



Application for Licence Amendment

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

Licence Number	L5529/1988/12
Licence Holder	Mt Magnet Gold Pty Ltd
ACN	008 669 556
File Number	DER2016/001228-1~5
Premises	Mt Magnet Gold M58/30, M58/79, M58/121, M58/136, M58/172, M58/181, M58/185, M58/186, M58/187, M58/191, M58/193, M58/202, M58/205 and M58/234 As defined by the Premises maps attached to the Revised Licence
Date of Report	18 April 2023
Decision	Revised licence granted

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an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Licence L5529/1988/12 is held by Mt Magnet Gold Pty Ltd (Licence Holder) for the Mt Magnet Gold Mine (the Premises), located on various mining tenements, adjacent to the town of Mount Magnet.

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 L5529/1988/12 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 20 October 2022, the Licence Holder applied to the department to amend Licence L5529/1988/12 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought and relate to proposed changes to Category 6: Dewatering operations.

This amendment is limited only to changes to Category 6 from the Existing Licence. No changes to the aspects of the existing Licence relating to Categories 5 and 64 have been requested by the Licence Holder.

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

Table 1: Proposed design capacity changes

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
5	2,400,000 tonnes per annual period	No change	N/A
6	3,100,000 tonnes per annual period	No change	No change to capacity. Change to source and emission point of dewatering.
64	10,000 tonnes per annual period	No change	N/A

2.2.1 Detailed dewatering summary

The licence was previously amended in June 2022 to increase the Category 6 Dewatering capacity, and at the same time authorise additional dewatering emission points. For details, refer to the previous amendment report available on the department's website.

The amendment application from October 2022 (this report) seeks to modify dewatering location, adding one new dewatering location (Boomer Pit). The changes to dewatering source and discharge point are:

- The Galaxy Underground (UG) mining operation replaces previously named Hill 50, Mars, and Saturn UG mining operations.
 - The mine discharge water includes any remnant pit lake water contained in the overlying local pits: Mars, Perseverance, Saturn, and Titan.
 - Discharge water from the Galaxy UG will mainly go to the Milky Way Pit. Other emission points at Brown Hill, Windbag, Hesperus, Saturn, and Titan will be retained as temporary short-term backup only.
- The Stellar Pit will no longer be used as an emission point for water from mine dewatering and will only capture intermittent surface water runoff.
- The Milky Way Pit will continue to capture surface water runoff. It will receive water from the Galaxy UG and will share with the Franks Tower Pit the collection of water from the Eridanus UG, Orion Pit and Shannon UG mines (the Cosmos mining operation), as well as water abstracted from the Bartus, Bartus South, Blackhole, Britannia Well and Quasar abandoned pit lakes (the southern abandoned pit lakes).
 - The Franks Tower Pit was a previously licensed emission point but was temporarily removed from the licence and will require reinstating. Orion is a new mining operation near Eridanus and Franks Tower.
- The Boomer Pit is an added emission point and will receive overflow from the Ruby Queen Pit. The latter is a current licensed emission point.
- The Brownhill and Hesperus pits will eventually revert from being emission points to sources when they are eventually resumed for mining. The mine water discharge will be sent to the Milky Way Pit emission point, and as a backup, the Brown Hill pit mine water will go to the Vegas or Ruby Queen pits.

There will be no changes to use of the Reno and Vegas pits for capture of surface water runoff, except when the Brown Hill Pit is mined, surface water runoff will be directed to the Vegas Pit.

There will be no changes to the use of the Ruby Queen and Blackcat South pits for transfer of water from dewatering the St George / Water Tank Hill / Hill 60 UG & Morning Star UG group of mines.

Figure 1 shows the locations of all mining operations, emission points and pipelines at the site.

As noted above, mine discharge can be sent to more than one emission point, or a pit can simply be a backup to other emission points. In these circumstances, the Licence Holder proposes to reduce environmental risk by adjusting the pumped outflows using the following guidelines:

- Pit lake water levels at emission points are kept below the level of the surrounding groundwater. This promotes inflows (not seepage outflows) to the pit lake which will act as a groundwater sink.
 - Groundwater levels are regularly measured across the site in accordance with the Groundwater Operating Strategy to demonstrate if emission points are acting as groundwater sinks (MMG 2022).
 - All emission points have at least one monitoring bore placed near the pit.
- Notwithstanding the above, pit lake water levels are also kept to 2 m below the level of the pit lake spill outlet (2 m freeboard).

The Licence Holder compared current mine discharge water chemistry with the expected source water chemistry. The proposed movement of water (dewatering of pits) will be done between a source area and discharge destination where sampled water quality is similar. This chemistry data is summarised in Appendix 1.

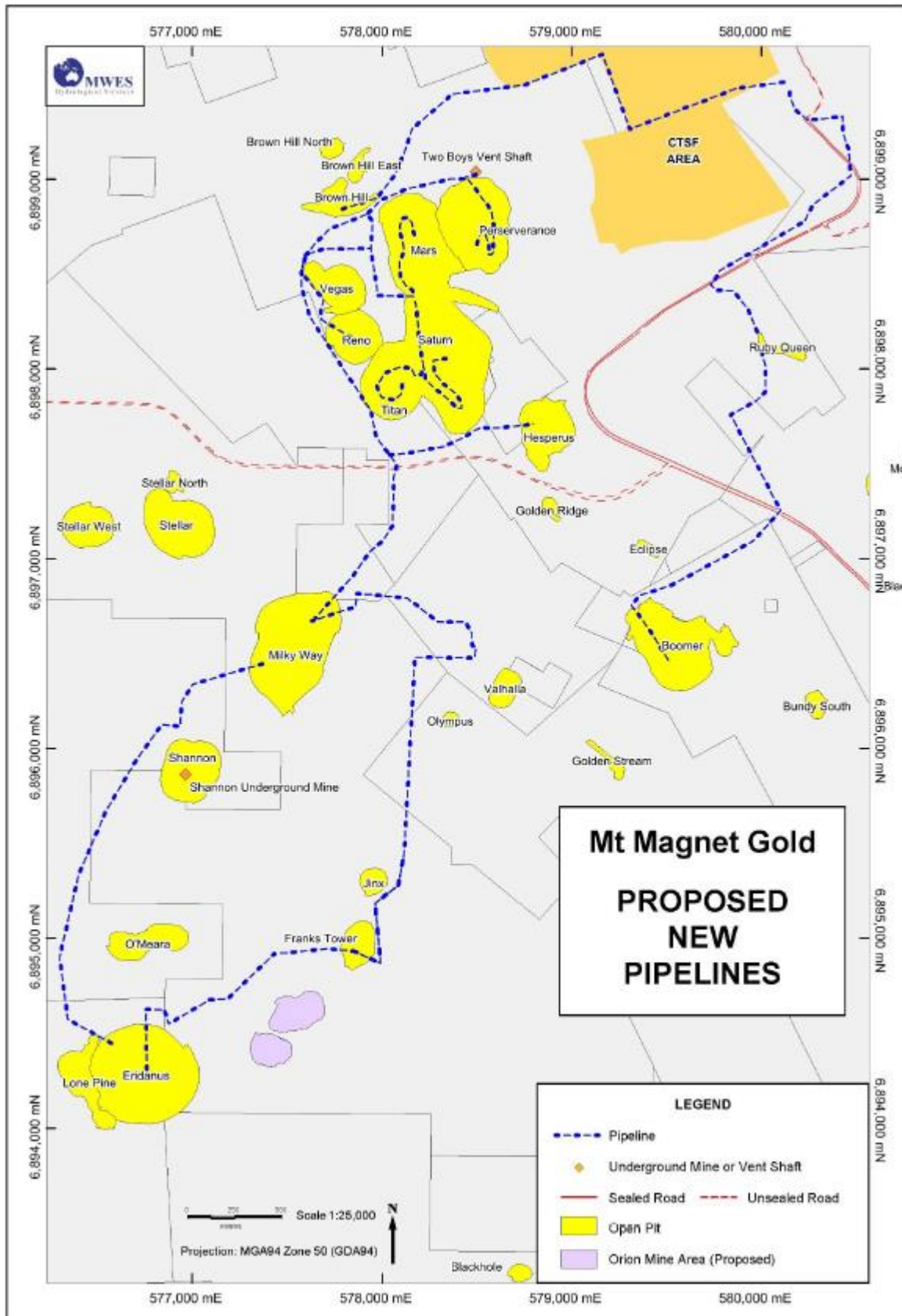


Figure 1: Proposed pipeline and pit locations

3. Risk assessment

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

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 2 below. Table 2 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Dewatering to new emission points	Mine dewater	Seepage through groundwater causing contamination to Public Drinking Water Source Areas (PDWSA)	<p>No additional controls proposed by the Licence Holder</p> <p>Conditions associated with L5529/1988/12 ensure freeboard of 2 m is maintained and that pit lake levels are maintained below the surrounding groundwater level.</p> <p>These assist in ensuring that impact on native vegetation is minimised and assist in reducing groundwater mounding.</p> <p>Monitoring bore installed in proximity to each dewatering discharge point.</p>
		Potential mounding of groundwater in the vicinity of the pits	
		Overtopping of discharge point causing poor vegetation health, or damage to Aboriginal heritage	
Movement of dewater along pipeline	Mine dewater	Spills/leaks resulting in discharge to land/soils	<p>No additional controls proposed by the Licence Holder</p> <p>Conditions associated with L5529/1988/12 ensure that dewatering pipelines are inspected daily. Pipelines containing environmentally hazardous substances are either:</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.

3.1.2 Receptors

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

Table 3 below provides a summary of potential human and environmental receptors that may be impacted because of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

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

Human receptors	Distance from prescribed activity
Town of Mt Magnet	2.4 km southeast of prescribed premises
Aboriginal heritage sites	Heritage Site 4417 – 300 m west of Stellar Pit Heritage Site 4450 – 780 m west of Stellar Pit Heritage Site 1582 – 900 m west of Stellar Pit Heritage Site 12831 – 1.2 km west of Stellar Pit
Environmental receptors	Distance from prescribed activity
Minor tributary of the Salt River	Several minor non-perennial watercourses run north-south through the premises. The closest is a seasonal minor creek 200 m east of Milky Way pit. Constructed diversions are present around northern part of the tailings storage facility and several pits. The Salt River is located 20 km away
Groundwater East Murchison Groundwater area (<i>Rights in Water and Irrigation Act 1914</i>)	Groundwater flow in the borefield area is generally southward (DER, 2005). Groundwater levels are typically 5 - 15 mbgl, but can be substantially deeper in areas affected by pumping (DER, 2005)
Groundwater - PDWSA	PDWSA to north, east & south (Mount Magnet Water Reserves). P1 area 3 km south of Milky Way pit; and 2.6 km south of Eridanus pit. P2 area is 1.7 km west of Milky Way pit; and 130 m west of Lone Pine pit.

3.1.3 Public Drinking Water Source Area

The Mount Magnet Water Reserve is a PDWSA, proclaimed under the *Country Areas Water Supply Act 1947* (CAWS Act) and consists of the Genga and Lennonville water reserves. The premises partially lies within the Genga water reserve to the west, and borders on the Lennonville water reserve on the northern boundary (Figure 2).

The southern part of Genga, and the Lennonville water reserve are classified as priority 1 areas (P1) by the department. As set out in the department's Water Quality Protection Note No. 25, *Land use compatibility tables for public drinking water source areas* (DOW, 2016), P1 areas are managed to ensure there is no degradation of the drinking water quality source, with the objective of risk avoidance, consistent with the preventative risk-based framework of the Western Australian Government.

The northern part of Genga water reserve is classified as a priority 2 area (P2), which are managed to maintain or improve the quality of the drinking water source with the objective of risk minimisation.

The Drinking Water Source Protection Plan (DWSP) (DWER, 2019) for the Mount Magnet water reserve reports on activities and risks to water quality within the Mount Magnet water reserve and discusses management strategies to minimise identified risks. The DWSP does not specifically refer to groundwater impacts through seepage from mining activities.

Previous advice from the department’s hydrogeologists was sought for the 2022 amendment, when dewatering capacity was increased. The hydrogeologic advice indicated the overall likelihood of seepage impacting the PDWSA to be low. This is due to:

- (i) The limited hazard associated with the dewatering effluent: Apart from locally elevated nitrate concentrations and salinity, the seepage of water from pit lakes that receive groundwater discharge is not considered to be a hazard for the PDWSA.
- (ii) The long groundwater travel times between sources and receptors: The distances between the pit lakes and the PDSWA are sufficiently large to allow transported concentrations of chemical constituents to be attenuated by natural processes within the groundwater flow system

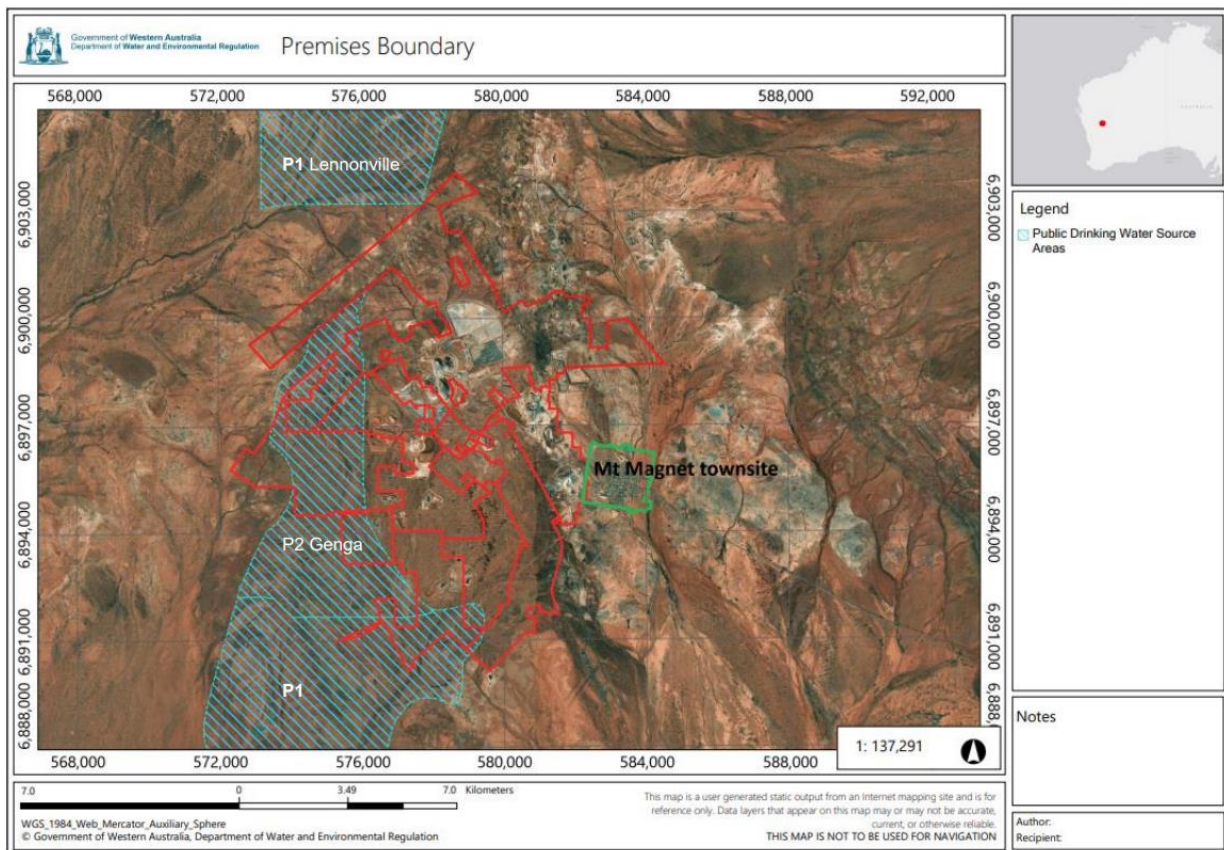


Figure 2: Distance to sensitive receptors

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

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

The Revised Licence L5529/1988/12 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e., Category 6 dewatering activities.

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

Table 4. Risk assessment of potential emissions and discharges from the Premises during operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Operation								
Dewatering to new emission points	Mine dewater	Seepage through groundwater causing contamination to PDWSA	Public drinking water source protected area	Refer to Section 3.1.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 1.3.8, 1.3.9 , 1.3.11, 3.2.1 <u>Installation of freeboard markers</u>	Existing licence conditions exist for groundwater monitoring and for pit lake levels to be maintained below surrounding groundwater levels. Condition 1.3.9 modified to include the installation of freeboard markers. Point source emission to groundwater monitoring is also included in the licence. Please refer to Section 3.3 for further information.
		Overtopping of discharge point causing: <ul style="list-style-type: none"> Poor vegetation health/death Damage to Aboriginal heritage 	Aboriginal Heritage sites Adjacent remnant vegetation					
Movement of dewater along pipeline	Mine dewater	Spills/leaks resulting in discharge to land/soils	Aboriginal Heritage sites Adjacent remnant vegetation Groundwater Public drinking water source protected area	Refer to Section 3.1.1.	C = Moderate L = Unlikely Medium Risk	Y	<u>Existing licence conditions</u> 1.3.7 - all pipelines equipped with telemetry systems, automatic cut-outs, and secondary containment	The Licence Holder has stated they will use existing pipeline infrastructure as part of this amendment, where no additional pipeline construction is proposed. Existing licence controls are considered sufficient to mitigate risk associated with pipeline rupture

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.

3.3 Detailed risk assessment – new Boomer Pit dewatering location

The Boomer Pit is an added emission point and will receive overflow from the Ruby Queen Pit (which is a current licenced emission point). The water chemistry from the Ruby Queen Pit source and the Boomer Pit emission point is shown in Table 5. The water qualities are similar.

The Licence Holder states that, based on the temporary and unspecified amount of overflow from the Ruby Queen Pit, it is not possible to complete a meaningful water balance at the Boomer Pit. As with the other emission points, the pit lake water level will be kept below the surrounding groundwater level to prevent outward flow of seepage.

Capacity of the Boomer Pit is 1,998,700 kL, approximately 13 times the capacity of the Ruby Queen Pit (152,245 kL). The Delegated Officer considers the likelihood of Boomer pit overflowing from runoff from Ruby Queen to be low.

Monitoring bore network between the Boomer pit and Mount Magnet township include monitoring bore HWB0040 and HWB0023 to the east and Boomer pit is the furthest dewatering location from the P2 Genga Water Reserve.

Table 5: Ruby Queen and Boomer pit water chemistry

Parameter	Source	Emission Point
Site ID	Ruby Queen Pit	Boomer Pit
Date	12/03/2022	12/03/2022
pH (lab)	8.3	8.4
EC (lab) (µS/cm)	7700	11000
TDS (mg/L)	5000	7000
Al (mg/L)	<0.01	<0.01
Ag (mg/L)	<0.001	<0.001
As (mg/L)	0.006	0.004
B (mg/L)	2.5	1.3
Cd (mg/L)	<0.0001	<0.0001
Co (mg/L)	0.003	<0.001
Cr ⁶ (mg/L)	<0.005	<0.005
Cu (mg/L)	<0.001	<0.001
Fe (diss) (mg/L)	<0.01	0.01
Mn (mg/L)	0.051	<0.005
Hg (mg/L)	<0.00005	<0.00005
Mo (mg/L)	0.026	0.014
Ni (mg/L)	0.014	0.002
Pb (mg/L)	<0.001	<0.001
Se (mg/L)	0.004	0.006
Zn (mg/L)	0.01	0.003
NO ₃ (mg/L)	46	22

4. Consultation

Table 6 provides a summary of the consultation undertaken by the department.

Table 6: Consultation

Consultation method	Comments received	Department response
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal 1 December 2022	No comment	N/A
Licence Holder was provided with draft amendment on 14 March 2023	Licence Holder provided comment on 3 April and 9 April 2023. Refer to Appendix 2	Refer to Appendix 2

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 7 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 7: Summary of licence amendments

Condition no.	Proposed amendments
Premises description and licence summary	Updated dewatering section with new emission sources and dewatering locations.
Instrument log	Clarified changes from 03/06/2022 amendment, and added notes related to this assessment, modification to category 6 dewatering emission point and sources.
Table 1.3.7	Licence conditions for the construction of groundwater monitoring bores have been removed as Licence Holder submitted construction compliance report on 26 January 2022. Some construction is still to be completed.
Table 1.3.4 Containment infrastructure	Updated 'Containment point reference' and dewatering operational requirements.
Table 1.3.5 Inspection of infrastructure	Modified a condition related to visual inspection of freeboard capacity to include the installation of freeboard markers.
Table 2.2.1 Emission points to groundwater	Update name of dewatering source from 'Mars' and 'Saturn' to 'Galaxy Underground'. Some updated descriptions and source were provided by the Licence Holder during 21-day review period.
Table 3.2.1 Monitoring of point source emissions to groundwater	Updated discharge locations, added in Franks Tower pit and Boomer pit.

Condition no.	Proposed amendments
Table 3.4.1 Monitoring of ambient groundwater quality	Removed the condition related to monitoring wells west of the Stellar pit, but kept the monitoring of Windbag and Hesperus wells as required, as per condition 1.3.11
Condition 3.5.2	Updated monitoring and water balance location (from Stellar Pit to Milky Way pit)
Table 4.2.1 Annual environmental report	Update parameter to include Milky Way pit (removing Stellar pit)
Maps and figures	Replaced dewatering figures 2, 4, 5 and 7 with updated maps.

References

1. Mt Magnet Gold Pty Ltd 2022, *Application form: Licence Amendment Mt Magnet Gold Pty Ltd*, East Perth, Western Australia
2. MWES Hydrological Services (MWES) 2022, *DWER EP Licence L5529/1988/12 – September 2022 Amendment – Changed Emission Points*, Inglewood, Western Australia
3. Mt Magnet Gold Pty Ltd 2022 (MMG 2022), *Groundwater Operating Strategy Procedure GWL 1515123*, East Perth, Western Australia
4. Department of Water and Environmental Regulation (DWER) 2019, *Mt Magnet Water Reserve Drinking Water Source Protection Review (WRP 182)*, Joondalup, Western Australia
5. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
6. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Joondalup, Western Australia.
7. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

Appendix 1: Summary of mining operations chemistry data

Galaxy Mining Operation Chemistry Data

The latest water chemistry results for the source and emission points at the Galaxy UG mining operation are included in Table 8 below.

The most representative source water chemistry for the Galaxy UG mine is from the Two Boys Vent Shaft (VS) as this water is pumped from deep within the mine and is not exposed to evaporation and mixing with rainfall which may alter the chemistry of water in pits.

The source water is characterised by moderately high salinity of 7,100 mg/L totals dissolved solids (TDS) and low, but measurable boron (B) and minor amounts of some metals: cobalt (Co), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), nickel (Ni), selenium (Se) and zinc (Zn).

The Licence Holder will direct most water from dewatering the Galaxy UG to the Milky Way Pit where the water chemistry is very similar. The salinity is 8,400 mg/L TDS, B is the same and there are similar minor concentrations of various metals.

Other emission points contain similar or higher salinity water, generally due to evaporative concentration. The emission points have higher nitrate (NO₃) concentrations, which the Licence Holder attributes to pit waters retaining higher amounts of explosive residues. Brown Hill pit lake water has a lower salinity as it is diluted by surface runoff from Lake Watchorn.

Table 8: Galaxy mining operations water chemistry

Parameter	Source	Emission Points					
	Chemistry at Discharge Point	Emission Transfer Only				Combined Emission and Surface Water Runoff	
Site ID	Two Boys Vent Shaft	Hesperus Pit ¹	Saturn Pit	Titan Pit	Milky Way Pit	Brown Hill Pit ¹	Windbag Pit
Date	27/05/2022	12/03/2022	13/03/2022	13/03/2022	13/03/2022	12/03/2022	12/03/2022
pH (lab)	7.6	8.7	8.4	8.4	8.3	7.4	8.7
EC (lab) (µS/cm)	9500	15000	10000	10000	12000	500	18000
TDS (mg/L)	7100	10000	6700	6300	8400	450	12000
Al (mg/L)	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Ag (mg/L)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
As (mg/L)	<0.001	0.01	0.002	0.002	0.016	<0.001	0.005
B (mg/L)	1.4	6	1.7	1.7	1.4	0.1	6.1
Cd (mg/L)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Co (mg/L)	0.004	<0.001	<0.001	<0.001	<0.001	0.004	<0.001
Cr ⁶ (mg/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cu (mg/L)	0.003	<0.001	<0.001	<0.001	<0.001	0.003	<0.001
Fe (diss) (mg/L)	2.7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mn (mg/L)	1.6	<0.005	0.007	<0.005	<0.005	0.1	0.049
Hg (mg/L)	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Mo (mg/L)	0.004	0.16	0.046	0.047	0.037	<0.001	0.005
Ni (mg/L)	0.007	0.001	0.002	<0.001	0.009	0.002	0.001
Pb (mg/L)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Se (mg/L)	0.002	0.005	0.03	0.025	0.019	<0.001	0.003
Zn (mg/L)	0.03	0.005	0.004	0.002	0.002	0.005	0.002
NO ₃ (mg/L)	<5	6.2	55	100	42	4.3	<5

Notes: 1: These pits will be mined in the future so will become sources.

Cosmos Mining Operations and Southern Abandoned Pit Lakes Chemistry Data

The latest water chemistry results for the source and emission points at the Cosmos mining operations are shown in Table 9 below.

Mine water sourced from the Eridanus UG, Orion Pit and Shannon UG operations and the Southern abandoned pit lakes will be directed to the Franks Tower and Milky Way pits. The Licence Holder has said that Orion Pit has not commenced so there are no groundwater samples available. The proposed pit is however located between Eridanus and Franks Tower and the Licence Holder believes Orion should have similar water chemistry.

The source water varies considerably in salinity from 2,200 to 100,000 mg/L TDS due to the depth of the UG mine, stratification of salinities in the fractured rock aquifers, and the various degrees of evaporative concentration in the abandoned pit lakes.

Because of the high range of source water quality, the Licence Holder will keep both the Franks Tower and Milky Way pit lake water levels below the surrounding groundwater levels. This will ensure the pit lake water does not seep outwards into the groundwater environment.

Table 9: Cosmos mining operations and Southern abandoned pit lakes water chemistry

Parameter	Sources								Emission Points	
	Eridanus UG	Orion Pit	Shannon UG	Bartus Pit	Bartus South Pit	Blackhole Pit	Britannia Well Pit	Quasar Pit	Franks Tower Pit	Milky Way Pit
Date	10/03/2022	Not available	22/04/2022	11/03/2022	11/03/2022	12/03/2022	13/03/2022	12/03/2022	12/03/2022	13/03/2022
pH (lab)	7.7		8.3	8.7	7.9	8.8	9.4	8.4	7.9	8.3
EC (lab) (µS/cm)	20000		5900	12000	110000	4400	2700	26000	25000	12000
TDS (mg/L)	13000		3200	7100	100000	2900	2200	17000	17000	8400
Al (mg/L)	0.04		<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01
Ag (mg/L)	<0.001		<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
As (mg/L)	0.032		0.005	0.3	0.2	0.004	0.62	0.012	0.019	0.016
B (mg/L)	1.6		1.4	3.7	15	1.6	1.8	2.2	1.6	1.4
Cd (mg/L)	0.0002		<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Co (mg/L)	0.006		<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	0.002	<0.001
Cr ⁶ (mg/L)	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cu (mg/L)	0.03		0.001	0.003	<0.01	0.001	<0.001	<0.001	0.001	<0.001
Fe (diss) (mg/L)	0.55		<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01
Mn (mg/L)	0.21		0.013	<0.005	0.24	<0.005	<0.005	<0.005	0.054	<0.005
Hg (mg/L)	<0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Mo (mg/L)	0.022		0.039	0.045	0.022	0.005	0.003	0.029	0.018	0.037
Ni (mg/L)	0.024		0.003	0.001	0.026	<0.001	<0.001	0.001	0.005	0.009
Pb (mg/L)	<0.001		<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
Se (mg/L)	0.004		0.007	0.007	<0.01	0.002	0.003	0.007	0.003	0.019
Zn (mg/L)	0.004		0.003	0.021	0.024	0.001	<0.001	0.002	0.007	0.002
NO ₃ (mg/L)	360		210	8.3	<5	44	13	32	170	42

Appendix 2: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
Condition 1.3.11 Table 1.3.7: Infrastructure requirements – groundwater monitoring well Condition 1.3.12	<p>The Licence Holder confirmed that one groundwater monitoring bore is still to be constructed, and a compliance report is to be submitted to the department.</p> <p>The Licence Holder believe groundwater monitoring wells around the Stellar pit are not required as dewatering has never occurred at this location, and as part of this amendment, dewatering is no longer planned for this location.</p>	<p>The Delegated Officer has left Condition 1.3.11 and 1.3.12 in the Licence but has amended Table 1.3.7, removing the completed Hesperus pit well.</p> <p>The Delegated Officer notes that the Stellar pit is only receiving stormwater run-off and that dewatering is not occurring into this pit. The Delegated Officer agrees to the removal of conditions related to monitoring wells to the west of the Stellar pit.</p>
Table 2.2.1 Emission point to groundwater	The Licence Holder provided an updated table to better clarify the proposed changes of dewatering emission points and source.	The Delegated Officer has made the suggested changes to Table 2.2.1.
Table 3.2.1 Monitoring point source emission to groundwater	The Licence Holder made two suggestions to clarify incorrect changes made in the draft licence. (Milky Way is the replacement pit for Stellar pit. Franks Tower will act as a transfer pit for source water going to Milky Way pit)	The Delegated Officer has made these changes to Table 3.2.1.
Table 3.4.1 Monitoring of ambient groundwater quality	Based on the changes to Table 1.3.7 Infrastructure requirements – groundwater monitoring well, the Licence Holder suggested removing conditions related to the Stellar pit from Table 3.4.1 to ensure the requirements of both tables were aligned.	The Delegated Officer removed the condition related to monitoring wells west of the Stellar pit, but confirm the monitoring of Windbag and Hesperus wells are required, as per condition 1.3.11
Condition 3.5.2 and Table 4.2.1 Annual Environmental Report	The Licence Holder provided clarification that the Milky Way pit would be replacing the Stellar pit, and suggested this change be reflected in Condition 3.5.2 and Table 4.2.1.	The Delegated Officer has made these changes.
Figure 2: Eridanus dewatering map	Licence Holder provided updated map of Eridanus dewatering, showing the new Orion mining operations.	The Delegated Officer has replaced Figure 2 with the revised version.
L5529/1988/12	Some suggested changes to typographic errors and mistakes.	The Delegated Officer has made these changes.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY				
Application type				
Amendment to licence	<input checked="" type="checkbox"/>	Current licence number:	L5529/1988/12	
		Relevant works approval number:	N/A	<input checked="" type="checkbox"/>
Date application received	20 October 2022			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Mt Magnet Gold Pty Ltd			
Premises name	Mt Magnet Gold			
Premises location	M58/30, M58/79, M58/121, M58/136, M58/172, M58/181, M58/185, M58/186, M58/187, M58/191, M58/193, M58/202, M58/205 and M58/234			
Local Government Authority	Shire of Mount Magnet			
Application documents				
HPCM file reference number:	DER2016/001228-1~5			
Key application documents (additional to application form):	Hesperus Monitoring Bore Report (submitted 31 October 2022) Amended Dewatering Maps Supporting documentation			
Scope of application/assessment				
Summary of proposed activities or changes to existing operations.	<p>Licence amendment to change dewatering locations as listed below.</p> <ul style="list-style-type: none"> The Galaxy Underground (UG) mining operation replaces previously named Hill 50, Mars, and Saturn UG mining operations. The mine discharge water includes any remnant pit lake water contained in the overlying local pits: Mars, Perseverance, Saturn, and Titan. Discharge water from the Galaxy UG will mainly go to the Milky Way Pit. Other emission points at Brown Hill, Windbag, Hesperus, Saturn, and Titan will be retained as temporary short-term backup only. The Stellar Pit will no longer be used as an emission point for water from mine dewatering and will only capture intermittent surface water runoff. The Milky Way Pit will continue to capture surface water runoff. It will also receive water from the Galaxy UG and will share with the Franks Tower Pit collection of water from the Eridanus UG, Orion Pit and Shannon UG mines (the Cosmos mining operation), as well as water abstracted from the Bartus, Bartus South, Blackhole, Britannia Well and Quasar abandoned pit lakes (the southern abandoned pit lakes). The Franks Tower Pit was a previously licensed emission point but was temporarily removed from the licence and will require reinstating. Orion is a new mining operation near Eridanus and Franks Tower. The Boomer Pit is an added emission point and will receive overflow from the Ruby Queen Pit. The latter is a current licensed emission point. 			

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Assessed production or design capacity	Proposed changes to the production or design capacity
Category 6: Mine dewatering	3,100,000 tonnes per annual period.	No change to capacity. Change to source and emission point of dewatering (see Scope of application)

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input checked="" type="checkbox"/> Expiry: 16/05/2036 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"/>	If N/A explain why? Activity occurs on mining tenements exempt from planning approvals under s120 of the <i>Mining Act 1978</i>
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 7445-1 already applies
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"/>	No clearing is proposed,
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Licence/permit No: GWL 151513

<p>Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Nearby Mount Magnet Water Reserve (P1) Public Drinking Water Source Protected Area to the north and P2 area to the east</p> <p>Name: The Mount Magnet Water Reserve</p> <p>Type: Proclaimed Groundwater Area</p> <p>Has Regulatory Services (Water) been consulted?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/></p> <p>Regional office: Mid-West Gascoyne</p>
<p>Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Name: Mt Magnet Water Reserve, directly adjacent to mining operations.</p> <p>Priority: P1 and P2</p> <p>Are the proposed activities/ landuse compatible with the PDWSA</p> <p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/></p> <p>The activity has been assessed in the past and approved under works approval and licence. Compare to WQPN 11 – Mining and Mineral Processing – Mine dewatering (2000) as part of assessment.</p>
<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 xxx</i>)</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p><i>Mining Act, Dangerous Goods Act</i></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>Is the Premises subject to any EPP requirements?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Star Mine, Morning Star Mine, Parkinson Mine and Hill 60 Mine, BHP Nickel West, mining tenement M58/202.</p> <p>Classification: Possibly contaminated – investigation required (PC–IR)</p> <p>Date of classification: 29 March 2017</p>