Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Application for Licence Amendment

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

Licence Number	L8680/2021/1
Licence Holder	Dyno Nobel Asia Pacific Pty Ltd
ACN	003 269 010
File Number	DER2016/001675-1
Premises	Dyno Nobel Asia Pacific Pty Ltd Lot 505 Great Northern Highway, Port Hedland 6722 Legal description – Lot 505 on Deposited Plan 70785 As defined by the Premises maps attached to the Revised Licence
Date of Report	20 February 2025
Decision	Revised licence granted

Michael Greenslade Digitally signed by Michael Greenslade
Date: 2025.02.20 14:20:46 +08'00'

MANAGER, PROCESS INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Licence L8680/2012/1 is held by Dyno Nobel Asia Pacific Pty Ltd (Licence Holder) for the Dyno Nobel Port Hedland Emulsion Plant (the Premises), located at 505 Great Northern Highway, Port Hedland.

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 construction and operation of the Premises. As a result of this assessment, Revised Licence L8680/2012/1 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. The Revised Licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

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 https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary

On 6 November 2024, the licence holder submitted an application to the department to amend Licence L8680/2012/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Installation of a temporary boiler;
- Removal of existing boiler; and
- Installation of new boiler in existing boiler shed.

This amendment is limited only to changes to Category 75 activities from the existing licence. There is no proposed increase to the throughput or increase in capacity at the premises.

The existing premises manufactures ammonium nitrate emulsion (ANE) as a semi continuous blending process. The two main raw ingredients are an oxidizer (ammonium nitrate) solution and a fuel/oil emulsifier blend. The premises is located 12 km southeast of the town of Port Hedland and commenced operations in 2012. The primary objective of the Port Hedland Emulsion Plant Steam Boiler Replacement project is to replace the existing steam boiler at Dyno Nobel Asia Pacific Limited's Port Hedland Emulsion Plant to improve the steam system reliability and mitigate recurrence of boiler breakdowns.

The current steam boiler, a Cleaver Brooks' Flexible water-tube diesel-fired steam boiler with capacity of 2,580 kW is experiencing underperformance issues and due to being a single element in series with emulsion manufacturing with no redundancy, any breakdown or underperformance impacts plant operation.

A recent study undertaken by Tomlinson Energy Service (TES) has indicated that the current 2.580kW boiler is undersized and unable to meet the present production demand for the required steam flow during the batching process inside the oxidizer tank. Therefore, a replacement boiler with a heating input capacity of 3MW to adequately fulfill the operational needs has been chosen to replace the current boiler.

2.3 Infrastructure

Temporary boiler:

The licence holder is proposing to install a diesel fired temporary boiler that will be operational for approximately 14 days, to ensure the plant is able to keep operating. The temporary boiler proposed is a 20ft containerised steam boiler, manufactured by Cochrane UK. It is located within a self-contained unit with an operational output of 2,270 kg/hr @ 100°C.

The Licence Holder has indicated that flue gas emissions from the temporary boiler are expected to be:

- NOx: <350mg/Nm^3 @3% O2 dry; and
- CO : <100ppm

The temporary packaged boiler will be located adjacent to the existing boiler shed (Note 15 on Figure 3).

Replacement boiler:

The licence holder is proposing to install a 3MW diesel fired water tube boiler in the existing footprint of the current boiler and will utilise the current infrastructure onsite.

The licence holder has provided design specifications and calculations of potential emissions to air including a comparison of data from the existing Diesel Fired 2.580 kW SDGL3 boiler as shown in Figure 1 and the proposed Diesel Fired 3MW SDGL3 boiler as shown in Figure 2.

Estimated VOCs from the replacement boiler are expected to be 0.541 ppm compared to the existing boiler at 10ppm VOCs.

Diesel Fired 2.58 MW SDGL3 boiler flue gas flows and emissions:

Flue Gas Flow 1.66 kg/s 2.62 m3/s @ 260 Deg C

Flue gas base constituents:

	%VOL(DRY)	%VOL(WET)	%WT
CO2	8.80	7.98	12.19
SO2	0.00	0.00	0.00
O2	8.85	8.02	8.92
H2O		9.37	5.86
N2	81.38	73.76	71.76
Ar	0.97	0.88	1.22
		100	100

Flue gas emissions:
- NOx < 350 mg/Nm3 @ 3% O2 dry
- CO < 50 ppm dry vol @ 3% O2
- SOx = 1.1 mg/Nm3 @ 3% O2 dry

Figure 1: 2,580 kW Diesel Fired Boiler actual emissions

Diesel Fired 3MW SDGL3 boiler flue gas flows and emissions:

Flue Gas Flow 1.46 kg/s 1.92 m3/s @ 171.8 Deg C Stack 400 mm
15.2 m/s

Flue gas base constituents:

	%VOL(DRY)	%VOL(WET)	%WT
CO2	12.33	10.84	16.57
SO2	0.00	0.00	0.00
O2	4.00	3.52	3.91
H2O		12.06	7.54
N2	82.68	72.71	70.73
Ar	0.98	0.87	1.20
		100	100

Flue gas emissions:
- NOx < 350 mg/Nm3 @ 3% O2 dry
- CO < 50 ppm dry vol @ 3% O2
- SOx = 1.5 mg/Nm3 @ 3% O2 dry

Figure 2: 3MW Diesel Fired Boiler expected emissions

From the data provided by the licence holder it is expected that the emissions to air concentrations are similar to the existing boiler with the exception of sulfur oxides (SOx) which is expected to increase slightly as shown Table 1. The licence holder is proposing to undertake monitoring to confirm the expected emissions.

Table 1: Comparison of expected air emission concentrations

	Existing Boiler (2.58MW)	**Proposed Boiler (3MW)**
NOx	<350 mg/Nm3	<350 mg/Nm3
CO	< 50 ppm	< 50 ppm
Sox	1.1 mg/Nm3	1.5 mg/Nm3

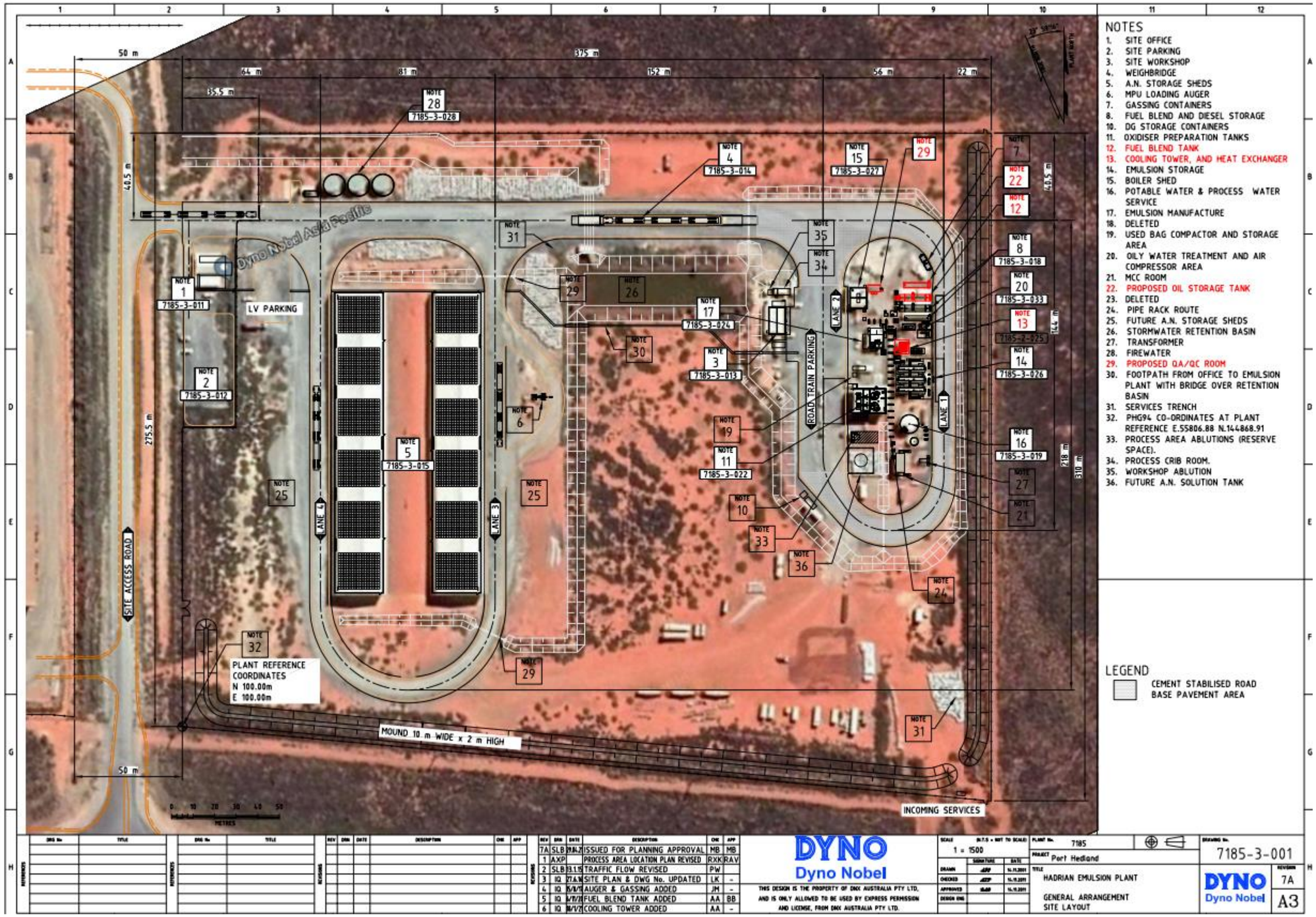

Figure 3: Site layout

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/operation which have been considered in this Amendment Report are detailed in Table 2 below. Table 2 also details the proposed 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
Dust	Installation of temporary boiler, removal of existing boiler and installation of new boiler.	Air/windborne pathway	No additional controls proposed.
Noise		Air/windborne pathway	No additional controls proposed.
Operation			
Air emissions	Operation of temporary boiler and new boiler	Air/windborne pathway	Emission monitoring will be undertaken during commissioning to ensure that the facility is operating within the design limits as per the existing licence.
Dust			No additional controls proposed.
Noise			No additional controls proposed.

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**
Workers camp facility (BHP Port Haven Village accommodation)	1 km west of the premises boundary
ESS waypoint Village	1.9 km west of the premises boundary
Landing Resort	2.49 km northwest
Rural residential	2 km southeast of the premises boundary
South Hedland residential area	4 km southwest of the premises boundary
Environmental receptors	**Distance from prescribed activity**
Vegetated crown land	330 metres north and 800 metres west of the premises.
Unnamed waterway discharging into salt pan operation and Indian Ocean	400m east of the premises boundary
Underlying groundwater (non-potable purposes)	Licensed bore (under RIWI) user 300 meters southwest of the premises boundary. Water is used for dust suppression. Groundwater is estimated by licence holder to be 3.66 mbgl
Cultural receptors	**Distance from prescribed activity**
Aboriginal heritage site Tjalka Wara	4.2 km southeast of the premises boundary

Figure 4: Closest sensitive receptor

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 L8680/2012/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. chemical blending or mixing activities.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 2. Risk assessment of potential emissions and discharges from the Premises during construction, commissioning and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Construction								
Installation of temporary boiler, removal of existing boiler, installation of new boiler in existing boiler shed.	Dust	Air/windborne pathway causing impacts to health and amenity	Residential workers camp 1 km west of the premises boundary	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The delegated officer considers that the separation distance from the replacement boiler to the closest sensitive residential receptor is sufficient to ensure there are no adverse impacts from noise or dust emissions during the installation and removal of the boilers. Consideration has also been given to the fact that construction activities are likely to be of a short duration and therefore not likely to significantly impact sensitive receptors. The Environmental Protection (Noise) Regulations 1997 apply to noise emissions.
	Noise			Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	
Commissioning and operation								
Operation of the temporary replacement boiler	Air emissions	Air/windborne pathway causing impacts to health and amenity	Residential workers camp 1 km west of the premises boundary	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	N/A	The temporary diesel fired boiler will be operational for approximately 14 days. The expected emissions for NOx is the same for the current boiler and CO is expected to be <100ppm. The boiler will be located in a self-contained unit next to the existing boiler shed. The delegated officer considers that licence holder's proposed controls, the limited operational time for the temporary boiler and discharges of air emissions via stack will be sufficient in managing the potential impacts to sensitive receptors from the operation of the temporary boiler.
Operation of 3MW diesel fired boiler, category 75	Dust	Air/windborne pathway causing impacts to health and amenity	Residential workers camp 1 km west of the premises boundary	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The delegated officer considers that the separation distance from the boiler to the closest sensitive residential receptor is sufficient to ensure there are no adverse impacts from dust emissions during the operation of the new boiler.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
	Noise	Air/windborne pathway causing impacts to health and amenity	Residential workers camp 1 km west of the premises boundary	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The delegated officer considers that it is unlikely that the operation of a replacement boiler will significantly increase the noise from the premises. The Environmental Protection (Noise) Regulations 1997 apply to noise emissions.
	Air emissions	Air/windborne pathway causing impacts to health and amenity	Residential workers camp 1 km west of the premises boundary	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1 and Condition 4 – all boiler emissions are directed to the boiler stack Condition 5 – authorised discharge point **Condition 1 – construction requirements** **Condition 7 – emissions and discharge monitoring to air (boiler stack)**	As detailed in section 2.3, the emission profile from the replacement boiler is relatively consistent with that of the existing boiler, with the exception of a slight increase in SO_X concentrations. The delegated officer also notes that the flue gas flow rate from the replacement boiler has reduced from 2.62 m^3/s to 1.92 m^3/s so the expected outputs are likely to be similar. The delegated officer considers that the licence holders proposed validation monitoring of air emissions during initial operations, the distance to residential receptors and existing licence conditions are sufficient to manage the risk associated with air emissions from the boiler. Applicant proposed controls for further monitoring have been included within the licence

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
Licence Holder was provided with draft amendment on 07 February 2025	The Licence Holder responded on 17 February 2025 with no comments and waived the remainder of the comment period.	N/A

5. 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.

5.1 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
Condition 1 Table 1	Design and construction requirements from the previous amended licence has been removed as they have already been constructed.
Condition 1 Table 1	Design and construction requirements have been included for the installation of the new boiler.
Condition 3	Submit a report to confirm that the infrastructure has been constructed as per the requirements of Table 1.
Condition 8	Minor amendment to condition referencing
Condition 10	Added to improve clarity regarding sample analysis requirements for monitoring emissions to land
-	Updates to condition numbering and referencing throughout

6. 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.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY			
Application type			
Amendment to an existing licence	☒	Current licence number	L8680/2012/1
Date application received		7/11/2024	
Compliance reporting			
This section is only applicable to applications for new licences or licence amendments.			
Has the required compliance report(s) been received?		Yes ☐ No ☐ N/A ☒	
Applicant and premises details			
Applicant name/s (full legal name/s)		Dyno Nobel Asia Pacific Pty Ltd	
Does the following information in the application form match those listed in the current ASIC company extract?		Applicant name/s (full legal names): Yes ☒ No ☐	Trading name (if applicable): Yes ☐ No ☐ N/A ☐
		Australian Company Number (ACN): Yes ☒ No ☐	Registered business address: Yes ☒ No ☐
Has the applicant demonstrated occupancy (proof of occupier status)?		Yes ☒ No ☐	General lease ☒ Expiry: 31 December 2032
Premises name		Dyno Nobel Port Hedland Emulsion Plant	
Premises location		Lot 505 on Deposited Plan 70785	
Local Government Authority		Town of Port Hedland	
Application documents			
HPCM file reference number		Instrument (folder): DER2016/001675-1 Application (subfolder): DWERVT16544~1	
Key application documents (supporting information provided in addition to the application form)		Works approval supporting document: • Map of Premises • Proposed activities • FEL 1 Option Study Report Port Hedland Boiler Replacement	
Scope of application/assessment			
Summary of proposed activities and/or changes to existing operations		Licence amendment Operation of 3MW Disel fired boiler, category 75 Installation of temporary boiler, removal of existing boiler, installation of new boiler in existing boiler shed.	

Category number/s (activities that cause the premises to become a prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed or existing production or design capacity[1]	Proposed changes to the existing production or design capacity[1] (amendments only)	Proposed activities, processes, or operations, including any changes to existing operations (if amendment)
Category 75: Chemical blending or mixing not causing discharge	Existing: 125,000 tonnes per annual period	No change	Construction Installation of a new diesel fired boiler. Operation Operation of a new diesel fired boiler.

Legislative context and other approvals			
Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act		Yes ☐ No ☒	Referral decision No:

as a significant proposal?		Assessed under Part IV ☐ Managed under Part V ☐
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☐ No ☒	Ministerial statement No: EPA Report No:
Is the proposal a Major Project or subject to a State Agreement Act?	Yes ☐ No ☒	Lead Agency:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No:
Has the applicant obtained approval for their Mining Proposal?	Yes ☐ No ☐ N/A ☒	Reg ID: Status: If No or N/A, explain why?
Has the applicant obtained all relevant planning approvals?	Yes ☒ No ☐ N/A ☐	Approval: 16/09/2021 Expiry date: N/A
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☐ No ☒	CPS No: 4087/1 *Clearing on native vegetation is not included on this application, however there is an existing CPS 4087/1 for the whole site.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	Application reference No: Licence/permit No: No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☐ No ☒	Application reference No: Licence/permit No: Licence / permit not required.
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☒ No ☐	Name: Pilbara Type: Pilbara Groundwater Area, Ashburton, Pilbara – Fractured rock Has Regulatory Services (Water) been consulted? Yes ☐ No ☒ N/A ☐ Regional office:
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: N/A
Is the Premises subject to any other Acts or subsidiary regulations (e.g. *Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004*	Yes ☒ No ☐	The applicant has a licence for the 110 kL chemical (fuel blend) storage tank
Is the Premises within an Environmental Protection Policy (EPP) Area or State Environmental Policy (SEP) Area	Yes ☐ No ☒	
Is the Premises subject to any EPP or SEP requirements?	Yes ☐ No ☒	
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☐ No ☒	Classification: N/A Date of classification: N/A