Decision Report

Application for Works Approval

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

Works Approval Number	W6588/2021/1
Applicant	BHP Nickel West Pty Ltd
ACN	004 184 598
File number	2012/003930-4
Premises	Kalgoorlie Nickel Smelter Lot 100 on Deposited Plan 212288, Celebration Road. Legal description Certificate of Title Volume 1670 Folio 313 As defined by the premises maps attached to the issued works approval
Date of report	5 November 2021
Proposed 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 premises. As a result of this assessment, works approval W6588 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

On 9 August 2021 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 an oxygen plant at the premises. The premises is approximately 8 km south of Kalgoorlie.

The application relates to the construction of an oxygen plant at the BHP Kalgoorlie Nickel Smelter which is licenced under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations). The infrastructure and equipment relating to the application and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6588.

2.3 Overview of oxygen plant process

The proposal includes the installation of a vacuum pressure swing absorption (VPSA) oxygen plant to supplement the existing oxygen plant. Oxygen is used in the NKS furnace on the premises. The VPSA oxygen plant takes ambient air and removes nitrogen and other minor gases to produce low purity oxygen.

Air emissions from the process include a 35/000Nm^3/min of waste gas comprising 89% nitrogen, 10% oxygen and 1% minor gases.

Wastewater from the air feed compression and cooling tower blow down will be directed to the existing site wastewater system that is currently regulated by Licence L8653/2012/2

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

1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction activities	Air / windborne pathway	Minimise dust producing activities during periods of high winds. Application of dust suppression as required.
Noise	Relocation / installation of services and associated infrastructure. Construction of VPSA Oxygen Plant.	Air / windborne pathway	The separation distance between the plant area and nearby residential dwellings is considered sufficient for there to be minimal to no impacts and maintain compliance with the Noise Regulations as demonstrated by noise modelling.
Commissioning and Operation under time limited operations			
Noise	Operation of VPSA Oxygen Plant in addition to existing site operations..	Air / windborne pathway	The separation distance between the plant area and nearby residential dwellings is considered sufficient for there to be minimal to no impacts and maintain compliance with the Noise Regulations as demonstrated by noise modelling.
Wastewater	Waterwater from operation of VPSA oxygen plant.	Seepage to soil and groundwater	All wastewater will be directed to the existing site wastewater system and managed in compliance with L8653/2012/2
Air emissions	Waste gases from operation of VPSA oxygen plant.	Air / windborne pathway	Air emission will consist of nitrogen and oxygen. With higher concentrations of nitrogen (~89%) and lower concentrations of oxygen (~10%) than air.

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 2 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 2020)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Douglas Camp ground	8km North west of premises
Town of Kalgoorlie	8km North of premises
Environmental receptors	**Distance from prescribed activity**
Soil	Within the boundary of the premises
Groundwater	Approximately 16m below ground level

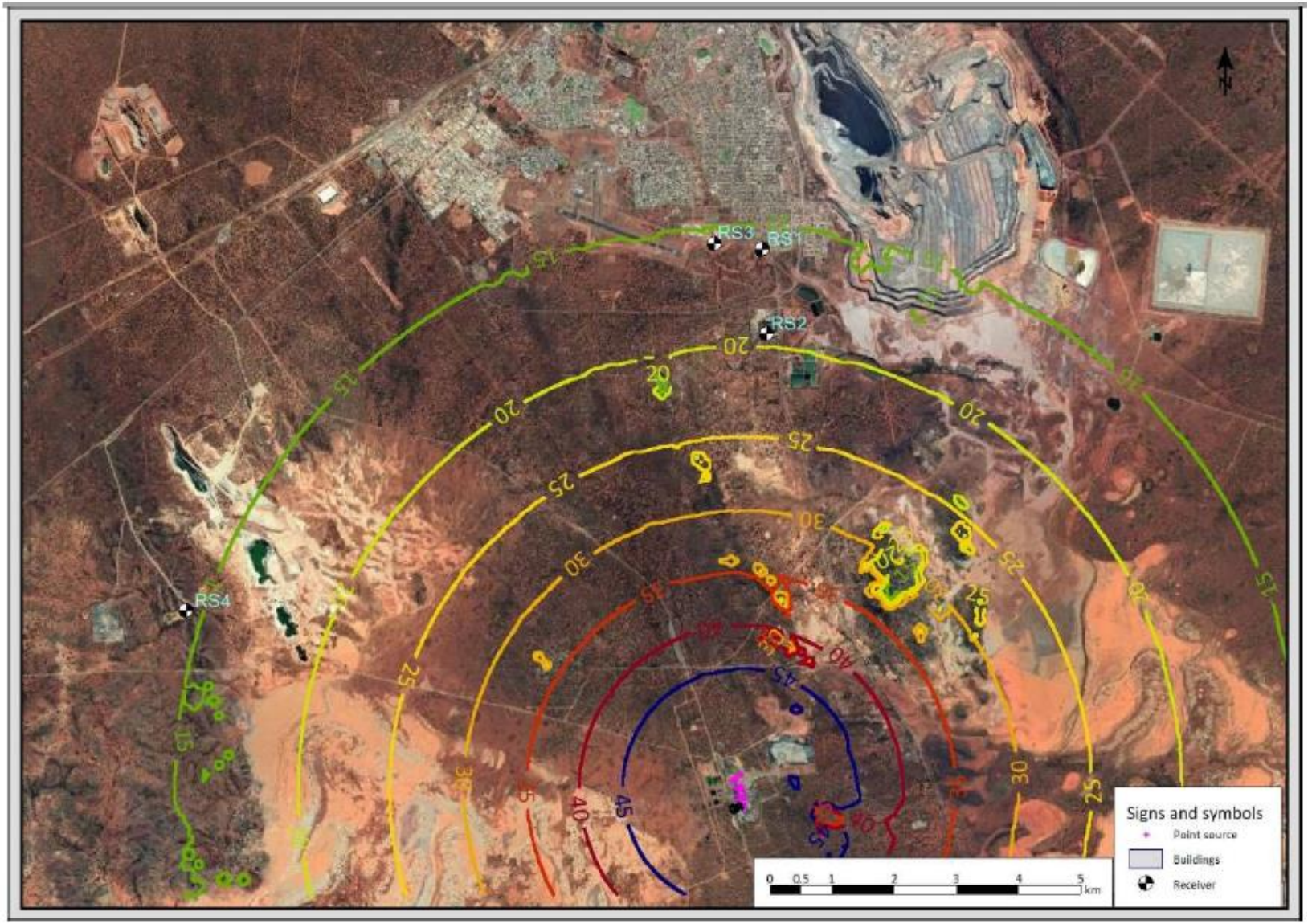

Figure 1: Noise modeling contour map showing distance to sensitive receptors

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 3.

Works approval W6588 that accompanies this decision report authorises construction and time-limited operations of the VPSA Oxygen Plant. The conditions in the issued works approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence amendment to include the VPSA Oxygen Plant is required prior to the end of the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the plant. 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 3: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk events					**Risk rating [1]** **C = consequence** **L = likelihood**	**Applicant controls sufficient?**	**Justification for regulatory controls**
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**			
Construction							
Relocation / installation of services and associated infrastructure. Construction of VPSA Oxygen Plant.	Dust	Air / windborne pathway causing impacts to health and amenity	Residences 8km to the north and north-west	Refer to Section 3.1	C = Slightly L = Rare **Low Risk**	Y	The separation distance to the nearest receptors and the limited construction required means the construction of the oxygen plant is unlikely to impact receptors and no additional controls are required.
	Noise				C = Slight L = Rare **Low Risk**	Y	
Commissioning and operation under time limited operations							
Operation of VPSA Oxygen Plant	Noise	Air / windborne pathway causing impacts to amenity	Residences 8km to the north and north-west	Refer to Section 3.1	C = Minor L = Rare **Low Risk**	Y	The separation distance to the nearest receptor means there is no expected risk of noise impacts on receptors. Noise emissions are expected to comply with the assigned levels in the Noise Regulations as shown by the noise report submitted with the works approval application
	Wastewater	Seepage to soil and groundwater	Groundwater 9.5m below ground level		C = Minor L = Rare **Low Risk**	Y	All wastewater from the oxygen plant will be directed to the existing wastewater system. The risk from wastewater emission has been determined to be low.
	Air emissions	Air / windborne pathway causing impacts to amenity	Residences 8km to the north and north-west		C = Slight L = Rare **Low Risk**	Y	Air emission will consist of nitrogen and oxygen. With higher concentrations of nitrogen (~89%) and lower concentrations of oxygen (~10%) than air. It has been determined that the separation distance and make-up of the air emissions result in a low risk of impact to receptors.

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

4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 14 September 2021	No comments received	NA
Local Government Authority advised of proposal on 17 September 2021	The City of Kalgoorlie Boulder advised they had no objections to the works as planning approval has been granted	NA
Draft decision report and Works Approval provided to the applicant on 19 October 2021. The applicant provided comments on the draft documents on 5 November 2021	See Appendix 1	

5. Decision

The Delegated Officer has determined to grant a works approval for the construction and time limited operation of the oxygen plant. The risk of all emissions and discharges from the plant were assessed to be low and the Delegated Officer formed the view that the applicant's controls for design / construction and operation of the Premises were reasonable and appropriate to manage the risk of impacts.

The Delegated Officer has included conditions on the works approval that are commensurate with the assessed low risk, consistent with the applicant's proposed controls and in accordance with the *Guidance Statement: Setting conditions*.

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) 2016, *Guideline: Environmental Siting*, Perth, Western Australia.
2. DWER 2017, *Guideline: Risk Assessments*, Perth, Western Australia.
3. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. BHP Nickel West Kalgoorlie, Application for works approval (W6588) and supporting documentation (DWER Reference DWERDT414312).

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

	Summary of applicant's comment	Department's response
Works Approval	Please update to read: 125 St Georges Terrace Perth, Western Australia 6000	Works approval updated
Decision report	Please remove reference to Kwinana Nickel Refinery and replace with Kalgoorlie Nickel Smelter.	Decision report updated
	We are not replacing the existing oxygen plant but adding additional oxygen capacity.	
	Further monitoring has determined that groundwater sits around 15.8m below ground level closer to the proposed Oxygen Plant development.	