Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

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

Works Approval Number	W6945/2024/1
Applicant	Mt Magnet Gold Pty Ltd
ACN	008 669 556
File number	DWERVT15717
Premises	Mt Magnet Operations Power Station Part of Mining Tenement M 58/193
Date of report	9 October 2024
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 Mt Magnet Operations Power Station (the 'premises'). As a result of this assessment, works approval W6945/2004/1 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 28 May 2024, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to the Hybrid Power Project at the premises. The premises is approximately 4.5 km northwest of Mount Magnet.

The premises relates to the category and assessed production capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6945/2024/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6945/2024/1.

2.3 Power Station upgrades

Mt Magnet Gold Pty Ltd (the applicant) is planning to improve the power supply infrastructure at Mount Magnet Gold (MMG) which operates under licence L5529/1988/12. The premises is located in the Shire of Mount Magnet and is located approximately 2.4 km from the town of Mount Magnet. The premises has a long history of gold mining, with operations dating back to 1891. Current operations include open pit and underground mining, with the mined ore processed onsite for gold production.

MMG power supply is currently sourced from third party owned and operated gas-powered generators and diesel generators operated under a Power Purchase Agreement. A future project at Mount Magnet is to construct a hybrid power project which will replace the existing power supply. The hybrid power project will incorporate thermal energy and renewable energy sources.

In the meantime, the applicant will remove the current decommissioned onsite diesel power plant (Figure 1) and install new generators to support a 13 MW capacity for the Checkers Processing facility and underground mining activities until the hybrid power project is finalised. Diesel fuel is stored in a self-bunded 550 kL primary tank, which supplies two-day tanks that feed the generators.

The upgrade plan includes enhancing the power plant's capacity to 13 MW by installing 13 containerised 1.2 megavolt-amperes (MVA) generators (model KTA50) and three self-bunded 6.3 MVA transformer substations. The design will ensure 10 MW of operational power and 3 MW of backup.

Location drawings of the diesel power infrastructure are shown in Figure 1 and Figure 2. Once the hybrid power project is operational, 10 MW of diesel generators will be decommissioned

and removed from the site. The remaining 3 MW of diesel generators will stay on-site as part of the hybrid power backup system but will not be used for primary power supply. Smaller diesel generators will continue to operate on-site for specific needs such as pumps and lighting towers.

The existing infrastructure in the shed compound includes decommissioned generators that have been out of use since the mid-2000s and 3 MW of diesel generators that will be decommissioned and replaced as part of this project. The infrastructure also includes two 550 kL primary diesel tanks (with only one currently in use) that supply fuel to the diesel generators through the day tanks. No additional fuel tanks will be installed and no stacks are required.

Figure 1:Location of new diesel generators

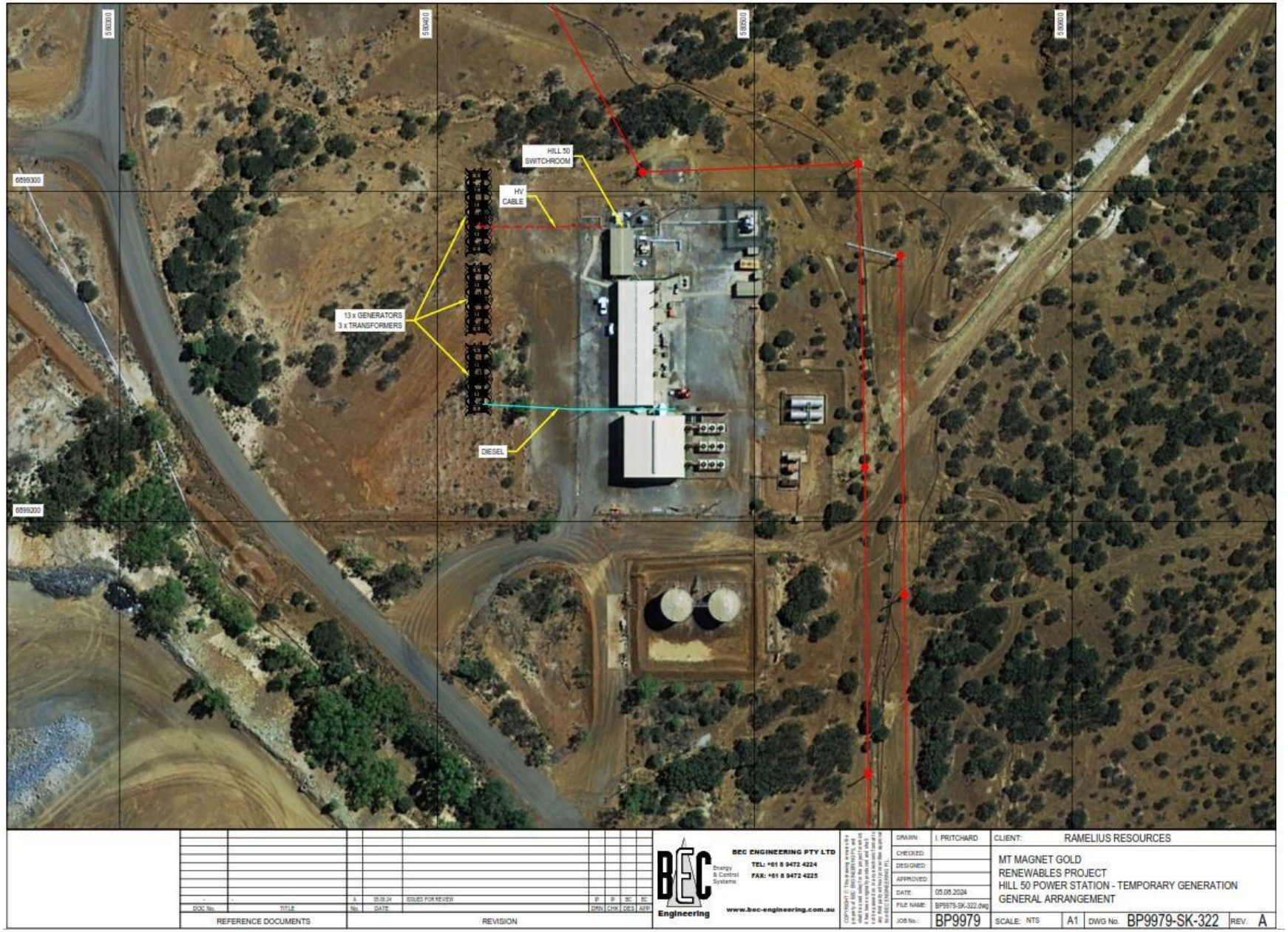

Figure 2: Layout of new infrastructure

2.3.1 Air emissions

Emissions from the power station have been estimated using standard generator specifications with diesel as the assumed fuel. A combination of 13 x 500 kW Cummins KTA containerised generators and 3 x 6.3 MVA transformer substations will be installed with a total capacity of 13 MW. This setup may be adjusted based on efficiency and availability.

A 1.2 MVA diesel generator is projected to consume 263 liters of fuel per hour (6.3 kiloliters per day) when operating at full capacity. With 13 such generators, the total fuel consumption would amount to approximately 82 kiloliters per day. Consequently, the maximum potential emissions from the power station are estimated at 5.6 tonnes per day and 2,042 tonnes per year, primarily consisting of nitrogen dioxide, carbon monoxide, and sulfur dioxide.

The exhaust emissions for the individual generators are predicted in Table 1 below.

Table 1 Exhaust Emissions for KTA50 Generators

Measurement Method	Test 1	Test 2
Specific Load	100% Prime ±2% CPL3947	100% Prime ±2% CPL3947
NOx - Oxides of Nitrogen	14.11g/kWh	14.35g/kWh
PM - Particulate Matter	0.077g/kWh	0.052g/kWh
CO - Carbon Monoxide	1.75g/kWh	0.32g/kWh
HC - Unburnt Hydrocarbons	0.25g/kWh	0.24g/kWh

It is anticipated that the generators will not operate at full capacity simultaneously and will likely run at 50% to 75% of their maximum output. Diesel will be used temporarily while the applicant works on integrating gas and renewable energy sources to reduce greenhouse gas emissions.

Figures 3 and 4 show the emission points for each of the containerised generator, which comprise one exhaust point on each generator 2.6 m above ground level.

Figure 3 Location of each new generator

Figure 4 Exhaust point on each containerised generator

The Department reviewed the air quality estimation of emissions provided by the applicant and found it appropriate and consistent with the department's *Air quality guidance note* (2006) and therefore is suitable to inform the assessment of air quality impact. No issues were identified with:

- emissions and secondary pollutants;
- emission estimates; or
- cumulative impacts

The applicant has advised that works to construct the Hybrid Power project are underway and will likely have the Hybrid Power Project commissioned prior to Time Limited Operations of this works approval being complete.

2.3.2 Noise emissions

Predicted noise emissions have been estimated based on a measured acoustic power level (Lwa) 50 Hz (75% power) of 116. It is therefore expected that at 4 km away from the power station, the sound level will be less than 40 dB. This estimation does not include geographic features such as hills which would be expected to reduce the sound level. Generators will also be situated within containers or buildings to further minimise noise emissions. Noise is not predicted to exceed the assigned levels detailed in Regulations 7 and 8 of the *Environmental Protection (Noise) Regulations 1997.*

2.4 Clearing of Native Vegetation

A maximum 3.3 ha of native vegetation will be cleared in preparation for construction and operation of the power station. Clearing will be conducted on an as-need basis to ensure only the area required is cleared. The clearing and disturbance required has been assessed under CPS7445. The proposed location of the diesel generators takes advantage of existing disturbances. The native vegetation to be cleared is considered highly disturbed.

2.5 Aboriginal heritage

Native Title for the area has not yet been determined and there are currently no Native Title Claims filed. The department understands an Aboriginal heritage survey has been commissioned by the applicant and will be completed before work begins to ensure compliance with the *Aboriginal Heritage Act 1972.* The department notes that it is the applicant's responsibility to obtain the necessary approvals and engage with stakeholders in accordance with the *Aboriginal Heritage Act 1972.*

3. Risk assessment

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

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and time limited operation 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	Installation of new diesel power generators and associated equipment including vehicle movements	Air / windborne pathway	No specific controls proposed.
Time Limited Operation			
Air emissions (CO, NO_x and SO_2)	Running of power generators	Air / windborne pathway	Generators are self-contained within a modified sea container with an exhaust position on the roof of the container to direct emissions upward away from adjacent vegetation
Hydrocarbons (diesel, oils)	Maintenance activities, oil or fuel leaks and spills	Infiltration	No controls proposed
Contaminated stormwater	Rainfall interaction with power station area	Overland runoff and infiltration	No controls proposed

3.1.2 Receptors

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

provides a summary of potential 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)). The town of Mount Magnet is located 2.4 km southeast of the premises boundary.

Table 3 Sensitive environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
The following registered aboriginal heritage sites are within 500 m of the proposed works: • 18155 – Warramboo Hill – Creation / Dreaming Narrative; • 5276 – Mt Magnet – Camp; Traditional Structure; Other	18155 – Warramboo Hill is overlapping the premises 5276 – Mt Magnet registered site buffer is about 350 m to the northeast of the power station *Based on the nature of emissions and separation distances these receptors have been screened out of the risk assessment.*
Native vegetation, including the following threatened flora species: • *Acacia burrowsiana* (P3); • *Acacia speckii* (P3); • *Alyxia tetanifolia* (P3) • *Dodonaea amplisemina* (P4) • *Ptilotus luteolus* (P3) • *Stenanthemum mediale* (P1) • *Verticordia jamiesonii* (P3).	Native vegetation, with health condition ranging from highly degraded to pristine, surrounds the proposed power station footprint. No threatened species have been recorded within 500 m of the premises. However, surveys of the area are limited and they are known to occur in the area.
Waterlines	Several minor non-perennial watercourses run north-south through the premises with the closest being about 50 m south-east of the proposed premises.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source 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 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 W6945/2024/1 that accompanies this decision report authorises construction and 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. Category 52 activities. 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 and Time Limited Operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Construction of power station. Vehicle movements and earthworks.	Dust	Air / windborne pathway resulting in poor health of adjacent native vegetation	Adjacent native vegetation	N/A	C = Slight L = Unlikely **Low risk**	N/A	N/A	The Delegated Officer considers that given the short-term nature of the works and small scale there is a low risk of dust emissions impacting vegetation during construction.
Time limited operations								
Power station operation, including spills and leaks	Emissions to air – NO_2, SO_2 and CO.	Air / windborne pathway causing impacts to health of adjacent native vegetation	Native vegetation	Refer to Section 3.1	C = Minor L = Rare **Low risk**	N	Condition 1 – infrastructure requirements **Conditions 6 – Process Monitoring**	The Delegated Officer has determined that, given the short operational lifespan of the on-site generators (likely less than 12 months) and the fact that their exhaust is directed away from the ground, the risk to native vegetation is low, making emissions monitoring unnecessary. However, process monitoring has been included in the Time Limited Operations to verify generator usage.
	Hydrocarbons and contaminated stormwater	Runoff and infiltration, potentially impacting adjacent native vegetation and soil quality	Native vegetation		C = Slight L = Possible **Low risk**	Y	Condition 1 – infrastructure requirements	The Delegated Officer considers that the proposed infrastructure controls are sufficient to mitigate potential risks to an acceptable level.

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

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

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 18 July 2024	None received	N/A
DPLH advised of proposal on 18 July 2024	The following comment was received on 29 July 2024: Based on the current information provided to DPLH, no approvals under the *Aboriginal Heritage Act 1972* (AHA) are required in this instance as the proposed works indicates that no interference will take place with any known Aboriginal heritage" Limited Aboriginal heritage surveys have been completed over the subject land, as such it is not definitive if there is Aboriginal heritage present. The proponent needs to be aware of their obligations under the AHA and *Aboriginal Heritage Regulations 1974* (AHR).	Noted and captured in this Decision Report
Applicant was provided with draft documents on 19 September 2024	No comments received	N/A

5. Decision

Based on the assessment in this decision report, the Delegated Officer has determined the proposal to install generators sufficient to produce 13 MW of generating capacity at the Mt Magnet operations does not pose an unacceptable risk to the environment. This determination is based upon:

- a maximum of 13 containerised generators and three self-bunded transformer substations generators being installed;
- the short construction and operational life of the proposed activities; and
- the identified risk events having an inherently low risk profile due to the nature of the proposed activities and type and sensitivity of receptors in relation to the predicted emissions.

The time-limited operations period has been granted for 360 days to enable the applicant time to construct the proposed hybrid power project which is intended to replace the diesel power station. A licence amendment will be required to authorise ongoing operation of the constructed infrastructure beyond time-limited operations. Licence conditions will not be finalised until the

department assesses the amendment application.

6. 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. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2019, *Guideline: Air Emissions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. Department of Water and Environmental Regulation (DWER) 2022, *Clearing Permit Decision Report*, Perth, Western Australia.
5. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
6. Western Botanical 2007, *Preliminary Assessment of Conservation Values of Flora and Vegetation on Banded Ironstone Formations surrounding Harmony Gold operations, Mt Magnet,* Perth, Western Australia.