Decision Report

Application for Works Approval

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

Works Approval Number	W6924/2024/1
Applicant	Kemerton DB Pty Ltd
ACN	670 430 583
File number	DER2024/000141
Premises	67 Devlin Road WELLESLEY WA 6233 Legal description Part of Lot 254 on Deposited Plan 416516 As defined by the coordinates in Schedule 2 of the works approval
Date of report	3 September 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 power generation infrastructure at 67 Delvin Road, Wellesley. As a result of this assessment, works approval W6924/2024/1 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 DWER Regulatory documents | Western Australian Government (www.wa.gov.au).

2.2 Application summary

On 29 March 2024, Kemerton DB Pty Ltd (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 of power generation infrastructure at 67 Delvin Road, Wellesley, Part of Lot 254 on Deposited Plan 416516 (the premises). The premises is located within the Kemerton Strategic Industrial Area, approximately 3.5 km north-east of Leschenault.

The premises relates to the category 52: Electric power generation with an assessed production capacity of 19.9 MW per annum under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6924/2024/1. 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 this decision report and works approval W6924/2024/1.

2.3 Background and premises overview

The applicant proposes to relocate two electrical power plants from their current location in Picton, to the premises. The premises is located adjacent to the existing Tesla Kemerton Peak Lopping power station (L8707/2012/1) on Part of Lot 5107 Marriott Road, Wellesley. The proposed infrastructure will include:

- 10 additional (5 per power plant) diesel fuelled Caterpillar type 3516B-HD generator sets which will be self bunded with stacks from each set of 5 generators directed into a single stack which discharges 12.5 m above ground level;
- two bunded transformers;
- two 55,000 litre capacity fuel tanks, self bunded;
- control hut; and,
- security fencing around the plants.

Exhaust mufflers are installed on the roof of each enclosure to minimise the visual bulk of the stacks.

The power plant will be operated as peak loading stations operated with each generator set operating for less than 200 hours per year to provide additional peak loading capacity into the Western Power South West Interconnected System (SWIC). Due to the intermittent nature of operation the premises is unmanned and is controlled remotely.

2.4 Air quality assessment

The applicant commissioned Synergetics to undertake an air quality impact assessment to determine the potential impact on air quality and amenity for nearby sensitive receptors as a result of emissions to air from the power station (Synergetics 2024). Dispersion modelling was undertaken using the AERMOD dispersion model to predict ground level concentrations (GLCs) for pollutants across the model domain. The department considered that with a lack of meteorological information for the Bunbury area and Synergetics approach to address this it was not possible to assess whether the modelling was sufficiently conservative.

After discussions between the department and Synergetics it was agreed to use AERSCREEN, a screening tool based on AERMOD to model worst case pollution concentrations as a conservative assessment of potential air quality impacts. A scenario of three 9.9 MW power stations running at maximum power for each generator was assessed using the screening tool although it is noted the facility will only operate intermittently, up to an expected maximum of 200 hours per year.

Background pollutant concentrations were taken from data available at Mandurah in order to assess cumulative impact. NO_2 levels are likely to be higher for this location than the sensitive receptors because of the higher traffic level. The assessment considers that the plumes from the power station and the nearby Albemarle Lithium Plant are not likely to overlap.

Predicted worst case ground level concentrations (GLC) for a range of emissions are shown in Table 1.

Table 1: Modelled worst case GLC at the nearest sensitive receptor

Substance	Assessment Criteria		Facility emission only		Background only		Facility with background	
	Averaging Period	AGV (25°C,µg/m^3)	Modelled value	% of criterion	Recorded value	% of criterion	Modelled value	% of criterion
CO	1 hour	30,000	30.3	0.10%	-	-	-	-
	8 hour	10,000	27.0	0.27%	458	4.6%	485	4.8%
NO_2	1 hour	150.5	47.9	31.8%	21	14.0%	68.9	45.8%
	1 year	28	4.79	17.1%	4	14.3%	8.79	31.4%
SO_2	24 hour	52	0.078	0.15%	10.5	20.2%	10.6	20.3%
PM_{10}	24 hour	46	1.25	2.72%	27.2	59.1%	28.5	61.9%
	1 year	23	0.21	0.91%	17.5	76.1%	17.8	77.0%
$PM_{2.5}$	24 hour	23	1.22	5.3%	16.4	71.3%	17.6	76.6%
	1 year	7	0.2	2.9%	-	-	-	-
Benzene	1 hour	29	0.091	0.31%	-	-	-	-
	1 year	9.6	0.0091	0.09%	-	-	-	-
PAHs	1 year	0.0003	0.00000013	0.04%	-	-	-	-

All modelled concentrations are below the ambient air quality guideline values (AGVs).

The department reviewed the applicant's revised screening assessment approach and determined it sufficient to inform the risk assessment of the application. The department considers that the probability of air quality impacts due to the operation of the proposed two additional power plants is likely to be low and emissions are expected to comply with ambient air quality guideline values.

Cumulative air quality impact was estimated by adding the 90th percentile concentration (where available) from the Mandurah air quality monitoring site data. This is considered sufficient for the assessment of cumulative impact. For cumulative impacts to be of concern, would require both plants to be operating at an upper level and the geometry of wind directions such that the plumes from both plants align with a sensitive receptor.

2.5 Noise assessment

The applicant commissioned Lloyd George Acoustics to undertake a noise impact assessment to determine the potential impact of noise emissions from the premises at noise sensitive receivers and whether operation of the proposed power plants is likely to comply with the assigned noise levels prescribed in the Environmental Protection (Noise) Regulations 1997 (Noise Regulations). Modelling of the noise propagation from the proposed development was carried out using an environmental noise modelling computer program, SoundPLAN 8.2 using the Comcawe algorithm. Source sound levels were obtained from Energy Power Systems and calibrated with measurements taken in October 2012 at the existing peak loading power station generators adjacent to the premises. The modelling scenario is the operation of the two new plants in combination with the existing adjacent peak loading plant.

A summary of the model predicted noise levels in comparison with the lowest applicable assigned level as per the Noise Regulations is provided in Table 2

Table 2: Predicted noise levels at receptors dB L_{A10}(from Lloyd George Acoustics 2024)

Receiver	Existing Facility	Proposed Facility	Total	Total Adjusted	Assigned Level	Assessment
Southeast residence	20	25	26	31	40	Complies
West Residence	3	6	8	13	40	Complies
Premises Boundary East	55	65	65	70	65[1]	+5 dB
Premises Boundary North	62	66	67	72	65[1]	+7 dB
Premises boundary South	60	59	62	67	65[1]	+2 dB
Premises Boundary West	58	57	60	65	65[1]	Complies

Note 1: Assigned levels presented are for Industrial and Utility Premises however there are no neighbouring industries currently located at the boundaries of the premises.

Noise levels at the nearest existing industrial premises were modelled at 45 dB(A) to the north (Kemerton Lithium Plant) and 47 dB(A) to the south (Cockburn Cement) and therefore compliant with the assigned level of 65 dB(A) for industrial premises.

The department reviewed the applicant's noise impact assessment and noted that the model inputs and assumptions are appropriate. Predicted sound levels at existing industrial premises and sensitive receptors are consistent with the Noise Regulations assigned levels.

The land immediately outside/adjacent to the premises boundary is zoned for industrial use, however there is no industry currently located in the immediate area. In relation to the predicted exceedance of the assigned levels at the premises boundary, it was noted that the noise

assessment indicates that should a neighbouring industrial premise be established in the future, a noise wall can be constructed to address this issue. The noise walls will are expected to be effective for compliance at ground level however, they may not be effective if elevated receiver locations are constructed on neighbouring premises. Obligation lies with the applicant to ensure compliance with the Noise Regulations in the event new premises are established in proximity to the power station.

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 operation which have been considered in this decision report are detailed in Table 3 below. Table 3 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 3: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Installation of 10 additional power generators, 2 diesel tanks and 2 transformers and preparatory earthworks.	Air / windborne pathway	• Vehicle access will be restricted and vehicles must remain on designated access track and parking areas. Controlled vehicle speeds. • Compacted or cleared areas will be stabilised. • The extent of exposed surfaces and the duration which these areas will be exposed will be minimised • A water truck will be available during construction • Maintain general housekeeping practices to ensure there is no accumulation of waste or loose materials that may generate dust • Cease works until remedial actions can be implemented if dust emissions are significant. • The site will be covered in blue metal to reduce potential for dust generation.
Noise		Air / windborne pathway	• All machinery and equipment will be fitted with the appropriate noise control equipment; • During construction known noisy activities will not occur outside the hours of 7am until 6pm weekdays.
Operation			
Noise	Commissioning and operation of additional	Air / windborne pathway	• Generator sets will be housed within 800 mm thick concrete noise attenuating enclosures with acoustic lining (or similar);

Emission	Sources	Potential pathways	Proposed controls
	power generators		• Replacement and repair on machinery/equipment will occur if not meeting noise control requirements; • The acoustic equipment including engine exhaust muffler, acoustic louvers and ventilation fan will be designed and manufactured to meet the acoustic requirements of the installed equipment; • Property boundary noise level will not exceed 65 dB(A) measured at any neighbouring facility. If a facility is to be constructed next to the existing one, noise walls will be erected to ensure the specified noise limit is experienced at the relevant boundary.
Air emissions (CO, NOx, SO2, CO2, Particulate matter)		Air / windborne pathway	• Generator stacks will discharge via a single 12.5 metre stack for each power plant. • Implement air monitoring program to monitor and report emissions. • Low sulphur diesel to be the fuel source • Testing after 500 hours of operation. • Generator will be maintained quarterly to ensure efficiency and minimise emissions. • Generators are expected to operate less than 200 hours per year (per generator). • The plant area will be covered in blue metal to prevent dust generation.
Hydrocarbons transport, handling and storage		Infiltration and overland runoff potentially causing ecosystem disturbance or impacting surface water	• All hydrocarbons will be contained in standard tanks in bunded area, in double skinned tanks, self-bunded fuel tanks or in portable bunds; • All storage will be accordance with the Australian Standards AS1940 and AS1692; • The loading and unloading pump and connections will be located in the bund. • Significant leaks or spills into a bunded area will be collect by an appropriate waste removal company; • Spill response kits and instruction for their use will be located adjacent to bunded areas; • Generators will be self-bunded and bunds are to be covered so as not to collect rainfall. • Transformers will be bunded. • Bunds will be maintained as part of the site maintenance schedule.

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.

Table 4 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 4: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
Closest residential receptor	1.85 kilometres southeast
Residential Area	3.7 kilometres west
Environmental receptors	**Distance from prescribed activity**
Groundwater	Located within the Bunbury Groundwater Area with groundwater 12 metres below ground level
Multi use wetland areas	280 metres east
Threatened ecological community	Within 200 metres of areas of the threatened ecological community *Banksia woodland of the Swan Coastal Plain*.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) 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 5.

Works approval W6924/2024/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 5 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. 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 5: Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Reasoning
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Preliminary earthworks and placement of generators fuel tanks and transformers	Dust	Air / windborne pathway causing impacts to health and amenity	Residences 1.85 km southeast and 3.7 km west	Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	NA	Given the nature of the works and separation distance the delegated officer does not reasonably foresee offsite impacts occurring associated with noise and dust emissions from construction activities on the premises therefore no controls have been specified relating to these activities.
	Noise			Refer to Section 3.1	C = Minor L = Rare **Low Risk *k***	Y	NA	
Time Limited Operations								
Operation of generators	Noise	Air / windborne pathway causing impacts to health and amenity	Residences 1.85 km southeast and 3.7 km west	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1	Based on the proposed noise controls and the applicant's noise assessment the delegated officer considers that noise emissions from the premises will comply with the Noise Regulations at existing receptors in proximity to the premises. As the applicant's proposed noise controls informed the noise assessment and were considered in the risk assessment they have been specified as construction requirements to maintain an acceptable level of risk. The applicant must comply with the *Environmental Protection (Noise) Regulations 1997* therefore the applicant should note that further noise controls, such as a noise wall, may be necessary should a new premises be established adjacent to the boundary of the power station
	Emissions to Air including CO, NOx, SO_2, PM_{10} and $PM_{2.5}$						Conditions 1,**7, 8, 9, 10**	The Delegated Officer considered the outcomes of air quality modelling and determined that air emissions from the power station are expected to comply with ambient air guideline values at the nearest receptors. Monitoring of

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Reasoning
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
								the generators is considered necessary during the time limited operation phases to verify that generator emissions are consistent with modelling inputs. Requirements have therefore been included in the works approval for Australian Standard monitoring ports on the generator stacks to facilitate stack tests as well as the monitoring requirements. Generator specifications and stack heights aligning with those proposed and being the basis for modelling have also been specified in the works approval. The Delegated Officer has also specified an upper limit for operating hours to ensure operation as a peaking station as proposed.
Storage of hydrocarbons	Hydrocarbons (loss of containment) and contaminated stormwater	Direct discharge to land and infiltration to groundwater Overland flow	Soils on the premises Groundwater 12 mbgl TEC 200 m	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 1, 7	The delegated officer considered the applicant's proposed controls to prevent loss of containment of hydrocarbons will adequately mitigate the risk of adverse impacts to surrounding land, groundwater, wetlands and native vegetation. The applicant's containment and spill controls have been included as construction and operational conditions of the works approval.

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.
Note 3: Conditions 2-6 and 11-15 are all department imposed conditions required for compliance reporting, authorising time limited operation and associated emissions, and general complaint and record keeping requirements

4. Consultation

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

Table 6: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 10 May 2024	None received	N/A
Local Government Authority advised of proposal on 13 May 2024	None received	The applicant has provided evidence of planning approval (DAP/24/02648)
Applicant was provided with draft documents on 21 August 2024	The applicant replied on 28 August 2024 providing a copy of the development approval, an updated figure 2 (Map) and an update on fuel loading and unloading at the diesel tanks. The applicant advised commissioning will potentially be delayed until Q3 2027.	The delegated officer has updated Schedule 1 Figure 2 to show the transformers and amended Table 3 of the Decision Report, and Table 1 in the works approval to include requirements for loading and unloading infrastructure. The works approval has been granted for a standard three year period which should be sufficient. The applicant is able to apply for an extension to the works approval at a later date if the commissioning and licensing of the facility is not complete prior to expiry.

5. Decision

Based on the assessment in this decision report, the delegated officer has determined that the proposal to construct two new power plants each comprising five diesel fuelled, self-bunded generators does not pose an unacceptable risk to human health or the environment. The determination is based upon:

- a maximum of ten additional Caterpillar type 3516B-HD generator sets being installed with suitable containment infrastructure to prevent loss of containment to the environment;
- air quality modelling indicating ambient air quality criteria can be complied with when the new infrastructure and the existing adjacent power station are operated at full capacity; and
- noise modelling indicating noise emissions will not cause exceedance of the Noise Regulations assigned noise levels at nearby sensitive receptors.

The applicant's infrastructure and operational controls considered critical to maintaining an acceptable level of risk of public health and environmental impacts have been imposed on the works approval as infrastructure controls for construction, and operational controls for time limited operation.

The delegated officer determined to apply additional controls for nitrogen oxide monitoring to verify that emissions from the installed generators align with assumptions in air quality

modelling to confirm there is no elevated risk of ambient air quality impacts from emissions. This includes installation of Australian Standard sampling ports on the generator stacks to enable the monitoring to occur. It is understood that the stacks are likely to already have compliant monitoring ports as they are being relocated from a previously licensed premises. An operational hours upper limit has also been applied to ensure operation as a peak loading station.

Works Approval W6924/2024/1 that accompanies this report authorises construction, and time limited operations only. A licence will be required to authorise the on-going operation of the infrastructure.

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) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. Galt Environmental 2024, *Report on works approval supporting documentation 2 x 9.9 MW power stations Lot 5017 Marriott Road Wellesley,* Osborne Park Western Australia
5. Synergetics 2024, *Air quality assessment of relocated diesel peaking power plants at Kemerton, Wester Australia,* Melbourne Victoria
6. Lloyd George Acoustics 2024, *Environmental Noise Assessment – Existing and Proposed Facility Lot 254 Devlin Kemerton*, Hillarys Western Australia