



Application for Licence Amendment

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

Licence Number	L8356/2009/2
Licence Holder	NewGen Neerabup Pty Ltd
ACN	126 965 722
File Number	2010/007483-2
Premises	NewGen Neerabup Power Station 45 Trandos Road NEERABUP WA 6031 Legal description – Lot 100 on Deposited Plan 63371 As defined by the Premises maps attached to the Revised Licence
Date of Report	26 July 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 L8356/2009/2 is held by NewGen Neerabup Pty Ltd (Licence Holder) for the Neerabup Power Station (the Premises), located at 45 Trandos Road, Neerabup.

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 L8256/2009/2 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the Premises.

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 [DWER Regulatory documents | Western Australian Government \(www.wa.gov.au\)](http://www.wa.gov.au).

2.2 Application summary and background

On 22 May 2023, the Licence Holder submitted an application to the department to amend licence L8356/2009/2 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- amendment of table one to clarify that low NO_x burner operation on the gas turbines is not applicable during startup, shut down and upset conditions when the gas turbines need to operate with a diffusion burner; and
- inclusion of an additional authorised discharge point in Table 2 and Figure 1 to enable discharge of stormwater treated by the oil water separator to the soakage pit, with an associated total recoverable hydrocarbons limit of 5 mg/L applicable to the discharge.

The licence was amended 30 November 2021 to implement changes to the requirements for air emissions and reformat to the current DWER format for licenses. Since the issue of the amended licence it has been identified that some of the changes made to the licence conditions do not align with the operational requirements of the power station. The proposed amendment for the low NO_x burner operation is to resolve an issue with the 2021 amended licence which requires that low NO_x burners be used at all times. This is not possible during startup, shutdown and low load operations as during these times a diffusion burner must be used to achieve a hotter, more robust flame. The diffusion burner is typically used for a short period of six to ten minutes during these operating conditions prior to switching to the low NO_x burners for normal operating conditions. The licence holder requested that the amended licence specify that low NO_x burners are used during normal operation and normal operation be defined to exclude startup, shutdown and loads at less than 60% of capacity from normal operations.

The 2021 amended licence specifies that water from the oily water separator be discharged to the lined settling ponds therefore does not allow for discharge of treated water to the stormwater soak well on the premises. Prior to the 2021 amendment potentially contaminated stormwater was treated through the oily separator and the treated water was discharged to the stormwater soakage pit. The licence holder has requested the licence conditions be amended to allow treated water from the oily water separator to be discharged to the stormwater soakage pit subject to meeting a discharge limit of 5 mg/L for total recoverable hydrocarbon.

Monitoring of ground water quality (inclusive of total recoverable hydrocarbons) takes place annually in accordance with the licence conditions both up gradient and down gradient of the stormwater soakage pit.

2.3 Part IV of the EP Act

Ministerial approval for construction and operation of a 330 MW gas-fired power station, on the premises was granted under Part IV of the EP Act on 21 January 2008 (MS 759). MS759 included conditions relating to air emissions.

MS 1176 was subsequently published on 25 November 2021, which amended MS 759 and removed the air emissions provisions which are now regulated under Part V of the EP Act through the licence.

2.4 Modelling of air emissions

Air emissions modelling was undertaken in 2007 at the time of the Part IV assessment for the power station. Predicted maximum ground level concentrations (GLC) for NO_x (the most significant emission) are outlined in Table 1.

Table 1: Maximum model predicted NO_x ground level concentrations

Location	Predicted GLC µg/m ³		NEPM Guideline Value		Maximum percent of guideline	
	1 hour	annual	1 hour	annual	1 hour	annual
Predicted maximum in model domain	34.64	0.13	150.5	28.2	23	0.4
Predicted maximum at sensitive receptor	17.17	0.04			11	0.1

Predicted GLCs are low, however, they are based on normal operations of 25 ppm and upset conditions have not been modelled. The expected output during startup and shut down when low NO_x burners are not in use is 30-35 ppm. These conditions generally last 6 to 10 minutes.

Based on the model predictions for normal operations and the short-duration of start-up, shut-down, upset conditions the delegated officer considers it highly unlikely that air guideline values will be exceeded on either a 1 hour or annual basis during these conditions.

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 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
Combustion gases (NO _x , CO, particulates, so ₂)	Combustion of gas within two open cycle gas turbines for power generation	Air/windborne pathway	Low NO _x burners with a design criteria of less than 25 ppm (other than during start-up, shut-down and upset conditions) Natural gas only as a fuel
Treated stormwater containing contaminants (hydrocarbons)	Oily water separator	Direct discharge to ground and infiltration	Potentially contaminated stormwater is treated via an oily water separator prior to discharge. Discharge subject to testing and confirmation treated water meets 5 mg/L TRH limit prior to discharge. Groundwater monitoring up and down gradient of the discharge location in accordance with conditions of licence.

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 as a result 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
Single rural residence	290 m boundary to boundary – 400 m house to stack.
Residential Area	1.7 km south east from boundary to boundary.
Recreational facility (Go Cart hire)	520 metres north
Environmental receptors	Distance from prescribed activity
Underlying groundwater (non-potable purposes)	7 metres below ground level.
Bush forever sites	350 northwest of the premises and 400 northeast of the premises

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are 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 L8356/2009/2 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises.

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 operation

Risk Event					Risk rating ¹	Licence Holder's controls sufficient?	Conditions ² of licence	Reasoning
Source/ Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood			
Operation of natural gas fired gas turbines	Combustion gases: CO NOx particulates and SO ₂	Air/windborne pathway causing impacts to health and amenity	Residence 290 metres away and residential area 1.7 kilometres away.	Refer to Section 3.1	C= Minor L= Rare Low Risk	Y	Condition 1	Specification of normal operating conditions in relation to use of low NOx burners in Table 1 does not represent a change to operating practice at the premises and clarifies the requirements of condition 1. The previously assessed risk for combustion gases is low and there has been no change to the operation of the generators.
Discharge of treated stormwater from the oily water separator to the stormwater soakage pit	Contaminated stormwater (hydrocarbons)	Overland to ground and seepage to groundwater.	Soil and groundwater	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1,2,3,7, 8 and 18	The delegated officer considers the proposal to discharge treated stormwater from the oily water separator to the stormwater soakage pit subject to the applicant's proposed controls of testing the treated stormwater prior to discharge and subjecting discharge to meeting a limit of 5 mg/L does not present an unacceptable risk of impact to receptors.

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

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

4. Consultation

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

Table 5: Consultation

Consultation method	Comments received	Department response
Local Government Authority advised of proposal 21 June 2023	The City of Wanneroo replied 28 June 2023 advising that the amendment did not conflict with the City's planning approval, or the conditions imposed	The delegated officer noted this advice.
Licence Holder was provided with draft amendment on 17/07/23	The licence holder replied on 18/07/2023 with a minor wording change to condition 1 and an updated map	Delegated officer changed the wording "during normal operations" to "under normal operating conditions" in condition 1 to better reflect terminology in the definitions. Updated map included in licence

5. Decision

The Delegated Officer has determined that the proposal to require the use of low NOx burners be limited to only during normal operations will not alter the risk of air emissions impacting air quality. In reaching this decision the Delegated Officer has considered the following points:

- it is not possible to use low NOx burners during startup and shutdown;
- startup and shutdown last for about 6 to 10 minutes each time, and;
- low levels of NOx predicted by modelling.

The delegated officer has determined that amending the licence to allow for discharge of treated stormwater from the oily water separator to the stormwater soakage pit subject to a limit of 5 mg/L TRH does not present an unacceptable risk to the environment. In reaching this decision the Delegated Officer has considered the following points:

- the water quality will be tested before any discharge takes place; and;
- it undoes an unintended consequence of the 2021 amendment where oily water separator discharge is mixed with uncontaminated stormwater in the holding ponds.

6. 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.

6.1 Summary of amendments

Table 6 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 6: Summary of licence amendments

Condition no.	Proposed amendments
1	Include the words 'under normal operating conditions' in line 2 of table 1 and requirements for the oily water separator line 4 of table 1 to require treatment of potentially contaminated stormwater rather than discharge to the lined pond to allow for discharge to the soakage pit when limits are met.
2	Add discharge to the stormwater soakage pit as discharge point W1.
3	Add a limit of 5 mg/L TRH for discharge to W1
7	Add monitoring condition for discharge to W1
Definitions	<ul style="list-style-type: none">• Add definition for AS/NZ 5667.10 and TRH• Amend definition for normal operating conditions
Schedule 1	Updated map of premises

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. 360 Environmental 2023 *Licence Amendment Application and Supporting Document* Perth Western Australia
5. Katestone Environmental 2007 *Air Quality Assessment of a Proposed Gas-Fired Power Station at Neerabup Toowong* Queensland.