



Application for Licence Amendment

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

Licence Number	L8569/2011/2
Applicant	Northern Star (Carosue Dam) Pty Ltd
ACN	116 649 122
File number	2011/005896-1
Premises	Porphyry Gold Mine Legal description – Part of Mining tenements M31/3, M31/4, M31/5, M31/6, M31/30, M31/76, M31/380, M31/381, L31/44, L31/59, L31/62 and L31/63 As defined by the Premises maps in Schedule 1
Date of report	29 November 2023
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

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, Licence Amendment L8569/2011/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Application summary and overview of premises

On 24 July 2023 Northern Star (Carosue Dam) Pty Ltd (the licence holder) submitted an application for an amendment to licence L8569/2011/2 to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The premises in which licence L8569/2011/2 regulates is the Porphyry (Edjudina) Gold Mining Project located approximately 135km north-east (150km by road) of Kalgoorlie-Boulder. The premises lies within the Shire of Menzies, on Edjudina Pastoral Station, and within the Yerilla District of North Coolgardie Mineral Field. The premises contains satellite mining operations supporting the Carosue Dam Processing Plant located 40km to the south and is accessed via the existing Safari Haul Road or alternatively from Kalgoorlie via the Yarri Road.

The Licence Holder is seeking a licence amendment relating to category 6 (Mine Dewatering), Category 63 (Inert Landfill) and Category 73 (Fuel Storage) at the premises, as well as an expansion to the premises boundary to include mining tenements M31/172 and L31/45. The amendment includes the addition of the Wallbrook operations to the licence (located on mining tenements M31/172 and L31/45) and changes to activities within the Enterprise operations, which are two distinct areas of the site but both located within the Edjudina district.

The premises relates to the categories and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in licence L8569/2011/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in licence L8569/2011/1.

2.2.1 Proposed amendment at Wallbrook

Wallbrook operation amendment request includes changes to:

- Cat 6 – dewatering for mining
- Cat 63 – Class 1 inert landfill
- Cat 72 – bulk storage of chemicals

Category 6 dewatering and discharge location summary

Mining in the Wallbrook area took place in the early 2010s and resulted in mining both the Eleven Bells and Redbrook pits, with only preliminary works commencing at Red Flag. The historic dewatering activities at Wallbrook were previously included in the Porphyry operating licence and approved as part of Works Approval W4649/2010/1. However, the area has since been removed from the Porphyry operating licence due to cessation of dewatering activities. The Licence holder is requesting for the Wallbrook area to be added back to the prescribed

premises boundary of the Porphyry licence as they now plan to resume mining at Wallbrook which will require dewatering to resume. The revised mine plan includes expanding and consolidating the Eleven Bells and Redbrook pits and mining a larger Red Flag pit.

The licence holder aims to manage all dewatering discharge from the Wallbrook pits within the Wallbrook area (tenement M31/172), due to their considerable distance from the Enterprise operations area.

The licence holder wishes to dewater Eleven Bells, Redbrook and Red Flag pits in a staged manner where the actively mined pit will be dewatered into neighbouring 'inactive' pits. As the sequence of mining these pits may be subject to change, the licence holder is seeking approval for discharge between all three pits.

The licence holder is seeking approval to construct pipelines between all three pits, along with a turkey's nest for the storage of excess dewater water. Figure 1 outlines the layout and location of this infrastructure.

Once the above infrastructure has been constructed the operation of the planned sequence of dewatering activity is summarized below::

- the licence holder plans to begin mining the Redbrook Pit from November 2023, continuing until approximately April 2024. Dewatering discharge from the Redbrook Pit will be directed through pipelines to the turkey's nest dam for use in dust suppression. Any surplus wastewater will be discharged into the Eleven Bells Pit. In the event of a water shortage in the turkey's nest dam, makeup water will be pumped from the Eleven Bells out-of-pit water bores;
- After reaching its final depth around April 2024, the Eleven Bells Pit lake will be dewatered using the out-of-pit dewatering bores. The discharged water will be piped to the turkey's nest dam for use in dust suppression, and any excess wastewater will be directed into the Redbrook Pit;
- Following the complete excavation of the Eleven Bells Pit to its maximum depth around November 2024, the licence holder will commence mining the Red Flag Pit. Dewatering discharge from this pit will be directed to an in-pit sump, and then piped to the turkey's nest dam for use in dust suppression. Any surplus wastewater will be discharged into the Eleven Bells Pit. If there is a shortfall of makeup water for the turkey's nest dam, it will be sourced from the Eleven Bells out-of-pit water bores or directly from the Eleven Bells pit lake; and
- When all mining activities at Wallbrook conclude around March 2025, dewatering activities will cease, allowing the water table to recover and form a pit lake in each of the pits. The licence holder may continue to draw water for the Eleven Bells out-of-pit water bores from or directly from the Eleven Bells pit lake via the turkey's nest.

The salinity around the Wallbrook Pits is in the range of 4,000 to 10,000 mg/L, while the water quality in the existing Eleven Bells and Redbrook pit lakes is saline, being between 21,000 to 31,000 mg/L (Pennington Scott).

Mining activities in the Wallbrook pits will result in varying cones of drawdown. There are two private stock bores within close proximity of Wallbrook Pits, both owned by Edjudina Pastoral Leaseholder, being PW25P (approximately 3 km east of Wallbrook pits) and PW24P (approximately 4 km south east of Wallbrook pits). No further registered stock bores are located within a 10km radius of Wallbrook pits.

Construction of Turkeys Nest

For pit water storage, one turkey nest will be constructed for excess mine water to be used for dust suppression and re-used for mining operations. The turkey's nest will be constructed so that it reduces the volume of fill material (cut and fill) required and be lined with HDPE plastic. A stand-pipe and pipeline/pumping infrastructure will also be installed. The existing turkey's nest

may also be used if required, but would need to be reinstated with a new HDPE liner.

Landfill and Bulk Fuel Storage

Additional fuel storage and a Class 1 inert landfill will be required to support operations at Wallbrook. The Landfill is proposed to be constructed on the Wallbrook Waste Rock Landform as detailed in Figure 1 and will comprise of a trench 25x5x4 metres. Once each individual cell is full, a new landfill trench will be constructed. Regular inspections and maintenance will be undertaken of the Landfill and once the trench has reached capacity, inert waste, clean fill or other appropriate cover material will be used to cover the landfill to an approximate depth of 500mm.

The fuel storage at Wallbrook will be constructed in the workshop laydown. It will consist of two double-skinned and self-bunded 110kl diesel storage tanks, fitted with smart fill key system for accurate recording of usage. Refer figure 1 for proposed Wallbrook layout.

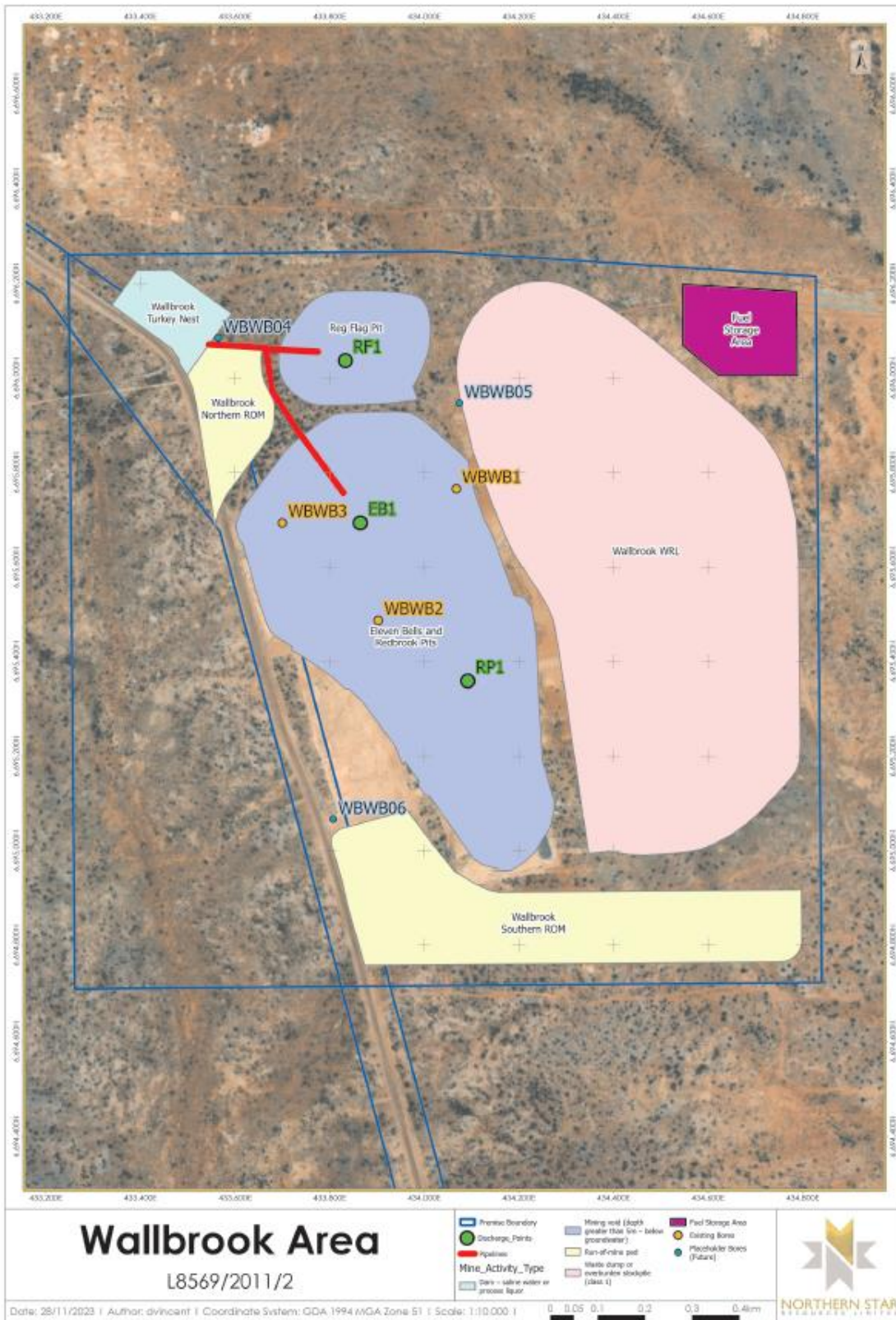


Figure 1: Proposed Wallbrook Layout

2.2.2 Enterprise Operations Amendment Request

Enterprise operation amendment request includes changes to:

- Cat 6 – dewatering for mining
- Cat 63 – Class 1 inert landfill
- Cat 72 – bulk storage of chemicals

Category 6 dewatering and discharge location summary

The licence holder is requesting approval to add an additional dewatering effluent discharge point onto the licence (Million Dollar Pit). Currently the licence allows mine dewater from Million Dollar Pit to be discharged to Porphyry pit, mine dewater from Margaret's pit to be discharged to Enterprise Pit and mine dewater from Porphyry pit/underground to be discharged to Margaret's pit.

Enterprise Pit is planned to be cutback (and renamed as Enterprise North Pit) and an additional open pit is proposed just south of the existing Enterprise pit (Enterprise South Pit). The Million Dollar Pit is to become the main receptacle for all wastewater discharge from the Porphyry and Enterprise mines until the end of Edjudina Expansion Project in December 2027.

All dewatering from the Enterprise North/South pits will be pumped back to the Million Dollar Pit via the existing water pipeline between Margaret's and Porphyry Turkey's Nest. At the same time, the dewatering discharge from the Porphyry underground (which was being transferred to the Margaret's Pit) will be redirected to the Million Dollar Pit using existing pipelines until the end of the mining of Porphyry underground in December 2027.

The Enterprise Pit will initially be dewatered from a pontoon mounted pump located in the existing Enterprise Pit Lake, but when the base of pit reaches the base of the existing void, dewatering will be done from an in-pit sump at the base of the excavation.

Groundwater salinity around the Edjudina Expansion Project is expected to be in the range of 1,000 to 4,000 mg/L (Pennington Scott, 2023).

Modelling results indicate that Million Dollar pit has more than sufficient capacity to receive all discharge volumes (refer Figure 2). The calculated water level in this pit at the end of simulation will be around 322 mAHD, which is 41 metres below the allowable maximum fill level of 363 mAHD, and 6 metre below the pit crest (Pennington Scott, 2022).

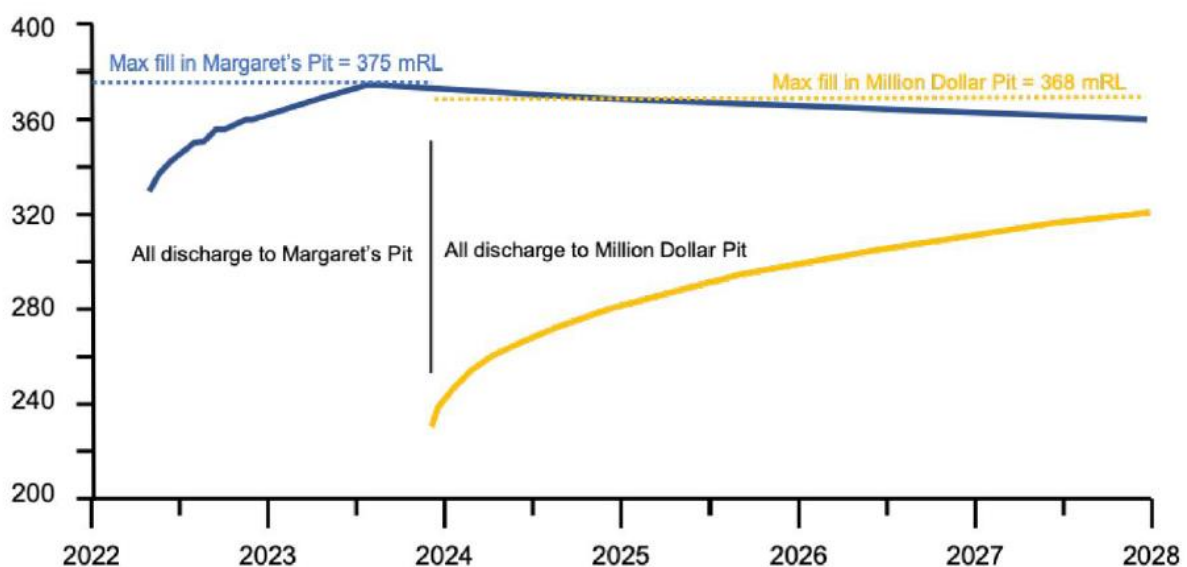


Figure 2: Million Dollar Pit Capacity (Pennington Scott, 2022)

Construction of Turkey's Nest

One turkey's nest will be constructed for excess mine water to be used for dust suppression and re-used for mining operations. The turkey's nest will be constructed so that it reduces the volume of fill material required (cut and fill) and be lined with HDPE plastic. A standpipe and pipeline/pumping infrastructure will also be installed.

The existing turkey's nest may also be used if required.

Landfill and fuel storage

Fuel storage and a class 1 inert landfill is required to support operations. The proposed areas for these items are shown in Figure 3. The Landfills will be constructed on the Enterprise Waste Rock Landform. The landfills will comprise of a trench measuring 25x5x4 meters, with only one cell to be operational at any given time.

The fuel storage at Enterprise will be constructed in the workshop laydown. It will consist of two double-skinned and self-bunded 110kl diesel tanks. Refer figure 3 for layout of the proposed infrastructure.

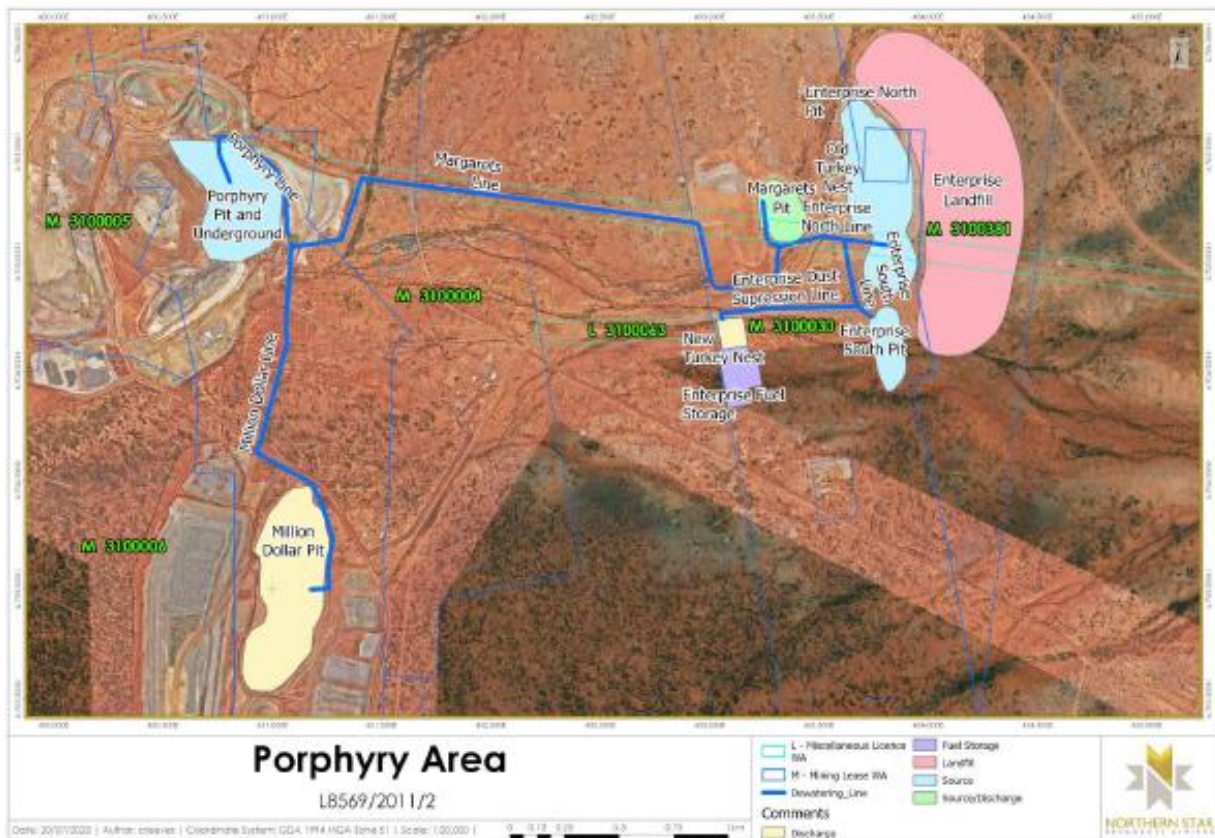


Figure 3: Enterprise Operations Proposed layout

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Earthworks to establish: Category 6 – Construction of turkey nest and pipelines Category 64 - construction of landfill trench Category 72 – Installation of fuel storage infrastructure	Air / windborne pathway	No construction controls proposed by applicant
Noise			
Operation			
Mine dewater (saline to hypersaline water)	Category 6 – Dewatering Operations (Discharging to Million Dollar, Eleven Bells and Redbrook pits)	Seepage leading to increased groundwater levels/salinity	<ul style="list-style-type: none"> Monthly groundwater level monitoring to be undertaken surrounding each pit during dewatering, with existing three bores monitored at each location and groundwater limit set at 4mbgl. Quarterly groundwater monitoring to be undertaken after cessation of dewatering Vegetation monitoring of surrounding vegetation Pumping will cease if standing water levels reach 4mbgl in monitoring bores
		Overtopping of mine dewater from pits	<ul style="list-style-type: none"> Daily Inspections to ensure that 6m freeboard maintained Crest bund around the entire Pit Prioritise Water Carts to use Porphyry water as opposed to Lake Rebecca water Modelling shows abundant capacity in Million Dollar Pit.
		Overtopping of turkey nest	<ul style="list-style-type: none"> 300 mm freeboard to be maintained Daily inspection to ensure freeboard of 300 mm maintained Turkey Nest will be controlled via automatic float valves.

Emission	Sources	Potential pathways	Proposed controls
		Rupture of pipelines	<ul style="list-style-type: none"> The pipelines will be inspected every 12 hours whilst in operation. secondary containment bunding will be installed on new pipelines to capture incidental spills as they may occur.
	Use of mine dewater for dust suppression within Wallbrook area	Direct discharge	<ul style="list-style-type: none"> None proposed. Existing licence condition 7 requires licence holder to use saline dewatering effluent for dust suppression in a manner that minimises damage to surrounding vegetation.
Leachate	Cat 64: Landfilling operation	Seepage	<ul style="list-style-type: none"> Constructed in waste rock dump so will be above ground to ensure distance between groundwater level and waste.
Windblown waste	Cat 64: Landfilling operation	Air/Windborne	<ul style="list-style-type: none"> Trench system will be used to minimise windblown waste Landfill to be within footprint of waste rock dump to ensure adequate depth of trench and encapsulation within waste rock structure
Hydrocarbon contamination	Category 72: Bulk storage of chemicals, etc.	Spills/leaks	<ul style="list-style-type: none"> Storage tanks to be self bunded Tanks to be fitted with smart fill key system Emergency bunding to be available on site

3.1.2 Receptors

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

Table 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 human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Nearest residential premises	Edjudina homestead is located approximately 7 km to east-south east. Screened out as sensitive receptor
Historic Yarra town site	Approximately 7.5 km to the east-north east and is current unoccupied Screened out as sensitive receptor.
Environmental receptors	Distance from prescribed activity
Threatened ecological communities	None identified. Screened out.

	<p>Calcretes may be present along margins of Lake Rebecca and it is possible that stygofauna may be present in non-saline lenses of water. No calcrete is present below standing ground-water table depths near Porphyry.</p>
Flora and Fauna	<p>No rare or priority flora species have been located in the Porphyry project area.</p> <p>Native vegetation is located within 100 metres of discharge pits, and proposed landfill and fuel storage construction areas.</p> <p>There are four species of bird listed as Threatened Species under the EPBC Act with the potential to occur within the Porphyry region (<i>Calidris ferruginea</i>, Curlew Sandpiper; <i>Leipoa ocellata</i>, Malleefowl; <i>Pezoporus occidentalis</i>, Night Parrot; and <i>Polytelis alexandrae</i>, Princess Parrot, Alexandra's Parrot).</p> <p>Seven species of bird are listed as migratory under the EPBC Act 1999 (Department of Agriculture, Water and the Environment, 2020).</p>
Surface Water Bodies	<p>Lake Rebecca intersects western boundary of premises. Lake Rebecca is an existing authorised discharge point.</p> <p>An ephemeral creek is located approximately 500 metres west of Enterprise Pit.</p>
Groundwater	<p>Groundwater quality varies throughout the Porphyry Project area ranging from brackish (less than 2,000mg/L TDS) near recharge areas (elevated bedrock at drainage divides and beneath sandy drainage channels) to hypersaline (up to 300,000mg/L TDS) associated with salt lake systems along palaeochannel drainage lines.</p> <p>Two private stock bores owned by the Edjudina Pastoral Station located within a ten-kilometre radius of the Wallbrook Pits, being PW25P (2 km SW of Redbrook Pit) PW24P (5 km SW of Redbrook Pit). Neither are considered to be within area of influence of dewatering activities.</p> <p>Data from the applicant's 2021 Annual Environmental Report indicates that groundwater at the Enterprise and Margaret's Pits is greater than 20 metres below ground level.</p>
Aboriginal Sites and Heritage Places	<p>Two current native title claims registered over the Porphyry project area</p> <ol style="list-style-type: none"> 1. Nyalpa Pirniku (WC2019/002) 2. Maduwongga (WD2017/001) neither have been currently determined. <p>DPLH online database revealed 2 registered Aboriginal heritage sites:</p>

	<p>1. RegID 19142 – Lake Rebecca (Mythological) – located 15km from Porphyry and Margaret’s pit</p> <p>2. RegID 2323 [W00916] – Porphyry Gold 2 (Artefacts/Scatter) –located approximately 500 metres north of Porphyry pit area</p> <p>Screened out as sensitive receptor</p>
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3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are 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 L8569/3022/3 that accompanies this decision report authorises emissions and construction associated with the operation of the premises i.e. Category 6, 63 and 72 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 construction and operation

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Category 6 – Construction of turkey nest and pipelines Category 64 - construction of landfill trench Category 73 – construction of fuel storage infrastructure	Dust	Pathway: Air / windborne pathway Impact: Smothering vegetation	Adjacent native vegetation	N/A	C = Unlikely L = Slight Low Risk	Y	Existing Condition 26: minimise dust emission from premises.	The Licence Holder already practices dust suppression activities on site under current licence conditions. The landfill will be constructed on the WRD and for short durations only. The Delegated Officer considers the risk of the emission to be low, and that no additional regulatory controls will be necessary.
Operation								
<u>Category 6 Enterprise Operations</u> – Discharge of mine dewater from Enterprise pits and Porphyry’s pit to Million Dollar pit <u>Category 6 Wallbrook operations</u> – Discharge of mine dewater to Eleven Bells Pit, Redbrook Pit and Red Flag Pit	Mine dewater (hypersaline)	Pathway: seepage through pit walls and base to groundwater Impact: mounding of GW into the root zone of the surrounding native vegetation causing stress or death and contaminating nearby pastoral bore quality	Native vegetation adjacent to receiving pits. Seasonal minor creek 500m west of Enterprise Pit Two private stock bores owned by the Edjudina Pastoral Station being PW25P (2 km	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 25: Freeboard of 6 metres conditioned for all four new receiving pits. Condition 30: emission monitoring Condition 33: Monitoring requirements of bore network and SWL limit	<u>Million Dollar Pit</u> Numerical groundwater modelling of the Million Dollar pit dewatering discharge activities carried out by Pennington Scott (2022) indicated that the calculated water level in the pit at the end of the dewatering discharge was found to be around 322 mAHD which is 46 meters below ground level and would remain lower than the surrounding water table, meaning that this pit would act as a groundwater sink. Groundwater mounding is therefore unlikely to impact native vegetation at the surface. No additional regulatory



Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
			SW of Redbrook Pit) PW24P (5 km SW of Redbrook Pit)				<p>controls will be required to manage this risk event and the applicants proposed control (freeboard) will be conditioned.</p> <p><u>Wallbrook Pits</u></p> <p>Numerical groundwater modelling of the Wallbrook pit dewatering activities carried out by Pennington Scott (2022) determined that the Wallbrook pits will act as groundwater sinks during the dewatering activities due to drawdown effects and that it is highly unlikely that the mining and water management activities at Wallbrook could cause any adverse impacts on the function or water quality of the nearby pastoral bores.</p> <p>It is also unlikely that groundwater mounding would occur that could impact vegetation at the ground surface due to the fact that the pits will act as a groundwater sink with groundwater flowing into the pits and not out.</p> <p>Therefore, it has been determined that additional regulatory controls (other than those proposed by the licence holder) are not required to manage this risk event.</p> <p>The licence holder has proposed a 6 meter freeboard for all pits and this will be conditioned on the licence.</p> <p>The licence holder has proposed to monitor standing water levels within existing groundwater monitoring bores</p>	



Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
								that surround the four new discharge pits and apply a limit of 4mbgl for standing water level. This has been conditioned within the licence.
<p><u>Category 6 – Enterprise and Wallbrook Operations</u> Discharge of mine dewater to Million dollar pit, Eleven Bells Pit, Redbrook Pit and Red Flag Pit</p>	Mine Dewater (saline)	<p>Pathway: overtopping of pit Impact: topsoil / creek line contamination and plant stress or death</p>	Impacts to surrounding vegetation and soil.	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 25: Freeboard of 6 metres conditioned for all four new receiving pits.	<p>Numerical groundwater modelling of the Million Dollar pit dewatering discharge activities carried out by Pennington Scott (2022) indicates that the million-dollar pit will have sufficient capacity to receive all discharge volumes from the Enterprise Pit and Porphyry pit/ underground. The calculated water level in the pit at the end of the modelled simulation was found to be around 322 mAHD which is 46 meters below ground level. In addition, the licence holder is proposing to maintain at least a 6 meter below crest level freeboard on million-dollar pit.</p> <p>Eleven bells and Redbrook Pits have been mined to a depth of between 70 to 90 m below ground level (mbgl). The current water level of the pit lake in both pits is approximately 60 mbgl (about 25 m lower than the pre-mining water table) (Pennington scott, 2023). The licence holder has committed to maintaining a 6 meter below crest freeboard on the Wallbrook pits and therefore it is unlikely that overtopping will occur.</p> <p>The six-meter freeboard proposed by the licence holder for all four new discharge pits will be conditioned on the licence.</p>



Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
New pipelines between Wallbrook pits and turkey's nest.	Mine Dewater (saline)	<p>Pathway</p> <p>Pipeline leaks/spills resulting in direct discharge to land</p> <p>Impact</p> <p>topsoil / creek line contamination and plant stress or death</p>	Impacts to surrounding vegetation and soil.	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	<p>Condition 19: construction requirements</p> <p>Existing condition 6 – pipeline requirements</p>	<p>The licence holder has stated that new dewatering pipelines will be located within secondary containment.</p> <p>To remain consistent with existing licence condition 6 - construction requirements for new pipelines have been conditioned to be:</p> <ul style="list-style-type: none"> a) equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures; b) equipped with automatic cut-outs in the event of a pipe failure; or c) provided with secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.
Overtopping of turkey's nests	Mine Dewater (saline)	<p>Pathway</p> <p>Overtopping of turkey's nests resulting in direct discharge to land</p> <p>Impact</p> <p>topsoil / creek line contamination and plant stress or death</p>	Impacts to surrounding vegetation and soil.	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	<p>Existing condition 8 – inspection requirements – turkey nest freeboards</p> <p>Condition 18 – containment infrastructure</p> <p>Condition 19: Infrastructure and equipment requirements (freeboard requirements)</p>	Applicant's controls have been conditioned.
Use of mine dewater for dust suppression at	Mine Dewater	Pathway	Impacts to surrounding	NA	C = Unlikely	Y	Condition 7: applicant to minimise damage	Existing condition 7 applies to the use of mine dewater within the Walbrook



Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Wallbrook operations area.	(saline)	Direct discharge to land Impact	vegetation and soil.		L = Slight Low Risk		to surrounding vegetation	operations area.
Cat 64: Landfilling operation	Leachate	Pathway: seepage from base of facility Impact: contamination of soil and groundwater	Groundwater	Refer to Section 3.1	C = Slight L = unlikely Low Risk	Y	Applicant controls conditioned: Condition 11: Table 2 Waste Management Conditions 12-17 – existing landfill conditions	The existing standard landfilling conditions on the licence have been updated to cover the two new landfill locations. Separation of base of landfill and highest groundwater level must be >2m to reduce risk of seepage interacting with groundwater
	Wind Blown Waste	Pathway: Air / windborne pathway Impact: disturbance to vegetation	Adjacent native vegetation	N/A	C = Slight L = unlikely Low Risk	Y	Condition 16- windblown waste is collected on a weekly basis	Existing conditions for managing windblown waste apply to the new landfill areas and adequately manage this risk event.
Category 73: Bulk storage of chemicals, etc.	Hydrocarbons	Pathway: contaminated stormwater runoff, seepage Impact: Contamination of soil or groundwater	Localised soils and nearby vegetation Groundwater	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Applicant controls conditioned: Condition 18 – 19: self bunded tanks	N/A

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

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

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Local Government Authority advised of proposal on 15 September 2023	No response was received from the Shire of Menzies. .	N/A
Applicant was provided with draft documents on 10/11/2023	Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that the application to renew licence L8569/2011/2 will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Northern Star Resources, Porphyry Gold Project, Licence Amendment – Supporting Documentation
2. Pennington Scott 2023, *Technical Memorandum, Edjudina Expansion Project (2023 Update) including Wallbrook*, Perth, Western Australia
3. Pennington Scott 2022, *Technical Memorandum, Edjudina Expansion Project (2022 Update) Water Management*, Perth, Western Australia

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

Condition	Summary of applicant's comment	Department's response
Condition 33	<p>Due to the close proximity of the pits, NSR propose to only have 3 Monitoring bores for the Wallbrook area to cover the 3 pits (2 pits once Redbrook and Elevenbells are combined). There are currently 2 existing bores which I have listed above. As dewatering starts a new bore will be drilled. The two existing holes will eventually be enveloped with the proposed pit and then a further 2 holes will be drilled. Locations haven't been determined yet however the placeholders are shown below. These locations are in close proximity to the pits with 2 of them being downstream of the pits so these will pick up any quality or SWL changes.</p>	<p>The Department has included a footnote to Table 13 stating that the monitoring bore locations in Figure 9 are indicative only. This provides flexibility to relocate monitoring bores as required in the Wallbrook area.</p> <p>The Department supports the proposal for three monitoring bores to cover multiple pits in the Wallbrook area.</p>
Condition 19	<p>The proposed landfill trench dimensions don't match what we are currently approved for in the existing licence – Can we please request 25x5x4, the same as the already approved one.</p>	<p>Condition 19, table 5 updated to permit landfill maximum trench of 25 x 5 x 4m</p>

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
preiAmendment to licence	<input checked="" type="checkbox"/>	Current licence number:	L8569/2011/1		
		Relevant works approval number:		N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:		None	<input type="checkbox"/>
Date application received		24 July 2023			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Northern Star Resources (Carosue Dam) Pty Ltd			
Premises name		Porphyry (Edjudina)			
Premises location		M31/3, M31/4, M31/5 & M31/6 (Expiry 29/03/2025), M31/30 (Expiry 07/10/2028), M31/76 (Expiry 11/08/2030), M31/380 & M31/381 (Expiry 14/02/2028), L31/44 (Expiry 02/07/2029), L31/59 (Expiry 02/11/2030), L31/62 (Expiry 27/06/2031), L31/63 (Expiry 22/12/2031), M31/172 (Expiry 06/01/2029)			
Local Government Authority		Shire of Menzies			
Application documents					
HPCM file reference number:		2011/005896-1			
Key application documents (additional to application form):		<i>Letter of authority</i> <i>Licence amendment – supporting documentation</i> <i>Technical Memorandum – Water Management</i>			
Scope of application/assessment					

<p>Summary of proposed activities or changes to existing operations.</p>	<p>Licence amendment, including:</p> <ul style="list-style-type: none"> • Disposal of mine water from Margaret’s Pit, Porphyry Pit and underground and Enterprise Pits to the Million Dollar Pit; • Add tenement M31/172 to the L8569 Prescribed Premises Boundary; • Disposal of mine water from between Eleven Bells Pit and Redbrook Pit; • Disposal of water from Red Flag into Eleven Bells and Redbrook Pit; • Add the existing Wallbrook Turkeys Nest (Pending Repair) to the Licence; and • Add the existing Enterprise Turkeys Nest (Pending Repair) to the Licence; • Additional Turkey Nest on M31/172 • Additional Turkey Nest on M31/30 • Fuel Storage on M31/172 • Fuel Storage on M31/30 • Class 1 Landfill within Wallbrook Waste Rock Dump on M31/172 • Class 1 Landfill within Enterprise Waste Rock Dump on M31/30
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Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Assessed production capacity	Proposed changes to the production or design capacity (amendments only)
Category 6: Mine Dewatering	1,000,000 tonnes per annual period	Water storage – mine pits, turkey’s nest
Category 64- Landfill	6,000 tonnes per annual period	<p>The Landfill will be constructed on the Wallbrook Waste Rock Landform and measure 8x2x2 metres</p> <p>Wallbrook is 10km south of the main mining operation and therefore additional Fuel Storage and a Class 1 inert landfill will be required to support operations at Wallbrook .</p>
Category 73- Fuel Storage	1,400 m3	The fuel storage at Wallbrook will be constructed in the workshop laydown. It will consist of two double-skinned and self-bunded 110kl diesel storage tanks

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No:
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under Part IV of the EP Act as a significant proposal?		Managed under Part V <input checked="" 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 type="checkbox"/> Expiry: 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 checked="" 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 checked="" type="checkbox"/> No <input type="checkbox"/>	CPS No: CPS 3202/4 clearing permit amendment application submitted to DMIRS for assessment
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
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"/>	Application reference No: Licence/permit No: GWL 169295(5)
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Type: Proclaimed Groundwater Area/Surface Water Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Regional office: Swan Avon / Mid-West Gascoyne / Kwinana Peel / North West / South West / Goldfields / South Coast
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: P1 / P2 / P3 / N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to <u>WQPN 25</u>)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>

<p>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>)</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises within an Environmental Protection Policy (EPP) Area?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>N/A</p>
<p>Is the Premises subject to any EPP requirements?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>N/A</p>
<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Date of classification: N/A</p>

