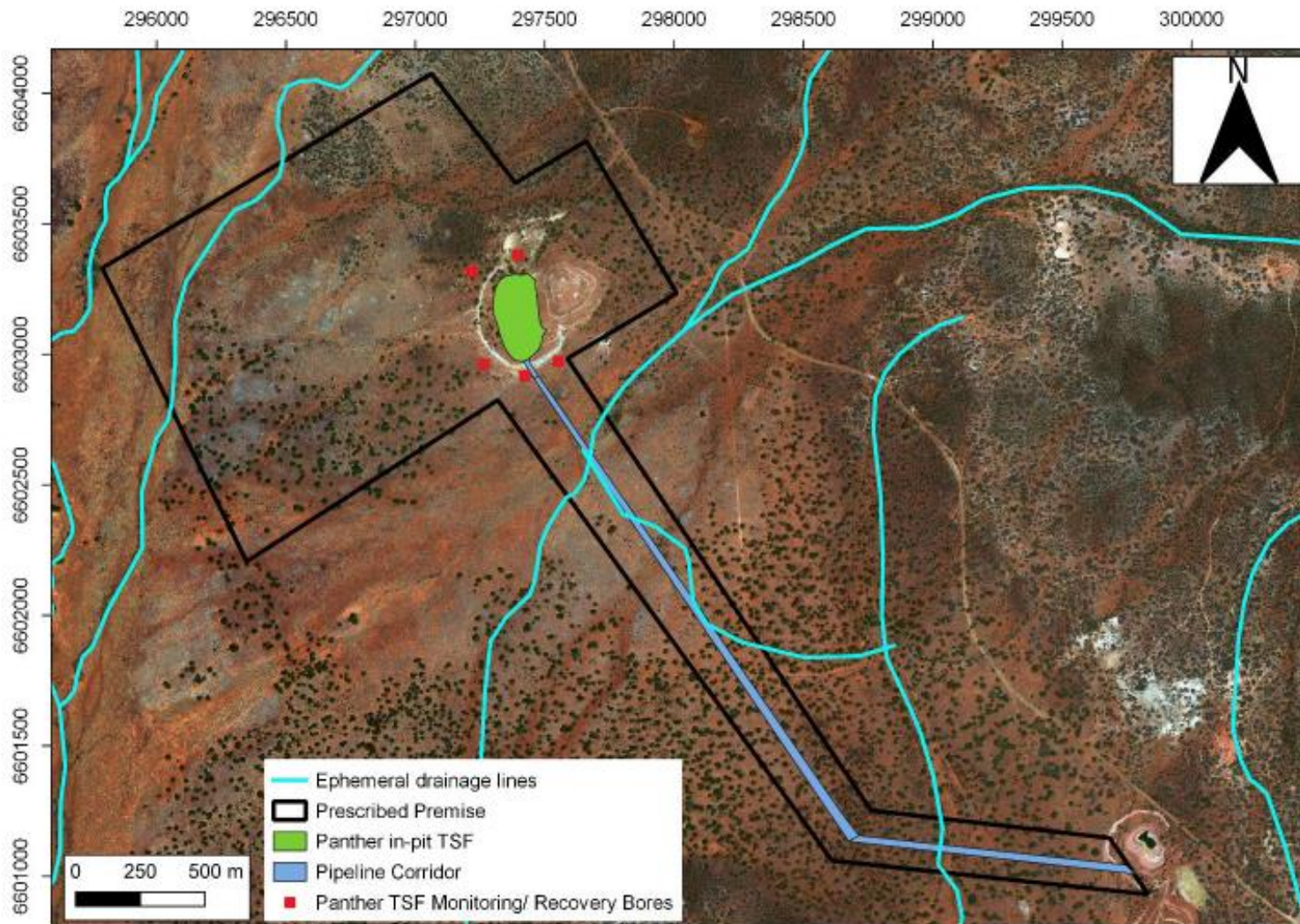


Figure 2: Drainage lines in relation to the Panther Pit prescribed premises

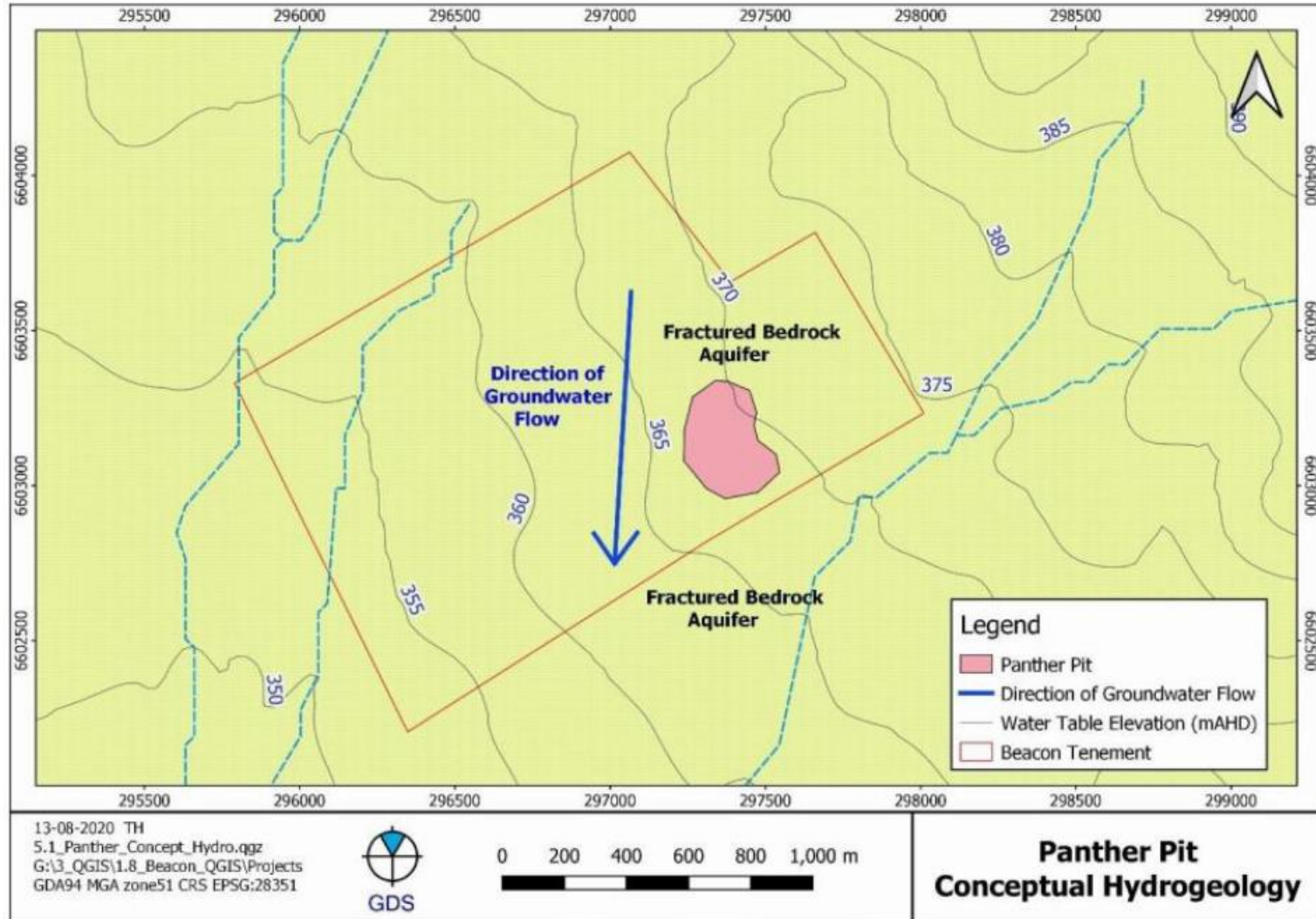


Figure 3: Predicted direction of groundwater flow

3.2 Risk ratings

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

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

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

The Revised Licence L9247/2020/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Category 5 and Category 89 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 operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Operation								
Discharge of tailings to Panther Pit TSF	Tailings	Overtopping of the pit	Native vegetation in the vicinity of the pit. Surface water flow from rainfall events.	Refer Section 3.1.1, Table 1	Medium C = Moderate L = Unlikely	Y	Condition 1: The standard infrastructure and equipment condition including the requirement for a freeboard of at least 700mm from the lowest point of the pit rim. Condition 11: Requires the water balance over each monthly period to be monitored for all the tailings storage facilities. This includes volume of tailings deposited.	
	Leachate	Seepage through pit wall causing mounding of water into root zones of vegetation	Native vegetation in the vicinity of the pit	Refer Section 3.1.1, Table 1	Medium C = Moderate L = Possible	Y	Condition 1: The standard infrastructure and equipment condition including the requirement five monitoring bores to be maintained around the facility. Conditions 6 – 8: Standard groundwater	

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Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
							<p>monitoring conditions to establish monitoring around tailings storage facilities to detect impacts of seepage from the facilities.</p> <p>Condition 10: Stipulates that bores being actively pumped for groundwater or seepage recovery cannot be used for monitoring.</p> <p>Condition 11: Requires the water balance over each monthly period to be monitored for all the tailings storage facilities. This includes estimated seepage losses.</p>	
Piping of tailings to Panther Pit TSF	Tailings	Direct discharge to ground causing contamination of surface water runoff.	Ephemeral drainage lines intersecting the pipeline corridor.	Refer Section 3.1.1, Table 1	Medium C = Moderate L = Possible	Y	Condition 1: The standard infrastructure and equipment condition including the requirement for telemetry on pipelines carrying tailings and return water from tailings facilities. Also the inspection of pipelines at least once	

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Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
							per shift. Condition 2: Requires all pipelines containing environmentally hazardous substances are provided with secondary containment adequate to contain any spill for a period equal to the time between routine inspections.	

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
Application advertised on the department's website (15/06/2021)	None received	N/A
Local Government Authority advised of proposal (15/06/2021)	None received	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (15/06/2021)	None received	N/A
Licence Holder was provided with draft amendment on (13/08/2021)	21 day period waived	N/A

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.	Proposed amendments
1 (Table 1)	Inclusion of Panther in-pit TSF in site infrastructure and equipment operational requirements for other in-pit TSFs in use at the premises.
4 (Table 3)	Inclusion of Panther in-pit TSF as a discharge point for tailings.
7 (Table 5)	Inclusion of Panther in-pit TSF monitoring bores as monitoring locations within the groundwater monitoring program.
11	Inclusion of Panther in-pit TSF as part of the monthly water balance calculations.
Schedule 1: Maps	New premises boundary map inserted with the premises boundary shown in black. Map of Panther in-pit TSF inserted as Figure 5. All figure numbers in the licence document updated as necessary.

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				
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:	L9247/2020/1	
		Relevant works approval number:	W6439/2020/1	N/A <input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:		None <input type="checkbox"/>
Date application received	11/05/2021			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Beacon Mining Pty Ltd			
Premises name	Jaurdi Gold Mining Project			
Premises location	Current tenements on licence: M16/115, M16/529, M16/34 and L16/120			
Local Government Authority	Shire of Coolgardie			
Application documents				
HPCM file reference number:	DER2020/000120~2			
Key application documents (additional to application form):	Prescribed premises and environmental siting maps Tenement reports Panther in-pit TSF design report Tailings geotechnical assessment Panther pit rock waste assessment with acid mine drainage AMD characterization Flora and fauna surveys Targeted malleefowl and threatened flora survey of Panther Project Panther Pit TSF seepage study Application for operating licence amendment L9247/2020/1			

Scope of application/assessment		
Summary of proposed activities or changes to existing operations.	Operation of Panther in-pit TSF Addition of TSF infrastructure to licence Addition of tenement M16/365 and part of tenement M16/204 to prescribed premises	
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	750,000 tonnes per annual period	
Category 89: Putrescible landfill site	<5,000 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"/>	Mining lease / tenement <input checked="" type="checkbox"/> Expiry: L 16/120 – 10/10/2038 M16/34 – 27/01/2029 M16/115 – 09/09/2032 M16/204 – 27/12/2036 M16/365 – 16/11/2021 M16/529 – 07/03/2032 Other evidence <input :<br="" checked="" type="checkbox"/> Access agreements signed with Toro Mining Pty Ltd and JH Mining Pty Ltd for development of road and pipeline corridor on M16/204.
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Approval: Expiry date: If N/A explain why? Mining tenements

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: 8907/1 over Panther Pit area of M16/365
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: GWL 201802(4)
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 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
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 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, Environmental Protection (Controlled Waste) Regulations 2004, 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 checked="" type="checkbox"/>	Classification: N/A Date of classification: N/A
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