



Application for Licence Amendment

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

Licence Number	L9242/2020/1
Licence Holder	Paddington Gold Pty Limited
ACN	008 585 886
File Number	DER2020/000062
Premises	Golden Cities Mining tenements: M24/564, M24/565, M24/616, M27/185 and L24/231 As defined by the Premises map of Figure 1 of Schedule 1 attached to and the coordinates in Schedule 2 of the Revised Licence
Date of Report	13 February 2025
Decision	Revised licence granted

**MANAGER, RESOURCE INDUSTRIES
INDUSTRY REGULATION (STATEWIDE DELIVERY)**
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Licence L9242/2020/1 is held by Paddington Gold Pty Limited (Licence Holder) for the Golden Cities (the Premises), located on Mining tenements M24/188, M24/251, M24/425, M24/557, M24/564, M24/565, M24/616, M24/188, M24/251, M24/425, M24/557 and L24/231.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the operation of the Premises. As a result of this assessment, Revised Licence L9242/2020/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary

On 17 September 2024, the Licence Holder submitted an application to the department to amend Licence L9242/2020/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act).

The application is seeking approval to operate a new dewatering pipeline and pipeline corridor between Federal, Havana and Mulgarrie open pits to Golden Arrow open pit (a new discharge point for hypersaline water). This will facilitate dewatering to allow for the mining of ore from Federal, Havana and Mulgarrie open pits (to the exclusion of Jakarta Pit) at the premises. The discharge capacity will be increased from 5,200,000 tonnes to 7,000,000 tonnes per annum to reflect the extension of the network. The pipeline infrastructure has been constructed under works approval W6717/2022/1.

The Golden Arrow open pit is located in the Goldfields, approximately 300 m east of the historic Broad Arrow townsite (a registered site with the WA Heritage Council).

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

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

Table 1: Proposed throughput capacity changes

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
6	5,200,000 kL (tonnes) per annum	7,000,000 kL (tonnes) per annum	Expansion of the dewatering network to include Golden Arrow Pit as an authorised discharge point.
12	1,000,000 tpa	No change	No change

Water quality and Pit capacity

In 2022, water quality data was provided during the assessment of Works Approval from the Golden Arrow pit lake and abstraction points at the Mulgarrie, Havana, Federal and Jakarta pits (Norton Goldfields, 2022). The water qualities were near neutral and hypersaline (Table 3). Golden Arrow Pit has a greater salinity than the source pits (Table 2).

The applicant claimed water discharged into the Golden Arrow Pit would not reduce the quality of the water in the pit.

Previous capacity of the Golden Arrow Pit was about 1,191,596 cubic meters (m³), with an estimated 62,573 m³ of water already existing as a pit lake (Table 4). Evaporation may also help reduce the pit lake size over time increasing capacity of the Golden Arrow pit.

Table 2: Golden Arrow Pit water quality

Date	Location		pH	EC	Field TDS
			pH units	mS/cm	ppt
08/09/2021	Discharge Point	Golden Arrow	6.8	135.1	91.9

Table 3: Pit water quality via abstraction point

Date	Location		pH	EC	Field TDS
			pH units	mS/cm	ppt
14/06/2022	Abstraction Point	Mulgarrie	7.21	93.4	63.512
14/06/2022	Abstraction Point	Havana Suva	7.57	114	77.52
14/06/2022	Abstraction Point	Federal	7.57	114	77.52
14/06/2022	Abstraction Point	Jakarta	7.67	56	38.08

Table 4: Golden Arrow Pit volume and capacity

Date	Discharge Pit	Water Level (mRL)	Crest Low Point (mRL)	Crest Low Point to Water Depth (mRL)	Estimated Volume of Water in Discharge Pit ¹ (m ³)	Remaining Freeboard Capacity of Discharge Pit (Freeboard limit is 6 m from Crest low point) (m ³)
23/06/2022	Golden Arrow	356.6	403.0	46.4	62,573.1	1,191,596.6

Note 1: Volume includes water and silt that may be present

Water quality data from the Time Limited Operations period (September to December 2024) showed that up to 830,797 kL of water was discharged into Golden Arrow Pit, which left about 788,659 m³ of capacity remaining (Table 5). The water quality of the water in the pit lake during this time was hypersaline (average of 83,568 total dissolved solids (TDS) and slightly alkaline (average of pH 7.93) (Table 6). The standing water level averaged 383.07 mRL

(Table 6). Evaporation was calculated to contribute to a loss of 297,648 m³, which accounts for more than half of the proposed water disposed.

The water quality of 2024 shows a general consistency in water quality compared with the data from 2021. The Golden Arrow Pit lake became slightly fresher during this time with relatively fresher water disposed into it. The department expects that his trend would continue while the deposition rate of water out paces the rate of evaporation.

Table 5: Dewatering discharge to Golden Arrow pit during Time Limited Operations

Dewatering Volume				
September	October	November	December	Total
203,372	153,291	305,654	168,480	830,797

Table 6: Golden Arrow Pit Lake Water Quality Results during Time Limited Operations

Water quality				
	September	October	November	December
TDS – mg/L	82,500	86,100	83,170	82,500
pH	7.39	7.58	7.49	7.1
SWL	373.43	382.29	387.03	389.53

2.3 Part V of the EP Act

2.3.1 Works approval and licence history

On 16 December 2022, works approval W6717/2022/1 was granted for the construction and time-limited operation of the pipeline between the junction of Havana, Federal and Jakarta Pit open pits and Golden Pit. Under this works approval the pipeline, secondary containment: V-drains and scour pits were constructed.

On 29 November 2023, works approval W6717/2022/1 was amended to remove the specified diameter of the dewatering pipeline outlined in condition 1 of the works approval. All other conditions, including a secondary containment sufficient to contain any spills between routine inspections will remain unchanged. As there was no change in the risk to the environment, this amendment was administrative in nature only.

Proposed operational controls have been carried over into the risk assessment below into Table 7 from the W6717/2022/1 works approval decision report dated December 2022 and reassessed in Table 9.

2.3.2 Compliance inspections and compliance history

On 3 October 2024, construction compliance documentation was submitted to the department which confirmed compliance with works approval conditions. In particular it confirmed that the pipeline was constructed within secondary containment comprised of V-drains and scour pits. The Jakarta pump station was not built at the time as currently, the Jakarta Pit is not being dewatered or mined.

3. Risk assessment

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

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 7 below. Table 7 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 7: Licence Holder operational controls

Emission	Sources	Potential pathways	Proposed controls
Hypersaline water	Rupture of dewatering pipeline	Direct discharge causing flooding and salt intrusion impacting the vegetation and mounds.	Maintain leak detection and automatic flow-control telemetry in pipelines and pumps. Maintain flow meter and valve functions. Maintain sufficient capacity of v-drain and scour pits to contain spills. Ensure pipeline maintains contained within a v-drain or buried. Inspection of pipelines and associated dewatering infrastructure twice per 24-hour period when in operation.
	Overtopping of Golden Arrow pit from Golden Arrow pipeline	Direct discharge causing flooding and salt intrusion impacting the vegetation and mounds.	A minimum vertical freeboard of 6 m will be maintained on Golden Arrow pit. Monthly freeboard inspections during operation.
	Seepage through Golden Arrow pit walls to groundwater	Ground mounding impacting vegetation.	A minimum vertical freeboard of 6 m will be maintained on Golden Arrow pit. Monthly freeboard inspections during operation.

3.1.2 Receptors

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

Table 8 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 8: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Goldfields Highway	50 m west of the premises boundary
Broad Arrow Tavern (historic site)	300 m west of the premises boundary. Still in operation.
Broad Arrow residences	350 m west of the premises boundary
Environmental receptors	Distance from prescribed activity
Public Drinking Water Sources Area (PDWSA), the Broad Arrow Dam catchment area	Hypersaline water stored within fractured rock 200 m west of the prescribed premises boundary and 260 m west of the Golden Arrow pit. The Broad Arrow Dam catchment area was abolished on 2 September 2022 (DWER, 2023a). Ruled out, no longer a receptor
Native vegetation (non-priority)	Adjacent to pipeline corridor
Malleefowl mounds (a listed vulnerable species)	Nesting mounds within 70 m of the pipeline corridor
Groundwater	Hypersaline and depth to groundwater at least 25 meters below ground level (mbgl)
Cultural receptors	Distance from activity / prescribed premises
Registered Aboriginal heritage site PADDINGTON 5	1 km south east of the pipeline corridor and 1.2 km south west of Jakarta Pit Ruled out due to distance

3.2 Risk ratings

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

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

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 9.

The Revised Licence L9242/2020/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. mine dewatering.

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

Table 9. Risk assessment of potential emissions and discharges from the Premises during operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Operation								
Rupture of dewatering pipeline	Hypersaline water	Direct discharge causing flooding and salt intrusion into the soil, impacting the vegetation, mounds and surface water catchments Depending on the size of the spill it could impact nearby infrastructure	Native vegetation Malleefowl mounds	Refer to section 3.1.1	C = Moderate L = Possible Medium Risk	Y	Condition 1, 4	Existing conditions have been updated to include the Golden Arrow Pit and new pipeline. No additional regulatory controls are required.
Overtopping of Golden Arrow pit			Native vegetation Malleefowl mounds	Refer to section 3.1.1	C = Major L = Unlikely Medium Risk	Y	Condition 1, 2, 3, 4	
Seepage through Golden Arrow pit walls to groundwater		Ground mounding impacting vegetation	Native vegetation Groundwater	Refer to section 3.1.1	C = Moderate L = Possible Medium Risk	Y	Condition 1, 2, 3, 4	

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

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

4. Consultation

Table 10 provides a summary of the consultation undertaken by the department.

Table 10: Consultation

Consultation method	Comments received	Department response
Broad Arrow Tavern were advised of proposal (Date)	No comments received.	N/A
Marlinyu Ghoorlie Aboriginal Corporation were advised of proposal 28/11/24	No comments received.	N/A
Licence Holder was provided with draft amendment on 17 January 2025	On 11 February 2025 the licence holder waived the comment period.	Noted. Documents have been finalised with no further changes.

5. Conclusion

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

5.1 Summary of amendments

Table 11 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 11: Summary of licence amendments

Condition no.	Proposed amendments
Cover page	Inclusion of mining tenements M24/188, M24/251, M24/425, M24/557, M24/188, M24/251 and M24/557. Increase of category 6 assessed production capacity from 5 200 000 kL to 7,000,000 kL tonnes.
Condition 1, Table 1	Referencing error corrected to refer to Figure 1. Inclusion of assessed production and design capacities for categories 6 and 12 so they are enforceable in conditions with legal standing.
Condition 2, Table 2	Inclusion of Golden Arrow Pit as an authorised discharge location.
Condition 3, Table 3	Inclusion of Golden Arrow Pit as a discharge monitoring location.
Condition 4, Table 4	Inclusion of Golden Arrow Pit as an inspection location.
Schedule 1: Map Premises Map	Insertion of a description above the figure. Figure 1 updated to include the Golden Arrow Pit and pipeline corridor.
Schedule 2: Prescribed	Premises boundary coordinates updated to include the Golden Arrow Pit and pipeline

premises boundary, Table 7	corridor.
Schedule 2, Figure 2	Figure 2 updated to include the Golden Arrow Pit and pipeline corridor.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. DWER 2022a, *Works Approval W6717/2022/1*, 29 November 2023, Perth, Western Australia.
5. DWER 2022b, *Decision Report Application for Works Approval W6717/2022/1*, 16 December 2022, Perth, Western Australia.
6. DWER 2023a, *Water quality protection note no. 75, Gazetted public drinking water source areas*, page 13, July 2023, Joondalup, Western Australia.
7. DWER 2023b, *Amendment Report Application for Works Approval Amendment W6717/2022/1*, 29 November 2023, Joondalup, Western Australia.
8. Norton Gold Fields Pty Ltd 2022, *Havana dewatering project – Request for Further information*, 10 August 2022, Kalgoorlie, Western Australia.
9. Norton Gold Fields Pty Ltd 2024, *Request for Further Information Response Letter*, 26 December 2024, Kalgoorlie, Western Australia.