Decision Report

Application for Licence

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

Licence number	L2994/2025/1
Applicant	Mid-West LNG Property Pty Ltd
Application number	APP-0028626
Premises	Mid-West LNG Hub Lot 500 Great Northern Hwy DAGGAR HILLS WA 6638
Date of report	28 August 2025
Status of report	Final

1. Decision summary

This report documents the assessment of potential risks to the environment and public health from emissions and discharges during the operation of the premises. As a result of this assessment, licence L2994/2025/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this report, the department has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://www.wa.gov.au/service/building-utilities-and-essential-services/integrated-essential-services/dwer-regulatory-documents.

2.2 Application summary

On 16 May 2025, Mid-West LNG Property Pty Ltd (the applicant, Mid West LNG) submitted a licence application relating to a Liquid Natural Gas (LNG) production facility with an attached powerplant at Lot 500 Great Northern Highway, Daggar Hills (the premises), about 10 km south of Mount Magnet.

The application follows the completion of works under works approval W6500/2020/1, granted on 1 April 2021, to authorise construction and time limited operation of the proposed LNG plant and associated infrastructure. Construction works were completed in October 2024.

The premises relates to categories 34 (oil or gas refining) and 87 (fuel burning) under Schedule 1 of the Environmental Protection Regulations 1987 (EP Regulations) which are defined in licence L2994/2025/1. The infrastructure and equipment relating to the premises category and the associated activities which the department has considered in line with the *Guideline: Risk Assessments* (DWER 2020b) are outlined in licence L2994/2025/1.

2.3 Premises overview

The premises consists of an LNG production facility with a design capacity of 98,550 tonnes per annum, in addition to an attached power generation facility with a fuel burning capacity of 1,461 kg/hr of natural gas.

The LNG facility operates by liquefying natural gas drawn from the Mid-West natural gas pipeline, which is stored at the premises prior to being offloaded for regional distribution via road train. The facility is powered by four 2 MW on-site gas fuelled power generators and has the capacity to operate continuously (i.e., 24 hours a day, 365 days a year). The facility has a backup diesel generator present to be used when primary gas power-generation is unavailable.

The liquefaction process involves the use of supplementary chemicals which, after an initial first fill, will only be required in small quantities due to the closed nature of the system. These supplementary chemicals are stored on-site in relatively small quantities within a bunded storage container alongside lubrication oil.

Table 1: Key site infrastructure

Infrastructure/ equipment	Specifications
LNG production facility	Facility has a production capacity of 250 tonnes of LNG daily and consists of an amine treating system, a molecular sieve gas dehydration system and a mixed refrigerant LNG cycle
Flare	A flare attached to the LNG production facility present to combust any non-liquified gases prior to atmospheric discharge

Gas generators	4 x 2 MW Cummins HSK78G natural gas generator set engines with 8.6 m stacks containing sampling ports compliant with AS4323.1
Diesel generator	1 x 550 kw WCS550S-AU diesel generator unit
Diesel storage tank	1 x self-bunded and double walled steel diesel storage tank compliant to AS1692 and AS1940 with a capacity of 4,500L
Chemical storage container	1 x 6 m bunded shipping container for lubricant oil storage compliant to AS1940 and AS1692
LNG storage tanks	6 x 368 m^3 double walled storage tanks

2.4 Compliance documentation

On 7 February 2025, the applicant submitted an Environmental Compliance Report (ECR) confirming construction of the premises was undertaken in accordance with the works approval conditions.

The ECR assessed both stage 1 and 2 of premise construction. Stage 1 infrastructure compliance information was not submitted as it was redundant at the point of submission and the infrastructure had already been removed. The ECR was reviewed by the department and all stage 2 infrastructure was deemed to have been constructed in accordance with works approval conditions.

W6500 conditioned emissions testing to be conducted upon generator stacks, the results of this monitoring were not submitted with the ECR but rather with the licence application.

3. Air emission modelling and monitoring

3.1 Air dispersion modelling

As part of the application submission the applicant included air emission modelling that was conducted by Golder (Golder 2020a) for the works approval application. The modelling was conducted in accordance with '*Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales*'. The modelling was conducted with all four gas generators operating 24 hours a day, 365 days a year at 100% load with 6.5 m high stacks.

The results were compared against the ambient air quality guideline values (AGV) in DWER's *Guideline: Air Emissions Draft* (DWER 2019) for formaldehyde (HCHO) and the National Environment Protection (Ambient Air Quality) Measure (NEPM) standards for nitrogen dioxide (NO_2) which showed the predicted ground level concentrations (GLC) at Mt Magnet were well within these criteria.

Table 2: Modelled maximum ground level concentrations of NO_2 and formaldehyde at Mt Magnet (stack height 6.5 m)

Pollutant	Averaging period	Receptor	Maximum ground level concentration	AGV
Nitrogen dioxide	1 hour	Mt Magnet	34 µg/m^3	150 µg/m^3
Nitrogen dioxide	Annual		3.7 µg/m^3	28 µg/m^3
HCHO	1 hour		11 µg/m^3	20 µg/m^3

Additional modelling was provided to assess potential short-term impacts to users of Great Northern Highway or at adjacent industrial premises Golder (2020b). The modelling included stack heights increased to 8.6 m high. The results indicate maximum ground level concentrations outside the premises boundary to also be below the relevant AGV (Table 3).

Table 3: Modelled maximum concentrations of NO_2 and formaldehyde outside the premises boundary (stack height of 8.6m)

Pollutant	Averaging period	Maximum ground level concentration outside the premises boundary	AGV
Nitrogen dioxide	1 hour	87 µg/m^3	150 µg/m^3
HCHO	1 hour	10 µg/m^3	20 µg/m^3

The results and inputs for the modelling were reviewed at the time of the works approval assessment and determined to be conservative, with the results showing emissions are unlikely to impact receptors on Great Northern Highway, adjacent premises, or the town of Mt Magnet.

3.2 Emission monitoring

The applicant undertook monitoring of emissions from exhaust stacks during time limited operation of the premises in accordance with conditions of the works approval. Table 4 shows emission rate from the monitoring compared to that of the emission rate used within modelling.

Formaldehyde emission rates are a fraction of the rate used within the model and oxides of nitrogen fall well below the modelled emission rate. The results of the stack monitoring event demonstrate that actual emissions fall within expectations from modelled emissions.

Table 4: Emission monitoring summary table

Emission point	Emission	Emission rate (g/s)		
		Modelled rate	Monitoring Run 1	Monitoring Run 2
50	Formaldahyde	0.14	0.0020	0.0032
	NOx	0.76	0.29	0.29
51	Formaldahyde	0.14	0.0027	0.0039
	NOx	0.76	0.21	0.21
52	Formaldahyde	0.14	0.0059	0.0055
	NOx	0.76	0.22	0.22
53	Formaldahyde	0.14	0.0069	00041
	NOx	0.76	0.22	0.22

4. Consultation

The application was referred to relevant public authorities and advertised for public comment on the department's website during May 2025. The Shire of Mount Magnet did not provide a response, nor were any public submissions received, within the timeframe specified.

5. 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 2020b).

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.

5.1 Source-pathways and receptors

5.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this decision report are detailed in Table 5 below. Table 5 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 5: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Operation			
Air Emissions (NOx, HCHO & CO)	Gas generator stacks	Air/ windborne pathway	Generator stack heights of 8.6 metres with AS4323.1 compliant sampling ports Stack testing to verify emissions
Noise	LNG production plant and generator stacks	Air/ windborne pathway	None Proposed
Contaminated stormwater, hydrocarbons and chemicals	Diesel storage tank	Overland runoff and direct infiltration to groundwater	Diesel tank is self-bunded and compliant to AS1940 and AS1692
	Chemical and hydrocarbon storage	Overland runoff and direct infiltration to groundwater	Chemical storage present within a bunded shipping container compliant to AS1940

5.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020b), 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 6 and Figure 1 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 2020a)).

Table 6: Sensitive human and environmental receptors

Human receptors	Distance from prescribed activity
Mt Magnet town site	11 km north of the Premises boundary
Environmental receptors	**Distance from prescribed activity**
Specified Ecosystems	No Specified Ecosystems within 10 km
Underlying Groundwater (non-potable purposes)	10 m – 45 m below ground level

5.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020b) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 5.1. 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 5.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

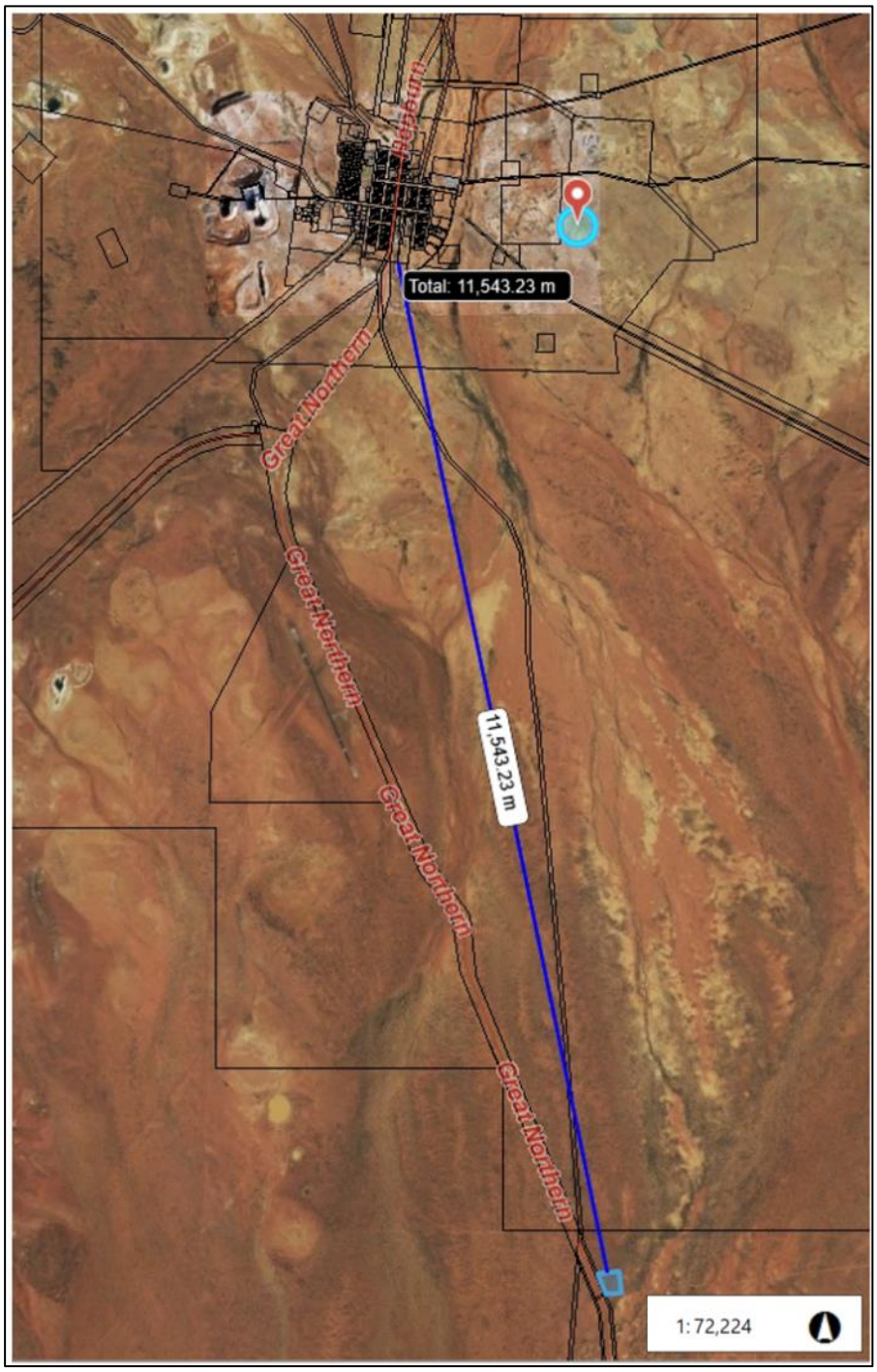

Figure 1: Distance to Mt Magnet

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 7.

Licence L2994/2025/1 that accompanies this decision report authorises emissions associated with the operation of the premises i.e. LNG production and power generation activities.

The conditions in the issued licence, as outlined in Table 7 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 7: Risk assessment of potential emissions and discharges from the premises during operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of licence	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Operation								
Operation of LNG plant and power plant	Air emissions of NOx, CO and HCHO	Air / windborne pathway causing impacts to health and amenity	No human receptors within 10 km of the premises	Refer to section 5.1.1 Table 5	C = Minor L = Rare **Low Risk**	Y	Condition 1, 2 and 3	The proposed controls of 8.6m stack height and stack monitoring are deemed sufficient for the level of risk. No additional regulatory controls are deemed necessary.
	Noise			None	C = Insignificant L = Rare **Low Risk**	Y	N/A	The distance to the nearest sensitive receptor is of sufficient size that there is a low risk of impact on receptors. No regulatory controls deemed necessary.
Operation of emergency diesel generator and storage of hydrocarbons and chemicals	Leaks and spills of hydrocarbons Contaminated stormwater	Direct discharge to land and infiltration causing contamination of soils/groundwater	Soils within the premises. Groundwater >10 m	Refer to section 5.1.1 Table 5	C = Insignificant L = Unlikely **Low Risk**	Y	Condition 1	Diesel is stored within tanks compliant to AS 1940 and AS 1692. Controls are sufficient for risk present, no additional regulatory controls deemed necessary.

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

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

6. Decision

The delegated officer has determined the proposal to operate the LNG production facility and its associated power plant does not pose an unacceptable risk to public health or the environment. The determination is based on the following:

- the relatively small scale of the facility and the limited population within the surrounding areas, with adequate separation distance to the nearest human receptors.
- the infrastructure having been installed in accordance with the conditions of works approval W6500/2020/1.

Conditions have been included on the licence that are commensurate with the assessed low risk, consistent with the applicant's proposed controls, and in accordance with the *Guidance Statement: Setting conditions*.

The applicant has a lease agreement for the premise which expires on 1 July 2045. The delegated officer has therefore determined in accordance with the *Guidance Statement: Licence duration* to grant the licence for a 20-year period.

6.1 Applicant comments on draft decision

The applicant was provided with drafts of the licence and this report on 1 August 2025 and sought only minor comments and clarifications.

7. Conclusion

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

References

1. Clean Energy Fuels Australia (CEFA) 2020, LNG Plant Description and Details (DWER ref A1919959), Perth, Western Australia.
2. CEFA 2025, Mt Magnet Emissions Monitoring Perth, Western Australia.
3. CEFA &, Enplan 2025, Midwest LNG Hub Environmental Compliance Report W6500/2021/1, Perth, Western Australia.
4. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
5. Department of Water and Environmental Regulation (DWER) 2016, *Guidance Statement: Licence duration*, Perth, Western Australia.
6. DWER 2019, *Guideline: Air Emissions* (DRAFT). Perth, Western Australia.
7. DWER 2020a, *Guideline: Environmental Siting*, Perth, Western Australia.
8. DWER 2020b, *Guideline: Risk Assessments*, Perth, Western Australia.
9. Golder November 2020a *Report: Mount Magnet LNG plant and power station air quality screening assessment* (Attachment 6Ail 20383011-001-R-Rev0).
10. Golder November 2020b *Technical Memorandum: Response to DWER information request: Maximum Predicted Pollutant concentrations for the Mount Magnet LNG Plant (Attachment 6Ail 2083011-002-TM-Rev0).*
11. Mid-West LNG Property Pty Ltd 2025, *Licence Application for Mid-West LNG Plant including supporting information*, Perth, Western Australia.