Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Licence

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

Licence Number	L8846/2014/2
Applicant	Phosphate Resources Ltd
ACN	009 396 543
File number	DER2014/002338-2 and APP-0026222
Premises	Christmas Island Phosphates Christmas Island INDIAN OCEAN TERRITORIES WA 6798 Legal description Being Lot 47 and 48 on Plan 218106, Lot 51 on Plan 218108, Lot 53 on Plan 218110, Lot 197 on Plan 218134, Lot 482 and 488 on Plan 219653, Lot 554 on Plan 221294, Lot 622 on Plan 43303, Lot 637 on Plan 43304, Lot 3001 and 3002 on Plan 41813, and Lot 3022 on Plan 43297 As defined by the coordinates in Schedule 3 of the licence
Date of report	10 February 2025
Decision	Licence granted

Melissa Chamberlain

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MANAGER WASTE INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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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 operation of the premises. As a result of this assessment, licence L8846/2014/2 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 and overview of premises

On 1 October 2024, the applicant submitted an application for a licence to the department under section 57 of the *Environmental Protection Act 1986* (EP Act).

The application is for a licence renewal relating to the operation of Christmas Island Phosphates.

The premises relates to the categories and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in licence L8846/2014/2. 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 licence L8846/2014/2.

The processing operations include drying and crushing the phosphate product, and transporting the phosphate 6 km along conveyers from the drying plant (dryers) to the wharf. Phosphate ore produces two key products: phosphate ‘rock’ (>12 mm) and ‘dust’ (<200 µm). Table 1 outlines the key aspects of the premises.

Table 1: Key Characteristics of the Premises

Aspect	Description
Mining Fields	CIP is currently recovering stockpiled phosphate ore and conducting in situ mining of phosphate under Mining Leases MCI 70/1A, MCI 70/10, MCI 70/17, MCI 70/18, and MCI 70/19.
Run of Mine (ROM)	The ore stockpile area to which material from mining areas and recoverable stockpiles is transported to. Phosphate rock is blended and transferred to the dryers through the apron feeder and conveyors.
Dryers Precinct	There are two drying kilns on site. Phosphate rock is processed through treatment with heated air (700°C and above) inside the drying kilns, to meet 4-6% market moisture requirements. A fuel oil burner is used to generate the heat for the dryers. The drying process generates phosphate fines which then pass through cyclones which collect particles ≥30 µm. Remaining fines (< 30 µm) which are not captured by the cyclones are collected by the baghouse system. Fines from both the cyclones and baghouse are directed to the Dryers Storage Silos. Rock product from the dryers is conveyed through a screen and crushing plant and then transferred to the Dryers Storage Silos.

Cross Country Conveyors from Dryers Precinct to Downhill Silos	This conveyor belt system transports phosphate rock and dust to the Downhill Silos.
Downhill Conveyors from top of incline to Ship Loading Precinct	Phosphate rock from the Downhill Silos is transported by this conveyor belt system to the Wharf Precinct's Rock Storage Bin (approx 45,000 m3 capacity). Dust is transferred inside the airslide system to storage silos (each 2,000 m3 capacity) at the Wharf Precinct. Phosphate rock and dust is then transported to the ship loading precinct and dust bagging area respectively.
Wharf/Ship Loading Precinct for loading and dust bagging area	Dust from storage silos is bagged into 50 kg bags and palletised for loading onto ships for export. Floor gates and conveyor belts transfer phosphate rock from the rock bin to two cantilever arms that are used to load phosphate rock directly into the ship holds using Cleveland Chutes.
Laboratory	Used for testing and analysis of phosphate product grade by conducting acid digests. Test waste outputs are treated (all laboratory waste effluent is discharged to a neutralising system) to ensure that they are within the pH range of 6.0 – 8.5 prior to disposal to the leach drain.
Workshops	Used for mobile plant maintenance, maintenance and repair of mine electrical equipment, fixed plant maintenance (including conveyors and cantilevers), repair and maintenance of site infrastructure.
Offices	The premises has two offices. One is the Administration/Finance Office and the other is the Drumsite Office.
Incinerator	Currently used for the incineration/disposal of hydrocarbon-contaminated wastes.

Amendments requested in this application are as follows:

- incorporate additional processing (ROM) areas currently outside the prescribed premises boundary to align with the Mining Proposal under the Mining Act (GCI70/1 and GCI 70/2);
- incorporate a new mobile sizing/crushing plant to replace the original crusher network.

The proposed categories and throughputs are detailed in Table 2 below.

Table 2: Prescribed premises categories

Classification of premises	Description	Approved premises production or design capacity throughput
Category 5	**Processing or beneficiation of metallic or non-metallic ore**: premises on which – (a) Metallic or non-metallic ore is crushed, ground, milled or otherwise processed; or (b) Tailings from metallic or non-metallic ore are reprocessed; or (c) Tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam.	1 200 000 tonnes per annual period

Classification of premises	Description	Approved premises production or design capacity throughput
Category 58	**Bulk material loading or unloading:** premises on which clinker, coal, ore, ore concentrate or any other bulk granular material (other than salt) is loaded onto or unloaded from vessels by an open materials loading system.	1 200 000 tonnes per annual period (<5000 tonnes/day)

2.2.1 Replacement Sizer/Crusher Plant

A new mobile sizer plant (Metso 1508RC sn182726) is proposed for the premises at the ROM to replace the historical crusher infrastructure. The proposed mobile sizer is an integrated crushing plant designed for soft ores, and will be initially feeding directly into the W4 grizzly. This location will be short term (6-12 months) to assess performance and allow time for the W4 conveyor to be shortened and the sizer to be relocated at the location of permanent power closer to the transfer station. Ore will be fed through the proposed sizer which will provide a maximum feed size of 80 mm which feeds onto the W4 conveyor. No increase in processing throughput is proposed.

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 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
Operation			
Dust (fugitive and point)	- Vehicle and machinery activity on unsealed roads within boundary - Plant, Conveyors and Transfer Points - Product Spillage - Wind driven dust lift-off from new	Air / windborne pathway	- Dust suppression on roads and stockpiles using a dedicated water cart - Tarping (covering) of some stockpiles on the ROM - High moisture level of ore (pre-dryers) - Plant, Conveyors and Transfer Points mostly semi-enclosed or enclosed, doors and dust curtains

Emission	Sources	Potential pathways	Proposed controls
	ROM areas - Sizer/ crushing plant operations - Plant, Conveyors and Transfer Points - Product Spillage - Dust and Rock Phosphate storage and load out		- Dust extraction systems and collection points within the Processing circuit - Routine housekeeping utilising equipment such as a vacuum truck, bobcat, loader etc - Completing the Spillage and Housekeeping Register each shift - Weekly Area Inspections (Area Supervisors or delegates), Quarterly Environmental Inspections (Environmental Team) - Ongoing Dust Committee and project implementation - Fixed Plant repair and upgrade program implementation such as sealing of silos - Mobile plant and equipment replacement program (older equipment to be phased out through the program) - Implementation of the Shiploading Emissions Control Procedure - Maintenance (including cleaning schedule) of the Cleveland Cascade Chutes - Community Complaints to be managed in accordance with the Feedback / Complaints Procedure - Communications Plan and Stakeholder Engagement Plan to be implemented to provide updates to the Community
Gaseous and particulates	- Kiln operation - Incinerator operation - Equipment operation - Diesel combustion in sizer plant source	Air / windborne pathway	- Scheduled maintenance on plant and equipment via Pronto/MEX - Bi-annual stack testing via a NATA accredited contractor - F60 (fuel oil) sampling process (testing for % sulphur) - F60 specification checks (% sulphur to be less than 1.5%) - Mobile plant and equipment replacement program (older equipment to be phased out through the program) - Weekly Area Inspections (Area Supervisors or delegates), Quarterly Environmental Inspections (Environmental Team) - Fixed Plant repair and upgrade program implementation such as sealing of silos - Incinerator Operations Safe Work Method Statement and Waste Incineration Procedure
Noise	- Vehicle, machinery	Air / windborne	- Scheduled maintenance on plant and

Emission	Sources	Potential pathways	Proposed controls
	and plant operations	pathway	equipment via Pronto - Recommended operational hours followed for key infrastructure and equipment where possible - Mobile plant and equipment replacement program (older equipment to be phased out through the program including the vacuum trucks) - Fixed Plant repair and upgrade program implementation - Weekly Area Inspections (Area Supervisors or delegates), Quarterly Environmental Inspections (Environmental Team) - Community Complaints to be managed in accordance with the Feedback / Complaints Procedure - Communications Plan and Stakeholder Engagement Plan to be implemented to provide updates to the Community - Ongoing roller replacement program on conveyors - Reversing alarms on light vehicles to be linked with the beacons - Community Notifications for noisy works
Hydrocarbon spills	- Spillage from plant and equipment - Spillage from storage - Spillage during sizer/crushing plant operations	Overland runoff and seepage to soil and groundwater	- All hydrocarbon storage areas will be designed and constructed in general accordance with Australian Standards AS1940 and AS1692. - Scheduled maintenance on plant and equipment via Pronto/MEX - Hydraulic Hose Replacement Program / Hose Replacement Facilities (Onsite) - Equipment replacement program / phase out of equipment (capital replacement) - Spill kits in key vehicles and in work areas - Oily Water Separator (OWS) at workshop (on a maintenance schedule) - Stormwater diversion drains around the workshop - Weekly Area Inspections (Area Supervisors or delegates), Quarterly Environmental Inspections (Environmental Team) - Routine clean-up of drains - Approved capital expenditure for oil storage (HAZCHEM containers and bunding) - Implementation of the Spill Response

Emission	Sources	Potential pathways	Proposed controls
			Procedure - Implementation of Waste Management Plan and Procedures detailing hydrocarbon waste management - Hydrocarbon spill response training (toolbox and online) - IOOC licence testing/lab sampling of OWS discharge water to a NATA accredited lab (TRH limit of 15mg/L) - IOOC major spill response team - PRL subsidiary - Bulk fuel supply managed offsite by IOOC - Incineration of hydrocarbon waste via NSI Model HSH100 Waste Incinerator - Incinerator Operations Safe Work Method Statement and Waste Incineration Procedure
Waste water discharge	Laboratory discharge	Overland runoff and seepage to soil and groundwater	- Waste water enters the Neutralisation System which automatically doses to keep the discharge water (to the septic leach drains) between pH of 6 – 8.5. - Monthly pH testing of discharge water (recorded on a register) - Calibration of pH monitors - Spill kits in work areas - Weekly Area Inspections (Area Supervisors or delegates), Quarterly Environmental Inspections (Environmental Team) - Implementation of the Spill Response Procedure
Contaminated stormwater	- Stormwater run off from ore storage and spillage of phosphate - Machinery workshops and refuelling areas - Spillage from plant and equipment - Spillage from storage - Spillage during sizer/ crushing plant operations	Overland runoff and seepage to soil and groundwater	- Storm water runoff reports to sediment basins and or rock gabions - Product from basins are dug out and taken back to the ROM for processing - Tarping (covering) of some stockpiles on the ROM - Plant, Conveyors and Transfer Points mostly semi-enclosed or enclosed - Routine housekeeping utilising equipment such as a vacuum truck, bobcat, loader etc = Completing the Spillage and Housekeeping Register each shift - Weekly Area Inspections (Area Supervisors or delegates), Quarterly Environmental Inspections (Environmental Team) - Fixed Plant repair and upgrade program

Emission	Sources	Potential pathways	Proposed controls
			implementation such as sealing of silos - Mobile plant and equipment replacement program (older equipment to be phased out through the program) - All hydrocarbon storage areas will be designed and constructed in general accordance with Australian Standards AS1940 and AS1692. - Hydraulic Hose Replacement Program / Hose Replacement Facilities (Onsite) - Spill kits in key vehicles and in work areas - Oily Water Separator (OWS) at workshop (on a maintenance schedule) - Stormwater diversion drains around the workshop - Weekly Area Inspections (Area Supervisors or delegates), Quarterly Environmental Inspections (Environmental Team) - Routine clean-up of drains - Implementation of the Spill Response Procedure - Hydrocarbon spill response training (toolbox and online)
Odour	Incineration of hydrocarbon wastes	Air/windborne pathway	- The maximum rated capacity of the incinerator is 95 kg/hr which is less than the 100 kg/hr design capacity threshold for a Category prescribed premises under the EP Act. - The incinerator operates for less than 600 hours per year from two cycles per day, up to four days a week. - Technical parameters of the have been designed to ensure that hazardous carbon waste is sufficiently combusted.

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

Human receptors	**Distance from prescribed activity**
'Recreation' zoned land use	Adjoining the wharf precinct area
Commercial premises	Adjacent to wharf precinct
Christmas Island District High School	930 m NNE of the expanded ROM Approximately 500 m north of the incinerator and dryer stacks Approximately 1 km south south-west from the wharf precinct prescribed premises boundary
Residential premises	940 m NNE of the expanded ROM Approximately 650 m north of incinerator and dryer stacks Approximately 40 m east, 180 m south and 260 m northeast of the wharf precinct
Environmental receptors	**Distance from prescribed activity**
Groundwater	50 m – 100 m bgl, fresh to brackish quality
Christmas Island National Park	Directly surrounds the prescribed premises boundary
Indian Ocean	620 m NW of the expanded ROM
'Hosnie' springs	4,000 m SSE of the expanded ROM
'Dales' springs	10,800 m SW of the expanded ROM

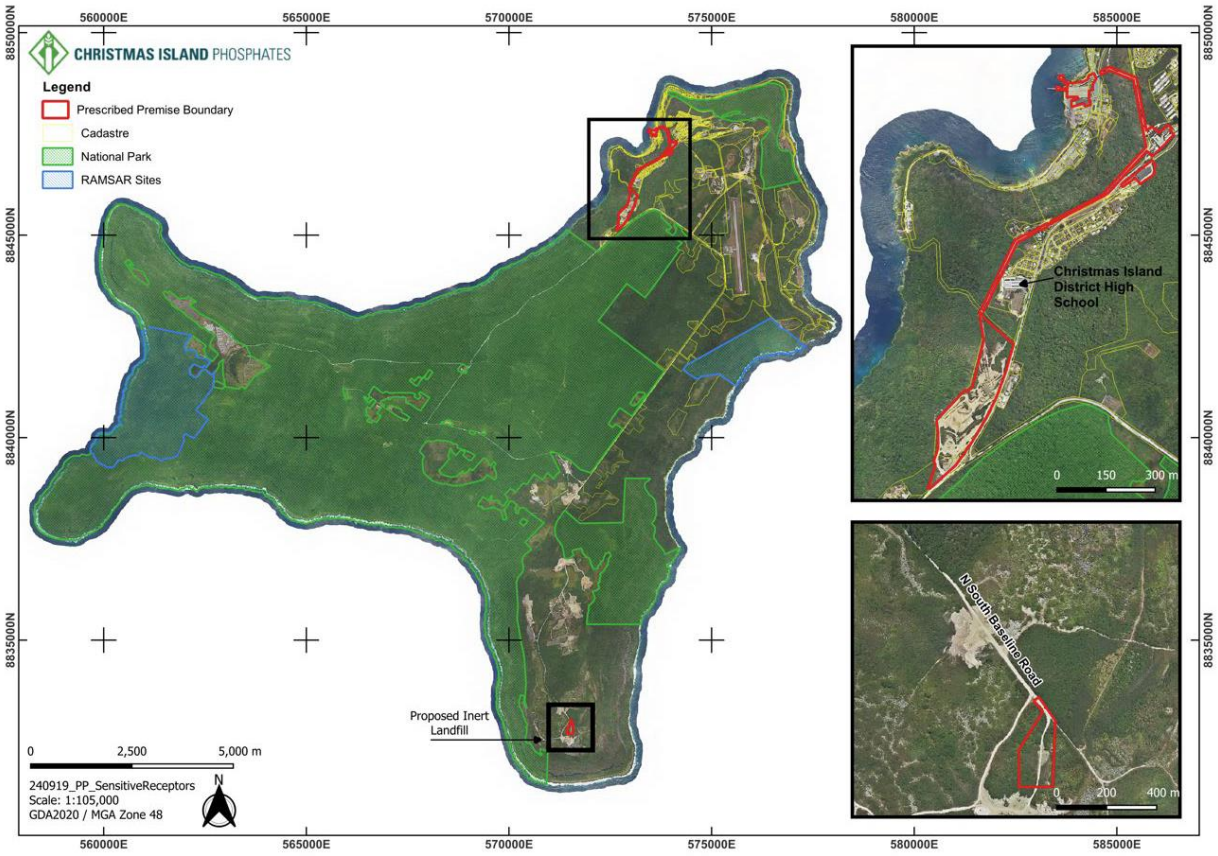

Figure supplied by the applicant

Figure 1: 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 licence 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.

Licence L8846/2014/2 that accompanies this decision report authorises emissions associated with the operation of the premises.

The conditions in the issued licence, as outlined in Table 5 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 5: 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								
- Vehicle and machinery activity on unsealed roads within boundary - Plant, Conveyors and Transfer Points - Product Spillage - Wind driven dust lift-off from new ROM areas - Sizer/ crushing plant operations - Plant, Conveyors and Transfer Points - Product Spillage - Dust and Rock Phosphate storage and load out	Dust (fugitive and point)	Air / windborne pathway causing impacts to health and amenity	Residential premises approximately 40 m east, 180 m south and 260 m northeast of the wharf precinct Residential premises 940 m NNE of the expanded ROM	Refer to Section 3.1	C = Moderate L = Likely **High Risk**	Y	Conditions 1, 20, 25, 28, 29 and 30	Due to issues with the previous ambient air quality monitoring network, consisting of portable PM_{10} dust monitors (DustTrak and Casella Microdust Pro Aerosol Monitoring Systems) and two tapered element oscillating microbalances (TEOMs), the licence was amended on 12 June 2024 to require the submission of an Air Quality Monitoring Plan detailing a new ambient air quality monitoring network (existing condition 21). The licence holder submitted the Air Quality Monitoring Plan to the department on 30 September 2024. The department is currently reviewing the submitted documentation and will, following the issue of this renewal, initiate an amendment to implement an appropriate ambient air quality monitoring network to enable the assessment of potential human health impacts to nearby sensitive receptors from wharf operations.
- Kiln operation - Incinerator operation - Equipment operation - Diesel combustion in sizer plant source	Gaseous and particulates	Air / windborne pathway causing impacts to health and amenity	Residential premises approximately 40 m east, 180 m south and 260 m northeast of the wharf precinct Residential premises 940 m NNE of the expanded ROM	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 1, 5 to 17 and 25	The Delegated Officer considers the licence holder's controls and existing regulatory controls sufficient to mitigate gaseous and particulate emissions generated by prescribed activities at the premises.

- Vehicle, machinery and plant operations	Noise	Air / windborne pathway causing impacts to health and amenity	Residential premises approximately 40 m east, 180 m south and 260 m northeast of the wharf precinct Residential premises 940 m NNE of the expanded ROM	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**		Condition 1	The Delegated Officer considers that the provisions of the *Environmental Protection (Noise) Regulations 1997 (WA)(CI)* are sufficient to regulate noise emissions from waste storage activities.
- Spillage from plant and equipment - Spillage from storage - Spillage during sizer/crushing plant operations	Hydrocarbon spills	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality Seepage to soil and groundwater potentially causing ecosystem disturbance	Groundwater 50-100 m bgl Indian Ocean 620 m NW of the premises	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	Conditions 1, 2, 3, 4 and 32	The Delegated Officer considers the licence holder's controls and existing regulatory controls sufficient to mitigate hydrocarbon spill emissions generated by prescribed activities at the premises.
Laboratory discharge	Wastewater discharge	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality Seepage to soil and groundwater potentially causing ecosystem disturbance	Groundwater 50-100 m bgl Indian Ocean 620 m NW of the premises	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**		Conditions 1, 2, 3, 4, 18, 19, 21 and 26	The Delegated Officer considers the licence holder's controls and existing regulatory controls sufficient to mitigate wastewater emissions generated by laboratory activities at the premises.

- Stormwater run off from ore storage and spillage of phosphate - Machinery workshops and refuelling areas - Spillage from plant and equipment - Spillage from storage - Spillage during sizer/ crushing plant operations	Contaminated stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Indian Ocean 620 m NW of the premises	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Conditions 1, 2, 3, 4, 18 and 19	The Delegated Officer considers the licence holder's controls and existing regulatory controls sufficient to mitigate potential contaminated stormwater emissions generated by prescribed activities at the premises.
Incineration of hydrocarbon wastes	Odour	Air / windborne pathway causing impacts to health and amenity	Residential premises 940 m NNE of the expanded ROM	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Conditions 1 and 6 to 15	The Delegated Officer considers the licence holder's controls and existing regulatory controls sufficient to mitigate odour emissions associated with incineration activities at the premises.

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.

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	None received	N/A
Applicant was provided with draft documents on 14 January 2025	Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that the application to renew licence L8846/2014/2 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.

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

Condition	Summary of applicant's comment	Department's response
1, Table 1	Reference to certain plant and infrastructure to be amended to align with premises terminology.	Infrastructure terms have been amended as requested.
1, Table 1, Row 8	Requested that the weather station operational requirements relate only to wind speed and direction.	The Delegated Officer has retained the original requirements, noting that an amendment to the licence will be initiated following this renewal to include the ambient air quality monitoring network submitted as part of the Air Quality Monitoring Plan under existing condition 21. The requirements of the weather station will be assessed at that time.
9(d)	Requested that hydrocarbon contaminated waste may be stored for longer than 7 days prior to incineration due to backlogs until scheduled burns.	The Delegated Officer has removed the 7 day timeframe, noting that storage of waste occurs in contained receptacles in a dedicated bunded area .
17	The emission point heights for the Kiln stack and Incinerator stack are incorrect.	The emission point heights have been amended to reflect the determined values.
25	Based on NATA accredited point source emissions to air monitoring, the USEPA methods for Oxides of Nitrogen and Sulphur dioxide require amending to methods 7E and 6C respectively.	The requested amendments have been made.
28, Table 12	The method for the monitoring of the pportable dust monitor should be AS 3580.9.8 rather than AS 3580.9.3 due to the PM10 parameter.	The requested amendment has been made.
30	Met monitoring	The Delegated Officer has retained the original requirements, noting that an amendment to the licence will be initiated following this renewal to include the ambient air quality monitoring network submitted as part of the Air Quality Monitoring Plan under existing condition 21. The requirements of the meteorological monitoring will be assessed at that time.

Condition	Summary of applicant's comment	Department's response
Schedule 1	Updated maps and figures have been provided.	Figures 2 to 8 have been updated.