



Application for Works Approval

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

Works Approval Number W3085/2025/1

Applicant OzAurum Mines Pty Ltd

ACN 645 117 111

Internal Number INS-0003085

Application Number APP-0028893

Premises Mulgabbie North

Legal description

Within mining tenement M28/240.

As defined by the premises map attached to the issued works approval

Date of report 7 April 2026

Decision Works approval granted

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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, works approval W3085/2025/1 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 30 April 2025, OzAurum Mines Pty Ltd (the applicant), Line Hydrogen (Australia) Pty Ltd and BIM Metals Pty Ltd submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act). The application was submitted as a joint venture and a request for all parties to be listed as the holder of the works approval was requested. The application was resubmitted to the department on 26 August 2025 requesting that the sole holder of the works approval was to be OzAurum Mines Pty Ltd.

The application is to undertake construction and time-limited operations (TLO) of a heap-leach pad and a crushing and screening plant at the premises. The premises is approximately 110 km northeast of Kalgoorlie-Boulder. The proposed operation is a trial to allow further metallurgical research to occur to determine and ensure future project feasibility prior to commencing a larger operation.

The premises relates to the categories and assessed production capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W3085/2025/1. 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 2020a) are outlined in works approval W3085/2025/1.

The following categories have been applied for:

- Category 5: Processing or beneficiation of metallic or non-metallic ore: premises on which (a) metallic or non-metallic ore is crushed, ground, milled or otherwise processed; and
- Category 7: Vat or in situ leaching of metal: premises on which metal is extracted from ore with a chemical solution.

2.2.1 Category 5: Crushing, screening and agglomeration

The applicant has proposed an estimated throughput for category 5 activities to be 150,000 tonnes per annum (tpa) while the design capacity of the infrastructure is approximately 250,000 tpa. As category 7 activities maximum production and estimated (actual) throughout is 150,000 tpa the department has assessed category 5 activities at the nominated throughput of 150,000 tpa.

Ore extracted from the open pits will be hauled by trucks and stockpiled on a run-of-mine (ROM) pad. The ore will be loaded into a feed bin and crushed by a primary jaw crusher and then a cone crusher. The ore will be screened by a 12 mm seizing screen; oversize material will be recirculated for further crushing (Figure 1).

The crushed material will enter the agglomeration drum where lime and cement will be added to assist in the aggregation of fines and improve percolation. The lime and cement will be stored in

bulk storage silos (100 m³ and 220 m³ respectively) and will be refilled via road trains at appropriately engineered transfer points.

After agglomeration the material will be transported from the ROM pad to the heap leach pad via trucks and deposition of ore to the heap leach pad will be facilitated via an excavator (Figure 2).

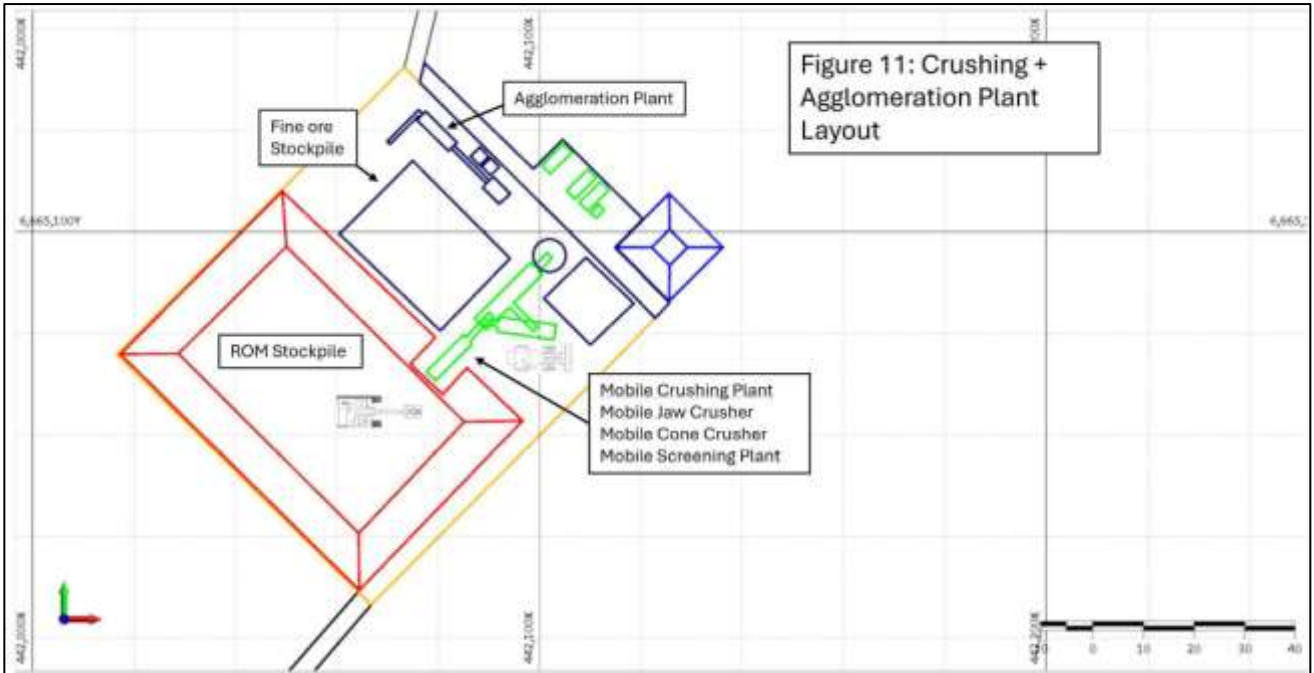


Figure 1: ROM pad design configuration (Astill 2026)

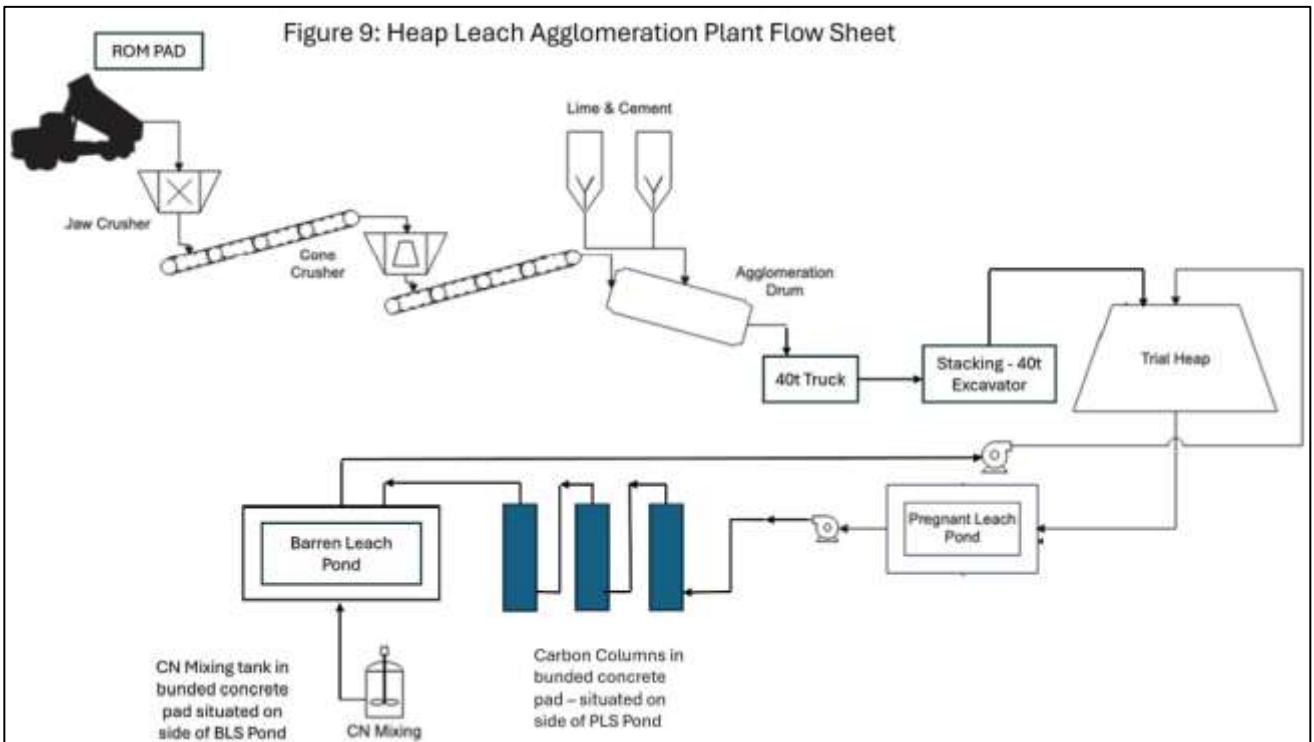


Figure 2: Process Flowchart (Sourced from Astill 2026)

2.2.2 Category 7: Heap leaching pad and ponds

Heap leach pad

Preparation works will include earthworks using a dozer to establish suitable ground gradients that direct surface water and leachate toward the perimeter drains of the heap leach pad. The base of the pad will be compacted using rollers and subsequently lined with a 2 mm high-density polyethylene (HDPE) liner designed to achieve a permeability of 3.5×10^{-9} m/s. This liner will cover the entire pad surface, including the perimeter drains and bunds, and will be securely anchored into the outer bunds (Figure 3 and Figure 5).

The heap leach pad will comprise of a single cell covering approximately 1 hectare (ha). Ore will be stacked to a height of roughly 12 m, with the pad designed to contain about 60,000 m³ (approximately 150,000 tonnes) of material (Astill 2025a).

Cyanide will be used as the primary leaching reagent, with hydrochloric acid and caustic soda added as required to maintain pH conditions that optimise cyanide stability, gold dissolution, and impurity behaviour. All chemicals will be transported to the premises and stored in purpose-built tanks located within concrete bunds.

Cyanide solution will be conveyed from the storage tank to a sprinkler distribution system via pipelines for application across the heap leach pad. Leachate generated within the pad will drain towards the constructed perimeter trenches and flow to the northeastern trench before being directed to the pregnant liquor solution (PLS) pond through buried pipelines (Figure 4).

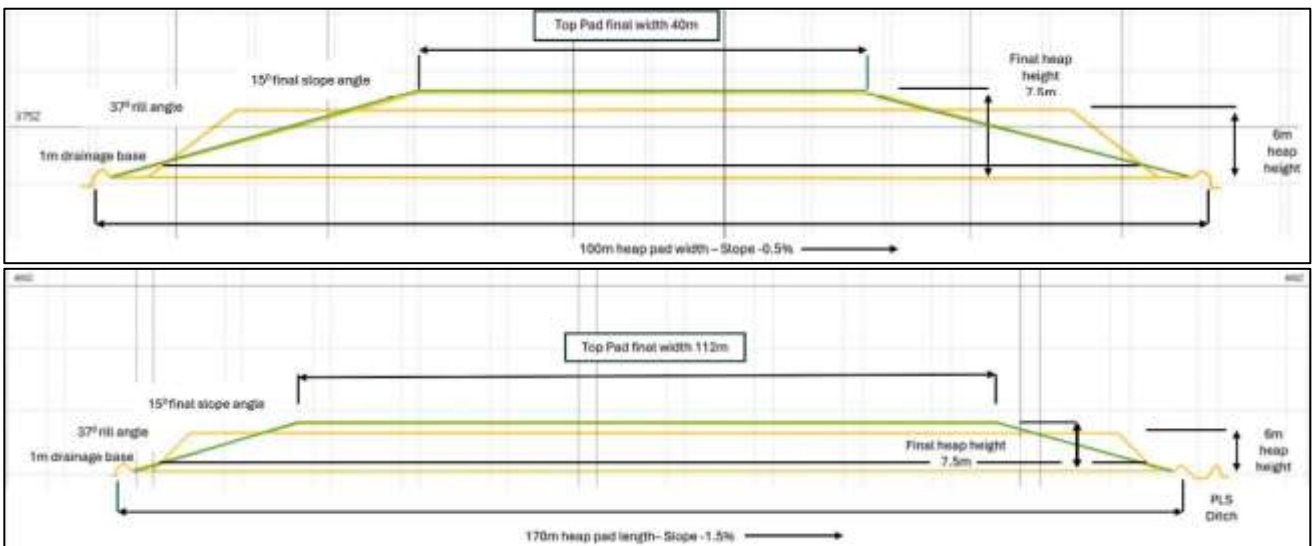


Figure 3: Heap Leach Pad short cross section (top) and long cross section (bottom), (Sourced Astill 2026)

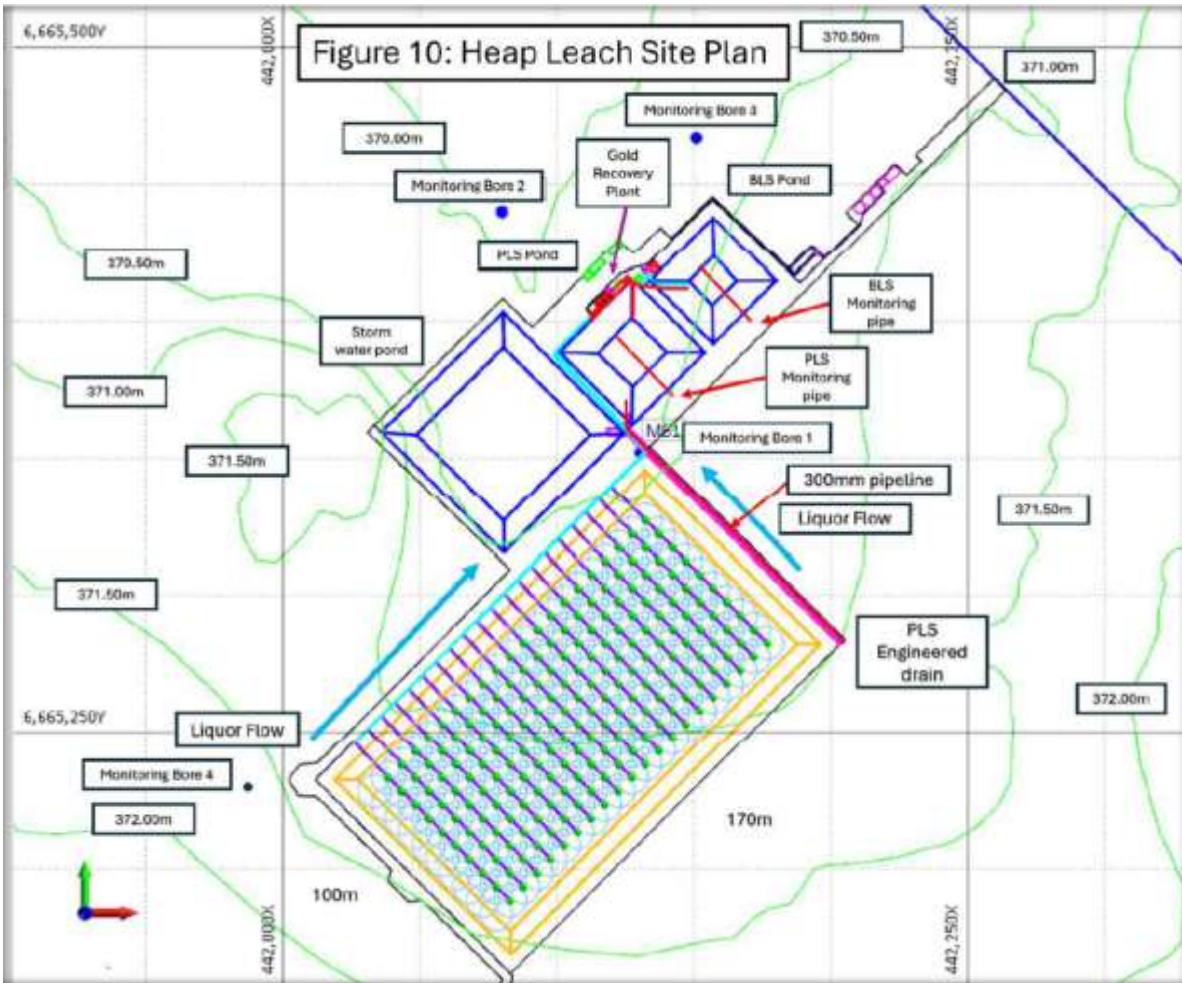


Figure 4: Heap leach pad and ponds (Astill 2026)

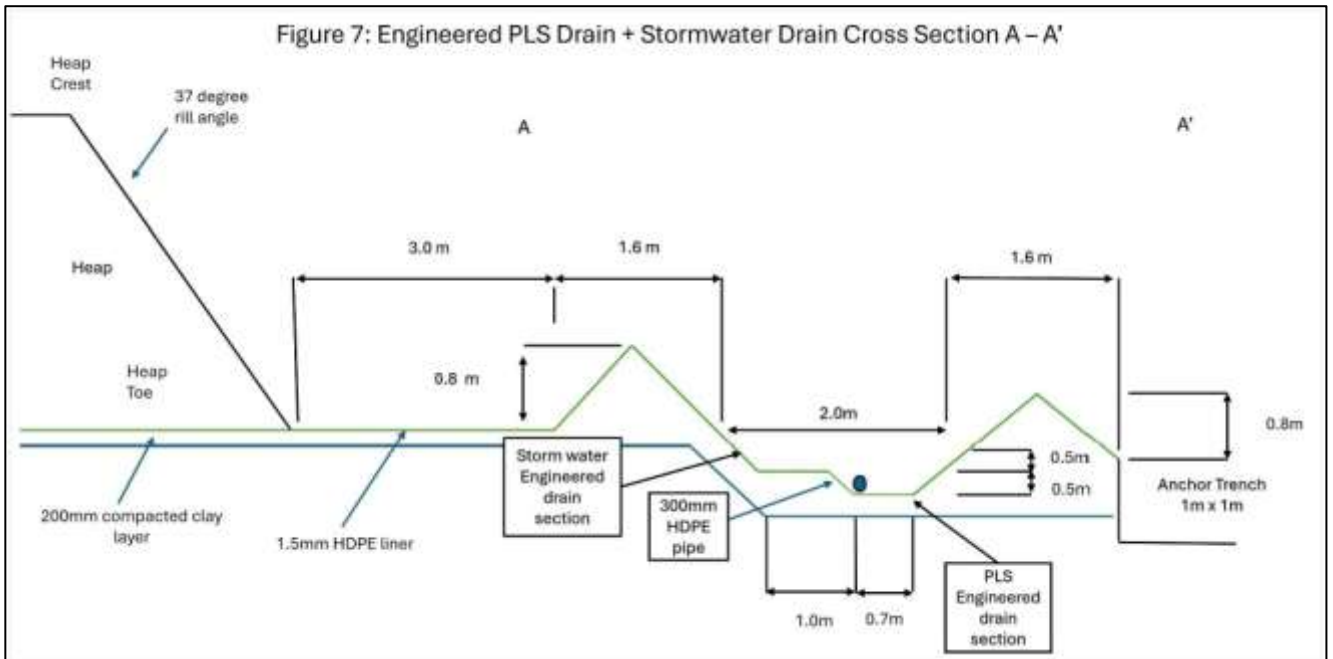


Figure 5: Stormwater engineers drain section (Sourced from Astill 2026).

Process Ponds

In the initial application, a single processing pond, referred to as the Pregnant Liquor Pond, was proposed to store pregnant liquor, barren liquor, and stormwater within an area of 0.2 hectares, with a holding capacity of approximately 8,238 m³.

Several improvements were recommended by another entity to enhance gold recovery. In response, the applicant has amended the proposal to include three separate ponds, each designated for pregnant liquor, barren liquor, and stormwater respectively. Segregating these streams is intended to minimise potential operational errors associated with an integrated pond design and to improve overall management. These changes are considered to enhance gold recovery and operational efficiency, and the applicant advises that this configuration reflects standard practice for heap leach facilities in Western Australia. The revised pond layout is presented in Figure 4, with updated pond areas and capacities provided in Table 1.

The pregnant liquor pond and barren liquor pond will be double-lined with HDPE, separated by a sand or geonet layer. A monitoring pipe will be installed between the two liners to allow early detection of any leakage from the primary liner.

Table 1: Pond specifications (Sourced from Astill 2025b)

Pond	Area (ha)	Capacity (m ³)
Pregnant liquor	0.14	2,850
Barren liquor	0.11	1,885
Stormwater	0.39	9,450

2.2.3 Gold recovery infrastructure

Pregnant solution will be transferred from the pregnant liquor pond to the carbon columns located within the fenced gold recovery area. Gold will be extracted through carbon adsorption, after which the loaded carbon will be eluted to produce a higher-grade solution. This solution will circulate from the elution tank through direct electrowinning cells. Following electrowinning, the material will be processed through a thickener and filter before being refined into gold dorés.

The gold recovery plant will be situated within a concrete-bunded area and will include high-security zones, with the gold room and associated infrastructure enclosed by a perimeter fence. A summary flowchart of the operation is presented in Figure 2.

2.2.4 Groundwater use

Water for processing activities and dust suppression will be sourced from an existing production bore and transported to the premises via an approximately 1 km pipeline. The pipeline will be placed within a 1 m-deep V-drain and will include eight scour pits along the route between the bore and the premises. Water will also be used for dust suppression via a water cart filled from a standpipe.

Extraction of groundwater is authorised under licence GWL211650(1), granted to the applicant on 26 March 2025 under section 5C of the *Rights in Water and Irrigation Act 1914*. The licence permits groundwater extraction of up to 450,000 kL. While GWL211650(1) authorises dewatering for mining purposes, the applicant has advised that groundwater will not be discharged to the environment. Should groundwater be discharged in the future, a Category 6 approval will be required for those mining activities.

The department does not consider groundwater extraction or transport to constitute a prescribed activity and therefore has not included these components within the risk assessment in Section 3. However, the department has considered the implications of using high-salinity groundwater for dust suppression and processing activities within the overall risk assessment.

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 2020a).

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 TLO which have been considered in this decision report are detailed in Table 2 below. Table 2 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 2: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Placement of screen and associated equipment including vehicle movements (reversing beepers). Construction and earthworks for heap leach pad, pregnant liquor pond and supporting infrastructure (hydrochloric acid, caustic soda, cement, lime and cyanide tanks/silos).	Air / windborne pathway	<ul style="list-style-type: none"> Dust suppression via water cart.
Noise		Air / windborne pathway	<ul style="list-style-type: none"> None proposed.
Time Limited Operation			
Dust	Crushing, screening agglomeration	Air/windborne pathway	<ul style="list-style-type: none"> Dust suppression via water carts to be used on crushing circuit as required;

Emission	Sources	Potential pathways	Proposed controls
Sediment laden stormwater	operations, loading, unloading, storage of material, and transporting material.	Surface water runoff from stockpile material transporting sediment laden stormwater to receptors.	<ul style="list-style-type: none"> None proposed.
Noise		Air/windborne pathway.	<ul style="list-style-type: none"> None proposed.
Dust	Stacking / depositing ore on the heap leach pad.	Air/windborne pathway.	<ul style="list-style-type: none"> Approximate height of deposition will be 12 m.
Sediment laden / contaminated stormwater	Operation of heap leach pad including spraying and drainage / solution collection.	Rainfall event generating overland runoff and infiltration.	<ul style="list-style-type: none"> Perimeter drain surrounding the heap leach pad will also act as surface water management to capture runoff from the heap leach during rainfall events; and A perimeter bund will surround the entire heap leach pad and drain preventing contamination of clean stormwater.
Process solution (including cyanide)		<p>Air/windborne pathway and overland runoff from over spraying.</p> <p>Seepage/leakage through base, embankments and/or trench to soil or groundwater via HDPE liner failure, cracking or poor installation.</p>	<ul style="list-style-type: none"> Sprinkler irrigation system used to spray over the ore pile.
			<ul style="list-style-type: none"> Prior to construction ground assessed for any oversize or sharp material and will be removed, dips in groundwater level will be filled with waste rock material; Soil base of heap leach pad compacted & lined with 2 mm HDPE to minimum permeability of 3.5×10^{-9} m/s; 1 m thick layer of sand/gravel/course rock installed above the HDPE liner to prevent damage and act as a drainage layer; Tests to occur on the liner once installed including: a high load puncture test, high load permeability test; and a high load interface shear test; and Construction of four groundwater monitoring bores and followed by

Emission	Sources	Potential pathways	Proposed controls
			groundwater sampling and analysis including monthly testing for SWL, pH, EC and weak acid dissociable (WAD) cyanide.
Process water / contaminated liquids	Operation of pregnant liquor pond and barren liquor pond.	Overtopping of ponds.	<ul style="list-style-type: none"> • Maintain minimum operating freeboard of 0.5 m for pregnant liquor pond and barren liquor pond; • Daily visual inspection of freeboard and pond integrity; and • Engineered drainage system design to automatically divert stormwater to the stormwater pond if high flow is received.
		Seepage/leakage through base and embankments to soil or groundwater via liner failure, cracking or poor installation.	<ul style="list-style-type: none"> • Base comprised of hypernet sandwiched between a top layer of 1.5 mm HDPE textured liner and a bottom layer of 1 mm smooth HDPE liner to maintain a minimum permeability of 3.9×10^{-9} m/s with a layer of sand between the two HDPE liners; • Monitoring pipe installed between the two HDPE liners monitor any potential leakage and will be responded to by dewatering the pond and repairing/replacing the liner; • Groundwater sampling and analysis of four monitoring bores includes monthly testing for SWL, pH, EC and WAD cyanide; and • The pond will be below ground with crests constructed using competent earthen material.
		Direct contact exposure/ingestion.	<ul style="list-style-type: none"> • Natural groundwater is hypersaline with a TDS of more than 150,000 mg/L.
Stormwater / contaminated liquids	Operation of stormwater pond.	Overtopping of stormwater pond.	<ul style="list-style-type: none"> • Stormwater pond designed to consider a 1:100 year 72-hour event at 193 mm; and • Daily visual inspection of freeboard and pond integrity.
		Seepage/leakage through base and embankments to soil or groundwater via liner failure,	<ul style="list-style-type: none"> • Stormwater pond base will be compacted with insitu materials; and • Groundwater sampling and

Emission	Sources	Potential pathways	Proposed controls
		cracking or poor installation.	analysis of four monitoring bores includes monthly testing for SWL, pH, EC and WAD cyanide.
Storage of chemicals and hydrocarbons onsite, refuelling operations	Diesel or chemical compounds.	Spills or leaks leading to overland runoff and infiltration.	<ul style="list-style-type: none"> Lime and cement will be stored in purpose built bulk storage silos; Cyanide, hydrochloric acid and caustic soda will be transported and stored on site in purpose-built tanks situated within concrete bunds; Gold recovery plant located within a concrete bunded area and Storage and handling will be carried out in accordance with the <i>Dangerous Goods Safety Act 2004</i>.
Hypersaline groundwater	Dust suppression activities.	Air/windborne pathway and overland runoff from over spraying.	<ul style="list-style-type: none"> None proposed

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020a), 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 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 2020b)).

Table 3: Sensitive human and environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Native vegetation	<p>Sparse native vegetation adjacent to the heap leach pad, pregnancy liquor pond and adjacent to the proposed premises boundary.</p> <p>Clearing is proposed within the entirety of mining tenement M 28/240 and therefore for the purpose of the risk assessment spatial distances from the activity to the receptor will extend to native vegetation located outside of mining tenement M 28/240.</p>
Native fauna	Native fauna is expected to be within the larger mining area and potentially within the adjacent native vegetation.

<p>Vulnerable fauna (Malleefowl)</p>	<p>Five malleefowl (<i>Leipoa ocellara</i>) nesting mounds have been observed during field surveys within the prescribed premises boundary and were observed throughout the broader area (Astill 2025).</p>
<p>Underlying groundwater (non-potable purposes)</p>	<p>Groundwater is hypersaline and has an approximate TDS of 150,000 mg/L. Groundwater within the area is located approximately 20 mbgl.</p> <p>Groundwater gradient is assumed to flow towards a northeasterly direction towards lake Rebecca located approximately 7.3 kms northeast of the premises boundary.</p>
<p>Water lines</p>	<p>Drainage lines appear to be present at approximately 1.2 kms east of the premises boundary. It noted however that these drainage lines appear to be at a higher elevation than the prescribed premises.</p> <p>Water lines lead to Lake Rebecca which is approximately 6.8 kms from the premises boundary.</p> <p>.</p>
<p>Surrounding soils</p>	<p>Surrounding soils adjacent and within the premises boundary.</p>

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020a) 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 works approval 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 4.

Works approval W3085/2025/1 that accompanies this decision report authorises construction time-limited operations. The conditions in the issued works approval, as outlined in Table 4 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises i.e. heap leach activities and crushing and screening. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 4: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls / comments
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Placement of screen and associated equipment including vehicle movements (reversing beepers). Construction and earthworks for heap leach pad, pregnant liquor pond and supporting infrastructure (hydrochloric acid, caustic soda, cement, lime and cyanide tanks/silos).	Dust	Pathway: Air/windborne pathway Impact: Deterioration of surrounding native vegetation	• Native vegetation	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	Condition 1: Dust suppression requirement.	It is expected that some dust emissions will occur during construction activities, however, given the duration of the activities and the applicant's proposed controls it is considered that the risk to surrounding receptors will be low. No regulatory controls have been considered necessary on the works approval to control dust emissions during construction activities.
	Noise	Pathway: Air/windborne pathway Impact: Malleefowl mound abandonment	• Malleefowl		C = Slight L = Unlikely Medium Risk	Y	N/A	The department acknowledges that the initial native vegetation clearing will clear up to 10 hectares for the trial and initial clearing will be limited to mining tenement M28/240. Malleefowl and Malleefowl mounds cleared as a result of the authorised native vegetation clearing is not considered a receptor for the construction of the infrastructure and is outside the scope of this risk assessment. However, any Malleefowl or Malleefowl mounds located within native vegetation that is not cleared are considered a receptor for operation / construction. The department has reviewed the tenement conditions for M28/240 and the clearing permit (CPS11101) and considers that these conditions are appropriate to prevent potential impacts to Malleefowl mounds during the construction of the infrastructure. Adherence to these conditions will result in a separation distance of plant infrastructure to be greater than 50 m to any Malleefowl mound with a more likely separation distance of 100 m is more likely.
Time-limited operations								
Category 5: Crushing, screening and agglomeration								
Crushing, screening agglomeration operations, loading, unloading, storage of material, and transporting material.	Dust	Pathway: Air/windborne pathway Impact: Deterioration of surrounding native vegetation	• Native vegetation	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	Condition 14: Dust suppression requirements	N/A
	Sediment laden stormwater	Pathway: Surface water runoff from stockpile material transporting sediment laden stormwater to receptors. Impact: Sediment overburden on receptors or increase metals concentrations on surrounding receptors.	• Native vegetation		C = Minor L = Unlikely Medium Risk	N	Condition 1: Construction of bunds/trenches; and Condition 14: bunds/trenches maintained.	The applicant has not proposed any controls regarding the management of stormwater runoff from the ROM pad. To prevent contaminated stormwater runoff from within the ROM area entering the environment the department has added a regulatory requirement for the applicant to construct bunds or trenches around the ROM pad. An operational requirement has also been included in the works approval to ensure these bunds or trenches are effectively maintained during TLO activities.
	Noise	Pathway: Air/windborne pathway Impact: Malleefowl mound abandonment	• Malleefowl		C = Minor L = Unlikely Medium Risk	Y	N/A	The department has reviewed the tenement conditions for M28/240 and the clearing permit (CPS11101) and considers that condition are appropriate to prevent potential impacts to Malleefowl mounds during the time-limited operations of the infrastructure. Adherence to these conditions will result in a separation distance of plant infrastructure to be greater than 50 m to any Malleefowl mound with a more likely separation distance of 100 m is more likely.
Category 7: Heap leaching facility and associated infrastructure								
Stacking / depositing ore on the heap leach pad.	Dust	Pathway: Air/windborne pathway Impact: Deterioration of surrounding native	• Native vegetation	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls / comments	
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood				
		vegetation							
Operation of heap leach pad including spraying and drainage / solution collection.	Sediment laden / contaminated stormwater	<p>Pathway: Rainfall event generating overland runoff and infiltration.</p> <p>Impact: Deterioration of soil health with consequent impact to surrounding vegetation and fauna.</p>	<ul style="list-style-type: none"> Surrounding soils Native vegetation Water lines (1.2 km) 	Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	Y	<p>Condition 2: Construction of drain/bund around the heap leach pad preventing offsite stormwater from entering the facility and construction of drain to capture stormwater generated from the heap leach pad; and</p> <p>Condition 14: Bund drain/maintained.</p>	<p>The department considers the applicant's proposed stormwater management controls to be acceptable.</p> <p>As outlined previously in section 3.1.2, surface water drainage lines are located approximately 1.2 km east of the heap leach pad and ponds, these drainage lines appear to be situated at a higher elevation than the pad infrastructure. This elevation difference further reduces the likelihood that any spills or leaks would migrate toward the receptor.</p>	
	Process solution (including cyanide)		<p>Pathway: Air/windborne pathway and overland runoff from over spraying.</p> <p>Impact: Contamination or degradation of receptors.</p>	<ul style="list-style-type: none"> Native vegetation Surrounding soils 	Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	N	<p><u>Condition 14: Maximum operating height and sprinkler irrigation requirement; and</u></p> <p><u>Condition 15: Inspection requirements.</u></p>	<p>No controls have been presented, other than the use of a sprinkler irrigation system, have been proposed to prevent overspray. To minimise the spread of emissions and reduce the potential impacts associated with overspray, the department has imposed a condition requiring that spray from the sprinkler irrigation system must not drift beyond the boundaries of the heap leach pad. Daily inspections of the heap leach pad are also required to identify and address any potential overspray.</p> <p>The department considers these operational requirements appropriate and effective in preventing and reducing the likelihood of impacts on surrounding native vegetation and soils.</p>
				<ul style="list-style-type: none"> Native vegetation Surrounding soils 		C = Minor L = Unlikely Medium Risk	N	<p><u>Condition 2: HDPE liner installation and specification requirements;</u></p> <p><u>Condition 8: Calculation of groundwater flow direction;</u></p> <p><u>Condition 15: Inspection requirements; and</u></p> <p><u>Condition 19: Groundwater monitoring requirements.</u></p>	<p>HDPE Liner</p> <p>The department considers that the proposed liner and construction methodologies (liner anchored via outside embankments) are suitable and the department acknowledges that the applicant has proposed high load puncture test, high load permeability test and high load interface shear test to occur on the liner for the heap leach pad. However, given the key role of the lining in limiting seepage and the potential for contamination of groundwater to occur, a lining installation procedure (including quality assurance testing (Schedule 3 of W3085/2021/1) and a lining testing methodology with passing rates must be undertaken including shear elongation. These requirements have been added to the works approval as part of condition 2, which outlines the construction requirements of the critical containment infrastructure.</p> <p>Monitoring Bores</p> <p>The applicant has proposed installing four monitoring bores surrounding the head leach operations (Figure 4). The applicant has proposed to conduct monthly monitoring for standing water level (SWL), pH, electrical conductivity and WAD cyanide.</p> <p>The department considers that the proposed bore locations are likely to be suitable to monitor potential impacts during the TLOs. The department has included an additional requirement for the bores to be surveyed to enable the determination of the groundwater flow direction. The calculated groundwater flow direction is required to be submitted within the Critical Containment Infrastructure Report (CCIR) as required within condition 8 along with baseline ambient environmental conditions to enable the collection of additional data and confirm that that bores are appropriately located.</p> <p>The department considers it suitable to include additional groundwater monitoring parameters as only general water parameters and WAD cyanide have been proposed. The department has added additional monitoring analytes to the groundwater monitoring suite to identify if potential seepage is entering the groundwater from the heap leach operation. The department has included quarterly monitoring requirements for arsenic, cadmium, chloride, chromium, cobalt, copper, iron, lead, magnesium, nickel, sulphate and zinc to the monitoring suite.</p>
				<p>Pathway: Seepage/leakage through base, embankments and/or trench to soil or groundwater via liner failure, cracking or poor installation.</p> <p>Impact: Contamination of soil and/or groundwater leading to a reduction of health of receptors.</p>		<ul style="list-style-type: none"> Groundwater 	C = Moderate L = Unlikely Medium Risk		
Operation of pregnant liquor pond and barren liquor pond.	Process water / Contaminated liquids	<p>Pathway: Overtopping of ponds.</p> <p>Impact: Contamination or reduction of health of receptors.</p>	<ul style="list-style-type: none"> Native vegetation Surrounding soils 	Refer to Section 3.1.1	C = Moderate L = Rare Medium Risk	Y	<p>Condition 2: Stormwater redirection pipeline installed;</p> <p>Condition 14: Freeboard operation height; and</p> <p>Condition 15: Freeboard</p>	<p>Annual average rainfall within the area is 265.8 mm, with a mean of 39.2 days of rain per year (rainfall is recorded >1 mm). Rainfall is highest in February at 31.8 mm and lowest in September at 13.4 mm (Astill 2025).</p> <p>Based on the Rainfall intensity-frequency-duration (IFD) (BoM 2026) chart for latitude 30.1375 S and longitude 122.3875 E a 1:100-year annual exceedance probability, 72-hour storm event is expected to generate approximately 193</p>	

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls / comments
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
							inspection requirement.	mm of rainfall. The applicants proposed minimum operating freeboard for the pregnant liquor pond and barren liquor pond is 0.5 m below the crest (Table 2). The department considers the adoption of this freeboard is considered sufficient to contain the 1 in 100 year 72-hour rainfall event and prevent potential impacts to receptors.
		<p>Pathway: Seepage/leakage through base and embankments to soil or groundwater via liner failure, cracking or poor installation.</p> <p>Impact: Contamination of soil and/or groundwater leading to a reduction of health of receptors.</p>	<ul style="list-style-type: none"> Native vegetation Surrounding soils Water lines Groundwater 		C = Moderate L = Unlikely Medium Risk	N	<p>Condition 2: HDPE liner installation and specification requirements;</p> <p>Condition 8: Calculation of groundwater flow direction;</p> <p>Condition 15: Inspection requirements;</p> <p>Condition 19: Pond internal monitoring pipe and groundwater monitoring requirements; and</p> <p>Condition 20: Management actions.</p>	<p>The department considers the double layered liner consisting of two 1.5 mm thick HDPE liners with a layer of sand or geonet between the two liners is appropriate to reduce the likelihood of impacts to the receptors.</p> <p>The addition of the proposed monitoring pipe that is to be installed between the two HDPE liners to monitor if impacts to the inner HDPE liner creates a further additional control to prevent potential impacts occurring. The applicant has proposed that the monitoring of these pipelines will occur periodically, the department has included a requirement to monitor if there is liquid within the pipes weekly.</p> <p>As mentioned previously the department has included additional analytes that require quarterly sampling within the monitoring bores to identify if seepage could potentially be occurring.</p>
		<p>Pathway: Direct contact exposure/ingestion.</p> <p>Impact: Contamination or reduction of health of receptors.</p>	<ul style="list-style-type: none"> Native fauna (birds) 		C = Moderate L = Rare Medium Risk	Y	N/A	The department considers that any standing water that is present within the ponds are assumed to be of a high TDS resulting in the water to be unpalatable to fauna. The natural hypersaline groundwater used for the heap leach pad operations is likely to act as a natural barrier from nearby surrounding fauna coming on to the premises to consume the water. As such, the department considers impacts to nearby fauna (birds) to be rare.
Operation of stormwater pond.	Stormwater / contaminated liquids	<p>Pathway: Overtopping of stormwater pond.</p> <p>Impact: Contamination or reduction of health of receptors.</p>	<ul style="list-style-type: none"> Native vegetation; Surrounding soils 	Refer to Section 3.1.1	C = Minor L = Rare Low Risk	Y	<p>Condition 14: Freeboard operation height; and</p> <p>Condition 15: Freeboard inspection requirement.</p>	<p>Annual average rainfall within the area is 265.8 mm, with a mean of 39.2 days of rain per year (rainfall is recorded >1 mm). Rainfall is highest in February at 31.8 mm and lowest in September at 13.4 mm.</p> <p>Based on the rainfall intensity-frequency-duration (IFD) chart for latitude 30.1375 S and longitude 122.3875 E, a 1:100-year annual exceedance probability, 72-hour storm event is expected to generate approximately 193 mm of rainfall.</p> <p>The applicants proposed minimum operating freeboard for the stormwater pond is 0.5 m below the crest (Table 2). The department considers the adoption of this freeboard is considered sufficient to contain the 1 in 100 year 72-hour rainfall event and prevent potential impacts to receptors.</p>
		<p>Pathway: Seepage/leakage through base and embankments to soil or groundwater via liner failure, cracking or poor installation</p> <p>Impact: Contamination of soil and/or groundwater leading to a reduction of health of receptors.</p>	<ul style="list-style-type: none"> Native vegetation; Surrounding soils Groundwater 		C = Minor L = Unlikely Medium Risk	N	<p>Condition 2: HDPE liner installation and specification requirements;</p> <p>Condition 15: Inspection requirements; and</p> <p>Condition 19: Groundwater monitoring requirements.</p>	<p>The purpose of the stormwater pond is to capture stormwater runoff from around the heap leach pad. As depicted in Figure 5 the same drainage system used to capture the leachate from the heap leach pad will also capture and transport the stormwater. The intention of the engineered drain is when the water levels are greater than 0.5 m from the base of the pipeline leading to the pregnant liquor pond (i.e. during heavy rainfall events) the stormwater will flow towards the stormwater pond.</p> <p>It has been proposed that the pond will be constructed using competent earthen materials and the base of the pond will be compacted. The department does not consider it suitable for the stormwater pond to be unlined as the runoff may contain process solution from the heap leach operations. As a result, the department has made a requirement for the stormwater pond to be lined with a single 1.5 mm HDPE liner. The liner must be installed in the same manner as the pregnant and barren liquor pond including the same testing and construction methodology.</p>
Storage and transport of chemicals and hydrocarbons onsite, refuelling operations.	Diesel or chemical compounds	<p>Pathway: Spills or leaks from pipelines or containment infrastructure leading to overland runoff and infiltration.</p> <p>Impact: Contamination or reduction of health of receptors.</p>	<ul style="list-style-type: none"> Native vegetation Surrounding soils Groundwater Water lines 	Refer to Section 3.1.1	C = Minor L = Unlikely Medium Risk	N	<p>Condition 1: Bunded construction requirements and maximum capacity of storage silos;</p> <p>Condition 15: Inspection of pipelines; and</p> <p>Condition 16: Pipeline secondary containment.</p>	<p>The department has included an additional regulatory requirement requiring that pipelines containing environmentally hazardous substances are inspected daily and be provided with secondary containment capable of holding any potential spill for at least the duration between routine inspections.</p> <p>No other regulatory controls are required as the <i>Environmental Protection (Unauthorised Discharge) Regulations 2004</i> and <i>Dangerous Goods Safety Act 2004</i> apply.</p>

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls / comments
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
							<u>requirement.</u>	
Dust suppression activities.	Hypersaline groundwater	Pathway: Air/windborne pathway and overland runoff from over spraying. Impact: Contamination or reduction of health of receptors.	<ul style="list-style-type: none"> • Native vegetation • Surrounding soils 	Refer to Section 3.1.1	C = Minor L = Unlikely Medium Risk	N	<u>Condition 17: Dust suppression overspray prevention requirement.</u>	The proposed use of groundwater for dust suppression has the potential to impact the surrounding native vegetation if overspray comes into contact. As a result, the department has included an additional condition to require dust suppression activities to minimise spray draft onto the surrounding native vegetation.

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

Note 2: Proposed applicant 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. The department notes that offsite activities (transport of materials), emergency management, vegetation clearing, staff safety or infrastructure outside of the prescribed activities (potable water) is outside the scope of this works approval application.

Table 5: Consultation

Consultation method	Comments received	Department response
<p>Application advertised on the department's website on 8 October 2025 and 7 January 2026.</p>	<p>Two comments were received by one stakeholder during both advertisement periods. The department has considered both submissions and has summarised the comments below:</p> <ol style="list-style-type: none"> 1. The addition of hydrochloric acid may create localized acidic micro-environments that accelerate cyanide persistence. Geochemical modelling predicting speciation under varying conditions should be conducted to ensure cyanide will not persist in groundwater beyond acceptable thresholds; 2. The commentor has addressed concerns over the long-term integrity of the HDPE liner post-construction. Independent verification and integrity testing should occur and a contingency plan for liner breach should be included within the works approval; 3. Hydraulic modelling of a design storm (1:200-year event) should be provided to demonstrate that the bunds, drains and pond overflow can convey excess water without overtopping. Contingent spill containment measures should be outlined; 4. Groundwater monitoring: <ol style="list-style-type: none"> a. Does not capture lateral hydraulic gradients that could transport contamination towards Lake Rebecca; b. Should include six monitoring bores instead of four; c. Should include additional analytes and monitoring frequency should be increased from monthly to fortnightly during the first six months of operation; d. Should have additional monitoring events should occur after any significant precipitation event; and e. Results should be posted publicly allowing community oversight and independent scientific review. 5. Malleefowl and their mounds may be impacted, the following should be implemented: <ol style="list-style-type: none"> a. Monitoring of mound occupancy with seasonal activity should occur during the operation with adaptive management measures implemented; b. A buffer zone of at least 500 m around each mound should occur; and c. Clearing could fragment the habitats, a habitat fragmentation analysis 	<ol style="list-style-type: none"> 1. Cyanide entering the groundwater from seepage has been considered as part of the risk assessment. See section 3.2; 2. The department has considered the HDPE liner integrity and has included liner specification as and quality assurance testing within the works approval; 3. Overtopping of ponds have been considered as part of the risk assessment. See section 3.2; 4. The department has placed condition 20 on the works approval to require analytes to be sampled from the monitoring bores both baseline and quarterly (during time-limited operations). The department has also required the works approval holder to determine the local hydraulic groundwater flow direction after the monitoring bores have been constructed; 5. Malleefowl and Malleefowl mounds have been considered as part of the risk assessment. See section 3.2; 6. Noise emissions have been considered as part of the risk assessment (See section 3.2), the risk does not warrant monitoring of baseline noise levels; 7. Dust emissions have been considered as part of the risk assessment (See section 3.2), the risk does not warrant monitoring of baseline or future dust concentrations; 8. Matters raised in submissions that are outside the scope of the assessment of this application or the provisions Part V of the EP Act are not further addressed in this assessment; 9. Matters raised in submissions that are outside the scope of the assessment of this

	<p>should be provided to quantify edge effects.</p> <ol style="list-style-type: none"> 6. Noise may impact wildlife and/or Indigenous cultural values. A noise-impact assessment measuring baseline sounds levels, predicted operational levels, and comparison against guidelines for avian disturbances. Baseline ambient noise measurements and predicted sound levels at the nearest residential settlement should be provided; 7. No quantitative estimate of emissions or ambient concentrations predicted. Baseline ambient PM₁₀/PM_{2.5} should occur. Acceptable emission thresholds should be defined and engineering controls implemented; 8. Increased introduced predation of native fauna due to removal of native vegetation, there should be implementation of a predator-control program and post-construction habitat respiration; 9. Application does not include a post-clearance revegetation plan or a post-closure monitoring framework; 10. Energy and greenhouse gas emissions are not explicitly quantified, application should provide an estimate of CO₂ equivalent emissions; 11. Groundwater extraction could affect the local hydro-balance, the application does not demonstrate what a sustainable yield of the aquifer is; 12. No fire resistance or controls have been proposed or consideration of future water for dust suppression with reduced rainfall; 13. Application does not present any engagement with the Traditional Owners or the Nyalpa Pirniku group beyond the commissioned survey; and 14. A requirement for a heritage watch-team during ground disturbance would mitigate potential cultural impacts that have not been previously located and a development of a cultural heritage management plan should be completed. 	<p>application or the provisions Part V of the EP Act are not further addressed in this assessment.</p> <ol style="list-style-type: none"> 10. The department does not considered the emissions to be significant enough to quantify regulating under Part V of the EP Act; 11. Groundwater extraction for this works approval is not regulated under Part V of the EP Act and is not assessed within this work approval risk assessment; 12. Matters raised in submissions that are outside the scope of the assessment of this application or the provisions Part V of the EP Act are not further addressed in this assessment; 13. Applicants are encouraged to engage with the community regarding new and planned proposals. It is, however, not a legal requirement for the applicant when applying for an approval under Part V Division 3 of the EP Act. 14. According to the application (Astill 2025a) several aboriginal heritage surveys have been carried out over the project area by Nyalpa Pirniku and aboriginal knowledge holders. It was determined that there are no registered aboriginal heritage suites within the prescribed premises boundary. Therefore the department does not consider the risk to aboriginal sites to warrant the requirement for a heritage watch-team. General principles of the Aboriginal Heritage Act (AHA) apply particularly section 17 where it is an offence to impact an Aboriginal site without lawful authority. It's noted that definition of an "Aboriginal site" does not depend on whether the place is recorded on the register.
<p>Application advertised on the West on the 13 October 2025.</p>	<p>No response received.</p>	<p>N/A</p>
<p>Shire of Menzies advised of proposal on 8 October 2025</p>	<p>No response received.</p>	<p>N/A</p>
<p>City of Kalgoorlie-Boulder advised of proposal on 8 October 2025</p>	<p>The City of Kalgoorlie-Boulder replied on 8 October 2025 and presented the following comments/concerns:</p> <ol style="list-style-type: none"> 1. Chemical storage and handling are to comply with Dangerous Goods and Environmental 	<ol style="list-style-type: none"> 1. Chemical storage has been assessed within the risk assessment (Table 4); 2. The department has considered the dust emissions

	<p>Protection regulations and securely contained on site; and</p> <p>2. Regular air monitoring should be undertaken to ensure emissions remain within acceptable limits.</p>	<p>within the risk assessment (Table 4) due to the risk no dust monitoring requirements are considered necessary due to the risk. No chemical manufacturing or mixing will be occurring on the premises and therefore no air emission monitoring is required.</p>
<p>Department of Mines, Petroleum and Exploration (DMPE) advised of proposal 8 October 2025</p>	<p>DMPE replied on 14 October advising that a Mining Proposal Registration ID 500553 was submitted to DMPE however due to insufficient information the Mining Proposal (MP) was rejected on 22 September 2025.</p> <p>DMPE comments on the received MP are summarised below:</p> <ul style="list-style-type: none"> • Insufficient information provided to determine if the proponent could meet DMPE's environmental objectives; • The Department of Local Government Industry Regulation and Safety (LGIRS) Geotechnical Engineer reviewed the mining proposal and deemed that the mining proposal failed to adequately demonstrate aspects relating to: <ul style="list-style-type: none"> ○ Surface water management measures; ○ Knowledge of the rock material characteristics; ○ estimates of rates of seepage of process water/leachate from the heap leach pad and pond; and ○ Engineering analysis/design/assessment conducted to support of the project. • Line Hydrogen Pty Ltd entered voluntary administration and were unable to respond to the request for information within the required timeframes. 	<p>The department contacted the applicant to provide a response to the DMPE comments the applicant advised the department that:</p> <ul style="list-style-type: none"> • Line Hydrogen entered voluntary administration. Astill Consultants, who had been engaged by Line Hydrogen to assist with the proposal, were unable to continue their support due to the lack of funding and the absence of a release from the administrators. As a result, OzAurum, being one of the joint venture partners, was unable to respond to the technical questions raised in DMPE's request for information; and • OzAurum is no longer bound by the joint venture and is preparing to resubmit a Mining Development and Closure Proposal (MDCP).
	<p>DMPE provided an update on 25 February 2026 and advised:</p> <ul style="list-style-type: none"> • The applicant submitted a new MDCP for small operations on 20/01/2026, currently it is yet to be signed off by the DMPE General Manager; • DMPE confirmed that the application is consistent with what is currently under assessment at DMPE; • The applicants submitted waste characterisation indicates no potentially acid forming material, asbestiform material or naturally occurring radioactive materials would be intercepted within the mining void; • Upper saprolite material anticipated from the pit has been identified as mostly non-acid forming and friable/erodible material which is proposed to be encapsulated within the waste rock dump; and • The heap leach pad returned an acceptable factor of safety; 	<p>The department has considered the information that DMPE has provided and has considered it during this decision report.</p> <p>The department also notes that the applicant has received environmental mining approval for the open pit mining and heap leach operations at Mulgabbie North on 10 March 2026.</p>
<p>Applicant was provided with draft documents on 23 March 2026</p>	<p>Comments were provided on 1 April 2026 and are presented in Appendix 1.</p>	<p>See Appendix 1.</p>

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Astill consultants (Astill) 2025a, Works Approval Supporting Document for Heap Leach Trial at Mulgabbie North, Version 1.1, AC25-OZLHBM-01.
2. Astill 2025b, MEMO - APP-0028893 Application for Works Approval – Minor design changes for consideration.
3. Astill 2026, RE: Response to request for additional details for APP-0028893 (received 05/02/26), dated 13 February 2026.
4. Bureau of Meteorology (BoM) 2026, Climate Summary Statistics for Kalgoorlie-Boulder. Australian Government. January 2026, available at https://www.bom.gov.au/water/designRainfalls/revise-ifd/?coordinate_type=dd&latitude=30.14459&longitude=122.39730&user_label=&design=ifds&sdmin=true&sdhr=true&sdday=true.
5. Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024, National Recovery Plan for the Malleefowl (*Leipoa ocellata*), Department of Climate Change, Energy, the Environment and Water, Canberra. CC BY 4.0.
6. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
7. Department of Water and Environmental Regulation (DWER) 2020a, *Guideline: Risk Assessments*, Perth, Western Australia.
8. DWER 2020b, *Guideline: Environmental Siting*, 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 2, Table 2, Item 1e.	<p>The applicant has advised that the 300 mm HDPE pipeline leading from the Heap leach pad to the Pregnant liquor pond will not be slotted or perforated.</p> <p>Collection of the leachate will occur via perforated lateral drains that will feed into the main 300 mm carrier pipeline.</p>	The department has removed "slotted from the 300 mm pipeline.
Condition 2, Table 2, Item 4j-l.	The applicant confirmed that the monitoring pipeline within the Pregnant liquor pond and Barren liquor pond will be installed adjacent to a geonet layer between the primary and secondary HDPE liners. The monitoring pipe will be slotted/perforated to allow ingress of liquid to allow the detection of leaks. The pipeline will be capped at both ends and a probe will be able to be inserted into the pipeline to reach the elbow of the pipe to confirm the presence or absence of liquids.	Acknowledged.
Condition 5 (<i>removed</i>)	<p>The applicant has requested to remove the Malleefowl monitoring requirement on the basis that malleefowl management is already comprehensively regulated under existing supplementary approval instruments:</p> <ul style="list-style-type: none"> • Mining tenement, M28/240 (Condition 14); • Approvals Statement (AS-1137 Condition S1.0); and • Clearing Permit (CPS11101 Condition 9 & 10). 	<p>The department has reviewed the other instruments (M28/240 tenement conditions and Clearing Permit CPS11101) and considers the conditions placed within the instruments are suitable to manage potential impacts to Malleefowl mounds during construction and time-limited operation activities.</p> <p>The department has removed the condition from the works approval.</p>