Application for Works Approval Amendment

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

Works Approval Number	W6875/2023/1
Works Approval Holder	Perdaman Chemicals and Fertilisers Pty Ltd
ACN	121 263 741
File Number	INS-0002713 | APP-0029170
Premises	Project Ceres Part of Lot 700 on Plan 411759, Part of Lot 701 on Plan 411760, Part of Lot 706 on Plan 411760, Part of Lot 3013 on Plan 42282, Part of Lot 3014 on Plan 42282, Part of Lot 566 on Plan 28209, Part of Lot 567 on Plan 28209, Part of Lot 568 on Plan 28209, Part of Lot 571 on Plan 28209, Part of Lot 573 on Plan 28209, Part of Lot 581 on Plan 72793, Part of Lot 598 on Plan 77655, Part of Lot 599 on Plan 77665, Part of Lot 640 on Plan 29300, Part of Lot 644 on Plan 28840, Part of Lot 3000 on Plan 77070 and Part of Lot 3003 on Plan 4121422 BURRUP WA 6714 As shown in the premises maps in Schedule 1 of the Revised Works Approval and defined by the coordinates in Schedule 2.
Date of Report	20 February 2026
Decision	Revised works approval granted

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

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1. Decision summary

Works Approval W6875/2023/1 is held by Perdaman Chemicals and Fertilisers Pty Ltd (Works Approval Holder) for the construction of Project Ceres (the Premises); a urea manufacturing plant being developed on the Burrup Peninsular (Murujuga).

The amendment seeks authorisation to commence commissioning and time limited operations not previously authorised by the works approval. No changes to the proposed design or operation of the premises are proposed and therefore risks to the environment and public health from the premises have not been reassessed. This Amendment Report documents the decision making for the application of controls supported by the previous risk assessment. As a result of this amendment, Revised Works Approval W6875/2023/1 has been granted.

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 Amendment summary

2.2.1 Background

The Works Approval Holder is developing Project Ceres (the premises); a urea manufacturing and export facility located on the Burrup Peninsula (Murujuga), approximately 5 km north of Dampier and 10 km northwest of Karratha. Works Approval W6875/2023/1 was granted on 25 June 2024 authorising the construction of the urea manufacturing, storage and export facilities.

In granting the works approval, the delegated officer had consideration for the conditions applied under Part IV of the *Environmental Protection Act 1986* (EP Act) through Ministerial Statement 1180 (MS1180). Conditions of MS1180 limited the commencement of operations, including commissioning activities, until a revised Air Quality Management Plan (AQMP) had been submitted and confirmed by the Chief Executive Officer (CEO). At the time of determining the works approval, the revised AQMP had not been submitted and so, Works Approval W6875/2023/1 was granted for construction works only, i.e., no commissioning or operational activities were authorised.

2.2.2 Application summary

On 19 May 2025, the Works Approval Holder submitted an application to the department to amend Works Approval W6875/2023/1 under section 59 and 59B of the EP Act seeking authorisation for the commencement of activities associated with commissioning and time limited operations. The AQMP was submitted soon after on 22 July 2025.

Risks associated with the construction, commissioning and time limited operation of the premises have previously been assessed as documented in the Decision Report issued on 25 June 2024.

This amendment application is not seeking any significant alterations to the design or operating strategy of the premises, but rather seeks authorisation to complete commissioning and time limited operations that were not previously granted due to conflicts with conditions of MS 1180. On this basis, the delegated officer considers that the risks associated with the premises remain unchanged and have not been further assessed through this application.

Where conditions have been applied to support activities associated with commissioning and time limited operation, these are discussed throughout this report. The previous Decision Report

(DWER 2024) should be referred to for details of the assessment of risks undertaken.

2.3 Commissioning

In support of the application the Works Approval Holder submitted an Environmental Commissioning Plan detailing the proposed commissioning activities. Commissioning is the testing of equipment to validate the environmental performance of the plant relative to predicted performance. According to the plan, commissioning will be undertaken in the following stages:

Phase 1 – Mechanical Completion

Mechanical completions includes equipment installation, hydrostatic (pressure) testing, leak testing, cleaning of piping and equipment, and reinstatement of pipework.

Where possible Phase 1 pre-commissioning activities (e.g. cleaning and leak testing) will be undertaken offsite at the module fabrication yard. Primary emissions during this phase are wastewater associated with equipment flushing and hydrostatic testing. Wastewater associated with these activities will be disposed of via the Multi-User Brine Return Line (MUBRL) directly or via the Saline Water Pond. Discharge to the MUBRL will be subject to monitoring requirements and specified discharge criteria as outlined in section 2.6 below.

Phase 2 – Dynamic Commissioning (dry commissioning)

Dry commissioning involves static commissioning to verify that the systems meet the design intent and that systems are ready for start-up. No significant emissions are expected during Phase 2 of commissioning.

Phase 3 – Start-up planning and execution

This phase involves the initial start-up of equipment with the introduction of feedstock (i.e. wet commissioning). The primary objectives are to achieve safe, incident-free, integrated start-up of the facilities while also testing emergency shutdown systems. This phase will also allow for system monitoring and adjustment to achieve steady-state operations.

Urea production will occur through wet commissioning with the production rate gradually increasing up to normal operating level as follows:

1. Up to 30 % nameplate capacity for autothermal reforming line up.
2. Up to 60 % nameplate capacity for ammonia back end start up and urea first train start-up.
3. Up to 80 % nameplate capacity for second urea train start-up.
4. Stabilisation and incremental (5 % plant load per hour) increase to reach 100% nameplate capacity.

Phase 4 – Performance Testing

On completion of start-up activities, and once steady state has been achieved, performance testing will be carried out to verify that nameplate throughput and emissions correspond to design specifications. The objective of performance testing to confirm that minimum performance levels (including emission levels) are achieved for 72 consecutive hours at the plant nominal capacity. Once this is confirmed, commissioning is considered to be completed, and the plant will transition into time limited operations (TLO).

Duration:

Commissioning activities (Phases 2–4) are anticipated to occur over approximately 12 months, commencing around July 2026. This includes a six month period for initial start-up (Phase 3) and two month period for performance testing (Phase 4). The Works Approval Holder expects performance testing to be completed by June 2027, marking the end of environmental commissioning. Following this, a 240-day time limited operations (TLO) period has been granted

to allow for submission of the Environmental Commissioning Report (required within 60 days of commissioning completion) and assessment of the licence application. To ensure adequate time for commissioning and TLO, the delegated officer has extended the works approval duration by four years.

2.4 Air emissions

Air emissions from the proposal, including potential impacts on human health and rock art, were comprehensively assessed under Part IV of the EP Act. In its assessment, the Environmental Protection Authority (EPA) acknowledged the cultural and heritage significance of Murujuga and the potential for serious or irreversible damage to rock art from industrial emissions. The EPA applied the precautionary principle and concluded that its objectives for air quality and social surroundings could only be met through the application of stringent conditions under MS1180. These conditions include the requirement for a revised AQMP that:

- sets scientifically robust trigger and threshold criteria for air emissions;
- establishes management responses linked to the Murujuga Rock Art Monitoring Program (MRAMP); and
- demonstrates consistency with best available technology and a trajectory for emission reductions over the life of the project.

The EPA's determination was informed by the broader legislative and policy framework for rock art protection, including the Murujuga Rock Art Strategy, which provides a long-term basis for coordinated monitoring and management of air emissions across the Burrup Peninsula. This strategy includes the MRAMP and an ambient air quality monitoring network to ensure scientifically rigorous assessment of potential impacts. Protections under the *Aboriginal Heritage Act 1972*, the EPBC Act, and other State and Commonwealth instruments further complement the regulatory framework for safeguarding Murujuga's cultural values.

Considering the above legislative context, the delegated officer determined that risks associated with air emissions did not require reassessment under Part V of the EP Act, consistent with DWER's *Guidance Statement: Setting Conditions*. Furthermore, it was considered that the primary role of the works approval and subsequent licence is to support implementation of MS1180 and ensure that objectives for the protection of rock art and human health are achieved. It was therefore determined that conditions under Part V would focus on:

- infrastructure and operational controls aligned with best practice technology confirmed through the revised AQMP;
- emission limits consistent with design specifications; and
- monitoring obligations to verify compliance with approved limits.

Further detail on the regulatory framework and its application to this application is provided in Section 3.2 and 3.3 of the previous Decision Report (DWER 2024).

2.4.1 Air Quality Management Plan

The AQMP, required under condition 2-3 of Ministerial Statement 1180, sets out how air emissions from the proposal will be managed to ensure they do not accelerate the natural weathering of Murujuga rock art. The AQMP must achieve two key objectives:

1. Ensure compliance with all relevant air quality standards and objectives, including those informed by the MRAMP.
2. Maintain regional air quality in line with the National Environment Protection (Ambient Air Quality) Measure (NEPM) by minimising emissions from the proposal.

To meet these objectives, the AQMP must:

- demonstrate that the proposal is consistent with industry best practice;
- include provisions for monitoring emissions, meteorology and ambient ground level concentrations that have potential to impact human health, amenity and rock art; and
- develop scientifically valid and robust trigger and threshold criteria for comparison with established baseline monitoring data.

A revised AQMP addressing the above objectives was submitted and confirmed in accordance with requirements of MS1180 on 22 December 2025.

The AQMP includes a review of proposed air emission controls, confirming that current measures remain consistent with contemporary best practice. This in turn confirms that the existing controls conditioned under the Works Approval continue to align with industry standards. Notwithstanding this, the Works Approval Holder is required continue to review these controls to enable adoption of any advances in air pollution control technology and ensure that the premises maintains best practice over time. Controls confirmed through the AQMP are summarised below:

Table 1: Best practice air emission controls confirmed through the AQMP.

Process Units	Emission design controls
Ammonia synthesis unit	• Use of autothermal reforming (ATR) technology which is associated with lower NOx emissions compared to conventional steam reforming, due to the smaller fired heater required and lower energy requirements. • The fired heater is designed with low NOx emissions burners. • High integrity sealing will be used on syngas and refrigeration compressors with a nitrogen barrier to minimise fugitive ammonia loss. • A cryogenic wash unit is included in the ammonia plant design to minimise inerts and purging to fuel gas. • The ammonia plant is designed so that there is no venting of ammonia during normal operations. Any vented ammonia is directed to the flare for thermal oxidation (combustion).

Urea production	• Each granulator is fitted with a scrubbing system to treat waste gas to the following emission concentrations:
	  ○ NH_3 concentration of 20mg/Nm^3 (with a design target of 15mg/Nm^3); and
	  ○ Particulate (dust) concentration of 25mg/m^3 (with a design target of 20mg/m^3).
	• Scrubbing systems installed which are designed by thyssenkrupp Fertiliser Technology (tkFT) and comprise of two stages dedicated to the separate treatment of NH_3 and urea dust.
	• Reduction in NH_3 emissions associated with the use of Snamprogetti™ urea melt technology which results in emissions associated with absorber vents being redirected to the Granulator Stacks for treatment via the scrubbing system.

Power generation	• Flue gas from the gas turbines is treated via Selective Catalytic Reduction (SCR) technology and dry low NOx burners to achieve a NOx concentration of 15ppmv

Trigger and threshold criteria are set through the AQMP for the protection of human health and the cultural heritage of Murujuga. Thresholds are compliance limits based on national standards, representing the maximum allowable concentrations of pollutants in the airshed. Triggers are

set below these thresholds to act as an early warning system, prompting corrective action before a threshold is reached.

Aligning with the above objectives of MS1180, thresholds for human health are primarily based on the NEPM standards. However, as NEPM does not specify a standard for ammonia (NH_3), the AQMP adopts health risk criteria based on values from the NSW EPA *Approved Methods for the Modelling and Assessment of Air Pollutants* (2016).

For cultural heritage, the AQMP uses the Interim Environmental Quality Criteria (IEQC) developed through the MRAMP. These criteria are based on scientific research examining the interactions of pollutants such as nitrogen dioxide (NO_2), sulphur dioxide (SO_2), and ammonia (NH_3) with rock surfaces and their potential to accelerate natural weathering processes. These values may be reviewed in the future understanding that they are interim criteria and subject to change depending on the outcomes of additional studies undertaken under the MRAMP.

Updated air quality modelling (Ramboll 2024) was included in the AQMP to support the determination of air quality controls and the establishment of the monitoring network and trigger and threshold criteria.

A summary of triggers and thresholds to be applied under the AQMP are outlined in the table below.

Table 2: Criteria (triggers and thresholds) designed to protect human health and cultural heritage (Perdaman 2025a).

Environmental Value	Pollutant	Averaging Period	Threshold (Compliance Limit)	Trigger (Early Action)	Source
			Concentration (µg/m³)[1]		
Human Health	NO_2	1-hour	164	90% of the threshold criteria	NEPM
		Annual	30		
	SO_2	1-hour	285		
		Annual	57		
	PM_{10}	24-hour	50		
		Annual	25		
	$PM_{2.5}$	24-hour	25		
		Annual	8		
	NH_3	1-hour	360		NSW EPA (2016)
Cultural Heritage	NO_2	annual	5.5[2]	60% of threshold[3]	MRAMP IEQC
	SO_2	annual	4.3[2]	70% of threshold[3]	
	NH_3	annual	5.2	60% of threshold[3]	

Note 1: Maximum concentrations. Referenced to 0ºC, and 101.3 kPa
Note 2: Exceedance requires both the NO_2 and SO_2 values to be exceeded at the same time, based on synergistic interactions between the air pollutant species.
Note 3: Based on comparison of annual rolling average.

A program for monitoring ambient air quality associated with emissions from the plant is specified in the AQMP to inform whether the specified outcomes are being met and whether the associated triggers and thresholds are achieved. This program complements that already

established through the MRAMP and provides a set of monitors for detecting emissions from the premises. Four powered monitoring stations will be established across the premises for continuous monitoring of air quality parameters (NO_2, SO_2, NH_3). Additional unpowered monitors will be also be installed, located further far-field, that measure deposition (dust and ammonium). The location of the additional monitors will ensure that peak emissions from the premises are captured and will include a monitor located near the port infrastructure intended to detect emissions, particularly urea dust, from export activities such as shiploading. In accordance with the AQMP, unpowered stations must be installed and fully operational within 12 months of the commencement of operations, which under MS1180, is defined as the point at which plant infrastructure begins operating and includes pre-commissioning, commissioning, start-up, and ongoing operation of the plant infrastructure.

In the event of exceedance of any specified trigger and threshold criteria, the Works Approval Holder is required to report the exceedance and implement response actions in accordance with the AQMP. This includes reviewing CEMS and meteorological data to determine the likely contribution of site emissions to the exceedance, and implementing repairs, maintenance or process changes to reduce emissions. Ongoing monitoring will confirm that management actions are effective and have resulted in reductions ground level concentrations at the effected ambient monitoring site. Where regular or ongoing exceedances occur, the AQMP states that a review of emissions across the entire airshed will occur to identify other external sources and noting that the premises is predicted to have a minor contribution.

2.4.2 Infrastructure controls

Emission controls were considered under Part IV of the EP Act and installation of specified controls equipment was conditioned on the works approval. As discussed above, the revised AQMP determined that the current design of the plant remains consistent with contemporary best practice. Emission controls remain consistent with those already conditioned on the works approval and therefore no further changes to design are proposed as part of this amendment application.

Operational controls are specified on the works approval to ensure that the installed emission control technology is operating effectively and that design objectives are being achieved through commissioning and time limited operations. Operational controls included on the works approval are outlined below:

Table 3: Operational controls for the control of air emissions.

Process Units	Emission design controls
Ammonia Synthesis Train	• The gas fired heater must be operated with low NOx burners. • All vented ammonia is required to be directed to the flare for combustion. No ammonia is permitted to be vented directly to atmosphere from the Ammonia Synthesis Train.
Urea synthesis plant (2 units)	• All emissions of ammonia from medium pressure vents are to be treated via the scrubbing system prior to discharges via the Granulator Stack(s).
Urea granulators (2 units)	• Waste gas from the granulator units is required to be directed to the scrubbing system for treatment prior to discharge to atmosphere via the Granulator Stack(s). • De-dusting systems are to be operated on each granulator whenever urea is being processed or handled in the granulator units. • Waste gas from the de-dusting systems is required to be directed to the Granulator Stack(s) via the scrubbing system providing secondary emissions control.
Gas turbine generators	• The gas turbines must be operated with low NOx burners. • Exhaust from the gas turbines is required to be discharged via the Heat Recovery Steam Generator (HRSG) Stack operated with SCR technology (noting that there will be a period

(GTG)	during commissioning where SCR technology will not be available due to initial fine-tuning). • The works approval allows discharge of exhaust gas to the HRSG Bypass Stack only in the event that the HSRG is offline due to system malfunction or failure. The HSRG bypass stack is not permitted to be used when the HSRG is operating at normal operating conditions noting that it is not fitted with SCR technology.
Flaring and venting	• Flares are required to be operated with pilot lights lit at all times to ensure combustion of glared gases. • Blowdown vents are only authorised for use during emergency conditions to ensure safe operation of the plant.
Product handling	• The works approval specifies that controls for managing fugitive dust are to be maintained in good working order and operated whenever product is being handled.
Other	• The works approval limits the operating period for the diesel generators and ammonia cracking unit noting that these are intended for start-up purposes only.

Infrastructure requirements specified on the works approval may be updated in the future to reflect any changes to emission control designs arising from requirements of MS1180, including reviews of controls and the adoption of advancements in pollution control technology.

2.4.3 Emission limits

In addition to infrastructure controls outlined above, the works approval specifies emission limits to be achieved through commissioning and time limited operations. Applied limits have been derived from the emission rates modelled in the Air Quality Study (Ramboll 2024) and correspond to the design criteria established for the premises (Table 4).

The modelled emission rates represent worst case emissions from the premises across all operating scenarios except short-term periods during initial commissioning activities. Recognising that these commissioning activities may temporarily exceed normal operating limits, the works approval includes provisions to allow exceedances during defined periods of initial commissioning.

Consistent with the *Guideline: Industry Regulation Guide to Licensing* (DWER 2019), the delegated officer considers it is standard industry practice for emissions to be higher during commissioning due to equipment testing, calibration, and optimisation before steady-state operation is achieved. The authorisation of these temporary emissions is consistent with the department's risk-based approach, which recognises commissioning as a distinct phase requiring flexibility to ensure safe and effective start-up. Similar allowances are routinely applied to comparable operations to manage commissioning risks without compromising environmental objectives. The Works Approval Holder is required to employ all practical and reasonable measures to ensure that emissions are minimised during this initial commissioning phase.

Table 4: Emission limits compared to plant design criteria.

Emission Source	Pollutant	Emission rate limit	Design criteria
		g/s	mg/m^3
Fired Heater	NOx	6.68	134
Urea Train (Granulator Stack)	NH_3	4.06	20
	PM_{10}	5.07	25
GTG	NOx	2.54	30.8 (15ppm)

NOTE: At standard temperature and pressure (STP) conditions, dry basis, and for fired heaters and GTGs at their respective reference oxygen content (3% O_2 for the heater and 15% O_2 for the GTG).

As outlined in sections above, and in the previous assessment, the broader risks associated with air emissions were assessed under Part IV of the EP Act and therefore have not been

reconsidered in this assessment. The limits specified on the works approval are intended to complement the regulatory framework established under the conditions of MS 1180, the revised AQMP and the MRAMP. This framework includes ambient air quality monitoring programs with defined triggers and thresholds to protect both human health and the integrity of rock art on Murujuga.

Stack emissions will be continuously monitored using CEMS. This real-time monitoring provides early detection of any exceedance of works approval limits and forms a critical link to the ambient monitoring programs implemented under the AQMP and MRAMP. While CEMS data reflects emissions at the source, ambient monitoring measures the cumulative effect of emissions in the surrounding environment, including sensitive receptors and culturally significant areas. Together, these programs provide a comprehensive picture of air quality performance; CEMS data identifies operational compliance at the premises, while ambient monitoring verifies whether environmental quality objectives for human health and rock art protection are being met. This integrated approach ensures that both source-based and receptor-based monitoring inform regulatory oversight and environmental protection outcomes.

According to the AQMP, exceedances of the above limits (outside of the allowed commissioning periods) will cause the plant to trip or require reduced operations to reduce emission values. The Works Approval Holder has also established internal emission trigger values to provide early indication of a potential exceedance and allow intervention prior to a breach occurring.

Per the conditions of the works approval, the Works Approval Holder is required to report any exceedances of specified limits within 48 hours of the exceedance occurring followed by a detailed investigation report within seven days. The report must include an investigation into the potential impacts of the exceedance and outline corrective actions to prevent recurrence. Importantly, this investigation must incorporate data from the AQMP ambient monitoring program to determine whether offsite impacts have occurred. Exceedance reporting required by conditions of the works approval (and future licence), will complement and inform the investigation and reporting of any exceedance of triggers and thresholds specified under the AQMP.

CEMS

The works approval includes specifications for the installation and calibration of the installed CEMS to ensure accurate data collection. This includes:

- submission of compliance documentation demonstrating installation meets the requirements of the relevant standards;
- requirements to undertake initial calibration and verification of CEMS consistent with the relevant standards and submission of these reports to the department;
- development of a quality assurance plan (QAP) detailing procedures for ensuring ongoing compliance with calibration requirements outlined in the CEMS standards; and
- submission of results of quality assurance testing undertaken during commissioning and TLO demonstrating that these ongoing calibration requirements are being met.

Certification is required on all sampling locations, including the HRSG Bypass Stacks which share CEMS with their respective GTG. Initial CEMS functional checks and calibration will occur during early GTG operation with formal CEMS certification occurring once plant reaches steady state-operations. CEMS data will be available throughout the TLO period.

The department's CEMS Code (DER 2016) provides guidance on the installation, calibration and maintenance of continuous emissions monitoring systems particularly for monitoring emissions of NO_2, SO_2, CO and particulates. The delegated notes however that the CEMS Code does not include provisions for monitoring ammonia (NH_3). *EN 14181 Stationary source emissions – Quality assurance of automated measuring systems* is considered by the delegated officer to be an equivalently suitable standard for NH_3 monitoring and, to address the absence

of guidance in the CEMS Code, has been applied to the works approval.

2.4.4 Flaring and venting

Flaring and venting emissions associated with the Perdaman Urea Project were previously considered as part of the initial works approval process. Flaring is only expected to occur during abnormal operating conditions, such as start-up, shutdown, or emergency events, and is not expected during normal operations. The flaring system comprises multiple dedicated flares for syngas and ammonia, designed to ensure safe combustion of process gases during upset conditions. While these events may result in temporary elevated emissions of pollutants such as NOx, SO_2, CO, and ammonia, they are infrequent and short-lived.

Venting of ammonia is limited to short-duration safety releases via the blowdown stacks. No ammonia is vented from the ammonia synthesis unit, with all vented ammonia from this plant being directed to the flares for combustion. Emissions associated with venting are infrequent and of short duration, and form a critical component of the plant's safety system.

In support of the works approval application, the Works Approval Holder submitted modelling (SCJV 2025) which considered key flaring scenarios to determine potential impacts on receptors. Upon review of the study, it was determined that more frequent events that are expected to occur multiple times per year, such as flaring associated with startup and shutdown conditions, are generally expected to make negligible contributions to ambient concentrations of pollutants. Larger venting and flaring events are more likely to be infrequent, rare events associated with emergency (unplanned) scenarios to ensure plant safety.

As outlined in the previous risk assessment (DWER 2024), risks associated with venting and flaring are considered to be adequately managed under the regulatory framework for Major Hazard Facilities administered by the Department of Local Government, Industry Regulation and Safety (DLGIRS). On this basis, no additional assessment was undertaken under Part V of the EP Act, as impacts were determined to be addressed through existing regulatory mechanisms. The delegated officer maintains the view that venting and flaring emissions associated with emergency plant operations are appropriately regulated by DLGIRS under this framework. The delegated officer considers these emissions to be further managed through ambient monitoring networks established through the AQMP and MRAMP which provide data on local airshed conditions, including any potential impacts from venting and flaring emissions through exceedance of specified criteria for protection human health and local rock art.

As outlined in Table 3 above, the following infrastructure controls proposed by the Works Approval Holder have been conditioned on the works approval to ensure that flares and vents are operated per the design intent:

- Flares are required to be operated with pilot lights lit at all times to ensure combustion of glared gases.
- Blowdown vents are only authorised for use during emergency conditions to ensure safe operation of the plant.

The Works Approval Holder is also required to report on upset conditions to provide oversight of plant operations, in addition to monitoring the volume of gas flared and vented.

2.5 Noise

Noise modelling submitted previously to support the works approval application was based on preliminary plant design. The modelling indicated that assigned noise levels would be achieved at key sensitive receptors including residents of Dampier townsite, nearby recreational areas Deep Gorge (Nganjarli) and Hearson Cove, and three nearby heritage sites (Fish Thalu, Yatha and Site ID 9439). While technical exceedance of the assigned noise levels was identified along the boundary of the premises, considering the absence of sensitive receptors within these areas, the risk of the exceedance was determined to be low.

The Works Approval Holder committed to undertaking additional modelling once final design was established to refine model predictions. As a result, conditions were placed on the works approval requiring the submission of revised modelling demonstrating that assigned noise levels could be achieved.

In accordance with these conditions, the Works Approval Holder submitted updated modelling in May 2025. The revised modelling incorporated detailed plant design and provided predicted noise emissions based on noise data received from equipment vendors for individual noise sources. In instances were vendor-supplied data was not available, the Works Approval Holder advised that noise emissions were conservatively estimated using maximum noise levels specified in vendor requirements and project design criteria.

Consistent with initial modelling, the results indicate that noise levels received at sensitive receptors such as Deep Gorge (Nganjarli) and Hearson Cove remain well below the assigned noise level of 65dB(A) (Figure 1), and therefore risk of impact to these locations remains low. Noise levels at the identified heritage sites were also assessed and found to be below the assigned level.

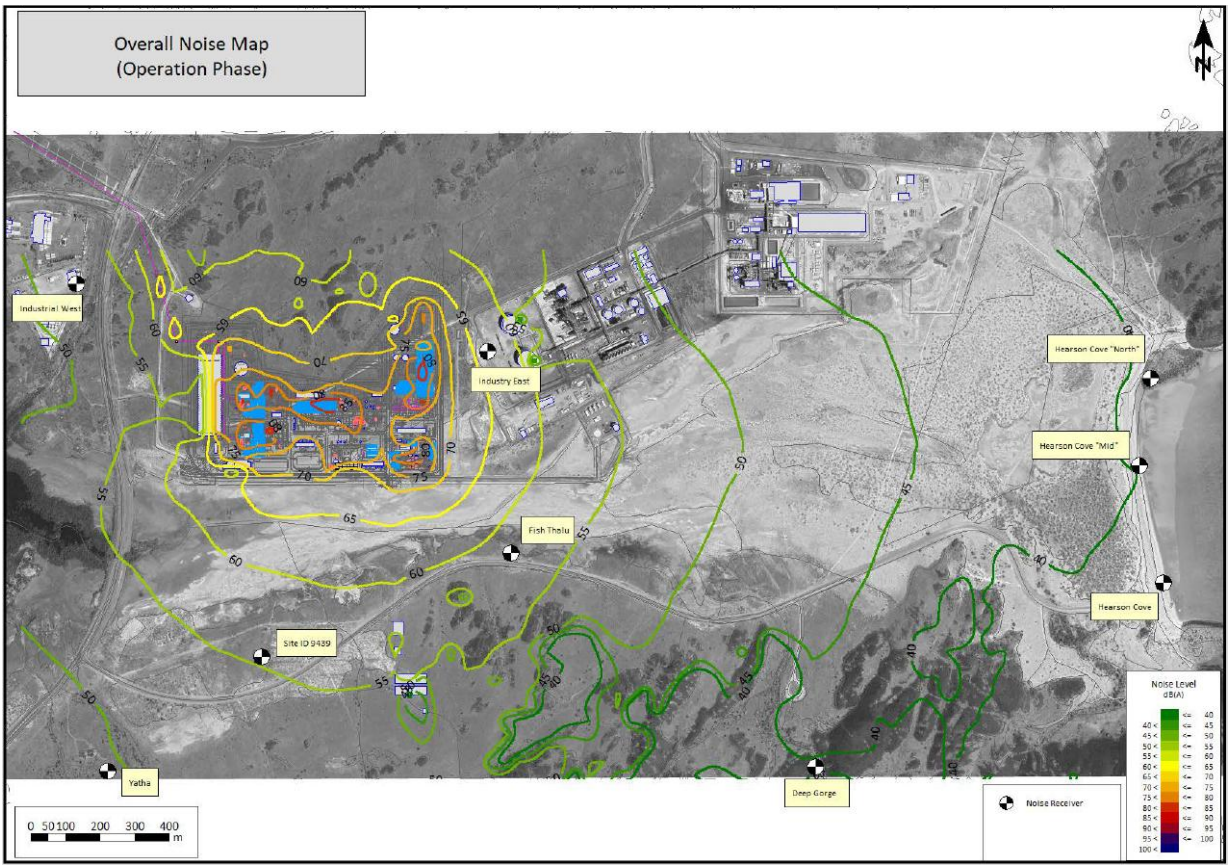

Figure 1: Predicted noise levels (HAS 2025).

Although the updated modelling continues to predict a technical exceedance of the assigned noise level at certain boundary locations, the risk remains low due to the absence of receptors in those areas. It is important to recognise that noise modelling is a predictive tool, intended to estimate potential noise impacts. The delegated officer notes that the modelling adopts a conservative approach, assuming worst-case conditions; specifically, that all equipment operates simultaneously and that meteorological conditions favour maximum noise propagation. In practice, such a scenario may not occur due to variations in operating conditions. For instance, the use of the flare typically does not coincide with full plant load, meaning not all noise sources are active at the same time. This inherent conservatism in the modelling further supports the possibility that the actual risk of exceedance is low.

Given this context, and the low risk associated with the predicted technical exceedances, the delegated officer considers the most appropriate and practical response is to require the Works Approval Holder to undertake noise monitoring during commissioning and time limited operations. This will serve to validate the model predictions and determine whether further noise reduction is necessary to achieve the assigned noise levels at the boundary of the premises. If monitoring demonstrates that assigned noise levels are not being achieved, the works approval holder will be required to implement additional control measures.

While it is acknowledged that this approach may result in technical exceedance of the assigned noise levels during commissioning and time limited operations, the delegated officer considers that the actual risk of this exceedance impacting receptors remains low given the absence of receptors in these locations. The proposed approach is therefore considered appropriate for managing the risk of noise emissions and ensure that any technical non-compliance to be addressed through works approval and/or licence conditions once confirmed through monitoring.

Noise controls proposed by the Works Approval Holder at this stage, and considered in the revised modelling, are outlined below and are conditioned on the works approval.

- The urea shed will be of metal construction and 35m tall.
- All urea conveyors, drives and transfer stations will be enclosed within standard 0.6mm base metal thickness steel (increased from 0.442mm) with close-fitting joints.
- Compressors within the ammonia plant will be housed in partially enclosed compressor rooms. Partial enclosure is expected to limit sound wave propagation while ensuring proper ventilation for equipment.
- ASU compressors will be fully enclosed within dedicated acoustic enclosures.
- Silencers on the HRSG stacks to achieve a sound power level of 104dB(A).
- All major compressor piping (suction, discharge, main branches) fitted with acoustic insulation.
- Installation of noise barriers including panelling installed for PAU 21 to limit emissions to the eastern side of the premises and housing of the Steam Turbine Generator within a dedicated structure.

2.6 Discharges to marine waters

The Works Approval Holder proposes to discharge wastewater to the Water Corporation's Multi-User Brine Return Line (MUBRL), which conveys combined industrial effluent to King Bay via an ocean outfall. This discharge pathway is fundamental to the project's seawater cooling, desalination, and wastewater management systems, where concentrated brine from desalination and demineralisation processes is blended with cooling tower blowdown and other minor wastewater streams before entering the MUBRL. Additional contributions include treated sewage, and intermittent discharges of stormwater from process areas, and effluents from polishing units.

As described in the previous Decision Report, the legislative framework governing these discharges is primarily established under Ministerial Statement 594 (MS594), which authorises Water Corporation to operate the MUBRL and sets environmental management commitments for cumulative effluent disposal. These commitments require that wastewater accepted into the system meets strict water quality criteria to ensure the projection of the environmental values of King Bay. Compliance is verified through the Operational Marine Environmental Management Plan (OMEMP) developed by Water Corporation (Water Corporation 2025), which specifies end-of-pipe and in-situ trigger levels derived from ANZECC 99% species protection guidelines to maintain a high level of ecological protection outside the mixing zone in King Bay.

Under this framework, Perdaman must ensure that all wastewater discharged via the MUBRL meets the acceptance criteria outlined in the OMEMP.

A summary of key wastewater inputs is provided in Table 5 and Figure 2.

Table 5: Summary of proposed waste streams discharged from the premises to the MUBRL.

Description of discharge	Fate of discharge	Frequency of discharge	Estimated flowrate[2] / volume
Seawater cooling tower blowdown	Discharge is normally directed to the MUBRL via the Cooling Tower Basin.	Continuous	2218 m^3/hr
Brine from desalinisation/ demineralisation	Discharge is normally directed to the MUBRL.		75 m^3/hr
Potentially contaminated stormwater from paved areas	First flush is collected in dedicated sumps and then directed to the Saline Water Pond.	Intermittent	110 m^3/hr 2,750 m^3 (total first flush event)
Potentially contaminated oily water from curbed areas (bunded areas)	Collected and treated via the oily water treatment package, then stored in the Treated Water Pit prior to discharge to the Saline Water Pond Water not meeting the discharge criteria is recirculated through the oily water treatment package.	Intermittent	55 m^3/hr 110 m^3 is the working capacity of the Treated Water Pit
Ultrafiltration and neutralised polishing effluents[1]	Directed to the Final Observation Basin prior to disposal to the MUBRL	Intermittent	500 m^3 (35m^3/hr)
Filter backwashing	Directed to the MUBRL	Intermittent	300 m^3/hr (average)
Incidental runoff from chemical sumps / pits within the Urea Units	Directed to the Saline Water Pond	Intermittent – when pits and sumps are full	16.5 m^3/hr (33 m^3 total)
Treated sewage from the sewage treatment plant (STP)	Discharge is normally directed to the MUBRL. Treated water that does not meet water quality criteria will be redirected back to the sewage balance tank for reprocessing.	Continuous	24 m^3/day (40 m^3/day peak)

Note 1: Polishing neutralised effluents are generally <10,000 TDS (mostly sodium sulphate) while ultrafiltration concentrates comprise of seawater with solids removed and small amounts of cleaning chemical salts (sodium sulphate).

Note: 2: Estimated flow rates for intermittent discharges are associated with working capacity of associated infrastructure (i.e. collection systems, transfer pumps, etc.).

2.6.1 Emission limits and monitoring

Emission limits (Table 6) have been applied to the works approval derived from those proposed by the Works Approval Holder in the Environmental Commissioning Plan and which generally align with the discharge criteria specified in the OMEMP developed under MS 594. Some exceptions are outlined below:

- **Discharge volume:** The works approval limits the volume of wastewater discharged from the premises to the MUBRL to 59.7 ML/day. The delegated officer notes that MS1180 also specifies an annual limit for discharges to the MUBRL and this will

continue to apply.

- **Ammonia, Thermotolerant coliforms (TCC) and *E. coli*** criteria align with criteria specified by Water Corporation for MUBRL discharge.
- **Free Chlorine** is not among parameters included in MUBRL discharge criteria, but it is monitored since MS 594 specifies the limit of 0.1 mg/L for oxidising biocide in the effluent discharge.

  Aluminium, Nitrate-N and Nitrite-N: No criteria were proposed in the Environmental Commissioning Plan however the delegated officer considers that that monitoring of these parameters should be included in the works approval noting requirements of the OMEMP (which includes monitoring and trigger levels) and verify that these parameters to not pose a significant risk. Requirements for limits and monitoring of the above parameters can also be reviewed post commissioning/TLO if it is demonstrated that they are not source pollutants.
- **Hydrocarbons:** The delegated officer notes that the OMEMP does not include specified criteria for hydrocarbons in wastewater. Considering that hydrocarbons are a potential source of pollution, although likely to be in low quantities, a limit for hydrocarbons has been included on the works approval. In the absence of criteria in the OMEMP, the limit has been determined using an approach consistent with that applied by the OMEMP whereby the ANZECC guideline (ANZECC & ARMCANZ 2000) for 99% species protection (7 µg/L) is back-calculated based on diffuser performance. A dilution factor of 61 is used for determining trigger values in the OMEMP based on the estimated performance of the MUBRL diffuser, however, noting that the OMEMP does not include monitoring of hydrocarbons in the waste stream, a conservative approach has been applied and the limit based on 50 dilutions.

Table 6: Wastewater quality discharge limits for discharges via the MUBRL.

Parameter	Units	Water Corp OMEMP Triggers
Accumulated flow	ML/day	59.7
Ammonia	µg/L	<1,700
Arsenic III	µg/L	<140
Arsenic V	µg/L	<275
Cadmium	µg/L	<36
Chromium III	µg/L	<459
Chromium IV	µg/L	<8.5
Cobalt	µg/L	<61
Conductivity	µS/cm	<75,000 (55,000mg/L)
Copper	µg/L	<11
E. coli	MPN/100 mL	<13,000
Free chlorine	mg/L	<0.1
Lead	µg/L	<134
Mercury	µg/L	<1.4
Nickel	µg/L	<427
Oxidation-reduction potential	mV	<680
pH	pH units	6.9 - 8.3
Selenium	µg/L	<183
Silver	µg/L	<49

Parameter	Units	Water Corp OMEMP Triggers
Turbidity	NTU	<63
Temperature	°C	Effluent discharge temperature to be less than 2 °C above the inlet seawater temperature for 80% of the time and not exceeding a maximum limit of 5 °C above
Thermotolerant coliforms	CFU/100mL	<910
Total Recoverable Hydrocarbons	µg/L	350
Vanadium	µg/L	<3050
Zinc	µg/L	<419

The Works Approval Holder has established a monitoring program designed to verify compliance with the water quality discharge criteria. The program incorporates a combination of online, continuous sampling as well as periodic field sampling for laboratory analysis. Continuous monitoring at the MUBRL tie-in provides real-time indication of criteria being exceeded supported by routine sampling and analysis of the individual wastewater streams that contribute to the discharge. Where online monitoring identified a trigger exceedance, at the tie-in point, automatic diversion to the Saline Water Pond will be triggered.

For parameters not subject to continuous monitoring, the Works Approval Holder proposes weekly sampling of the premises' contribution to the MURBL. These results will be aggregated into a monthly rolling average for comparison against those limits. In accordance with the OMEMP, Water Corporation will also undertake monthly "end of pipe" sampling of the combined discharge to confirm compliance with the discharge criteria. Wastewater within the Saline Water Pond will be sampled prior to discharge to the MUBRL to confirm the combined waste stream will meet discharge requirements. The Saline Water Pond pump will operate in recirculation mode to ensure mixing of waste within the pond. Where it is determined that wastewater within the pond will not meet discharge requirements at the MUBRL tie-in after mixing, it will be held pending further dilution with other wastewater or directed to the Saline Evaporation Pond for disposal via evaporation. Resampling will occur prior to discharge to confirm that discharge limits are being met. A summary of the monitoring program is provided below:

Table 7: Summary of the proposed wastewater monitoring program.

Monitoring point (refer to Figure 2)	Monitoring type/frequency	Parameters to be monitored
C - MUBRL tie-in	Continuous online analysis	Volume/Flow Conductivity Free chlorine ORP pH Turbidity Temperature
	Weekly sample for analysis at onsite laboratory	Metals, Coliforms and Hydrocarbons
1 – Saline Water Pond	Sampled prior to discharge from the Saline Water Pond to the MUBRL.	The same parameters listed above for the MUBRL discharge (continuous and non-continuous sampling)
2 – Sewage treatment plant	Online analyser	Volume/Flow Free chlorine pH
	Weekly sample for analysis at onsite laboratory	Biochemical oxygen demand Chemical oxygen demand Total suspended solid Coliforms
3 – Clean stormwater ponds at Site C & Site F	Managed under Part IV via the Surface Water Management Plan developed under MS1180. Clean stormwater is primarily used to supplement cooling water. Water that is directed to the Saline Water Pond will be captured under the monitoring program listed in this table.	
4 – Oily water treatment unit	Online analyser with samples collected and analysed prior to discharge to the Saline Water Pond.	Total recoverable hydrocarbons

The delegated officer has reviewed the proposed monitoring program and considers it to be generally acceptable for demonstrating compliance with specified discharge criteria. Additional parameters have been included where relevant (e.g. Total Recoverable Hydrocarbons, Aluminium, Nitrate-N and Nitrite-N) to align with the discharge requirements discussed above.

The delegated officer notes that once wastewater enters the MUBRL, no further mitigation is possible prior to it being discharged to the receiving waters. Therefore, it is important to ensure water quality sampling is conducted frequently, before input into the MUBRL, as exceedances would otherwise remain undetected until Water Corporation monthly monitoring. The delegated officer also notes that the proposed program does not account for short-term fluctuations between weekly samples.

To provide greater assurance that the waste stream is meeting discharge criteria, particularly during commissioning, the delegated officer considers that sampling should occur more frequently (e.g. 5-7 days per week), with samples composited into a weekly sampled. Use of the monthly rolling average based on these weekly composite samples is considered suitable. This approach is expected to better capture potential short-term variability in water quality and provide greater certainty that discharges limits are consistently achieved.

Monitoring frequencies and discharge limits will be reviewed as part of the licence assessment process, to confirm that these remain appropriate based on the monitoring data collected during commissioning.

Collected water quality samples will be analysed using the onsite laboratory to ensure early detection of criteria exceedance. For quality control purposes, samples will be periodically sent away for external analysis at a NATA accredited laboratory. External analysis is proposed to

occur on a six-monthly basis, however, the delegated officer considers that external analysis should occur at a higher frequency (i.e. monthly) during commissioning to ensure reliability of data, especially during initial operations when laboratory processes are being established. Monthly samples, collected separately from those used for the weekly composite analysis, must include replicates and duplicates subject to both internal and external laboratory analysis. This verification process will provide greater confidence in the accuracy of the onsite laboratory results. Discharge from the Clean Water Ponds at Sites C and F to the supratidal flats has not been conditioned on the works approval noting that these discharges are managed under Part IV of the EP Act via the Surface Water Management Plan developed under MS 1180.

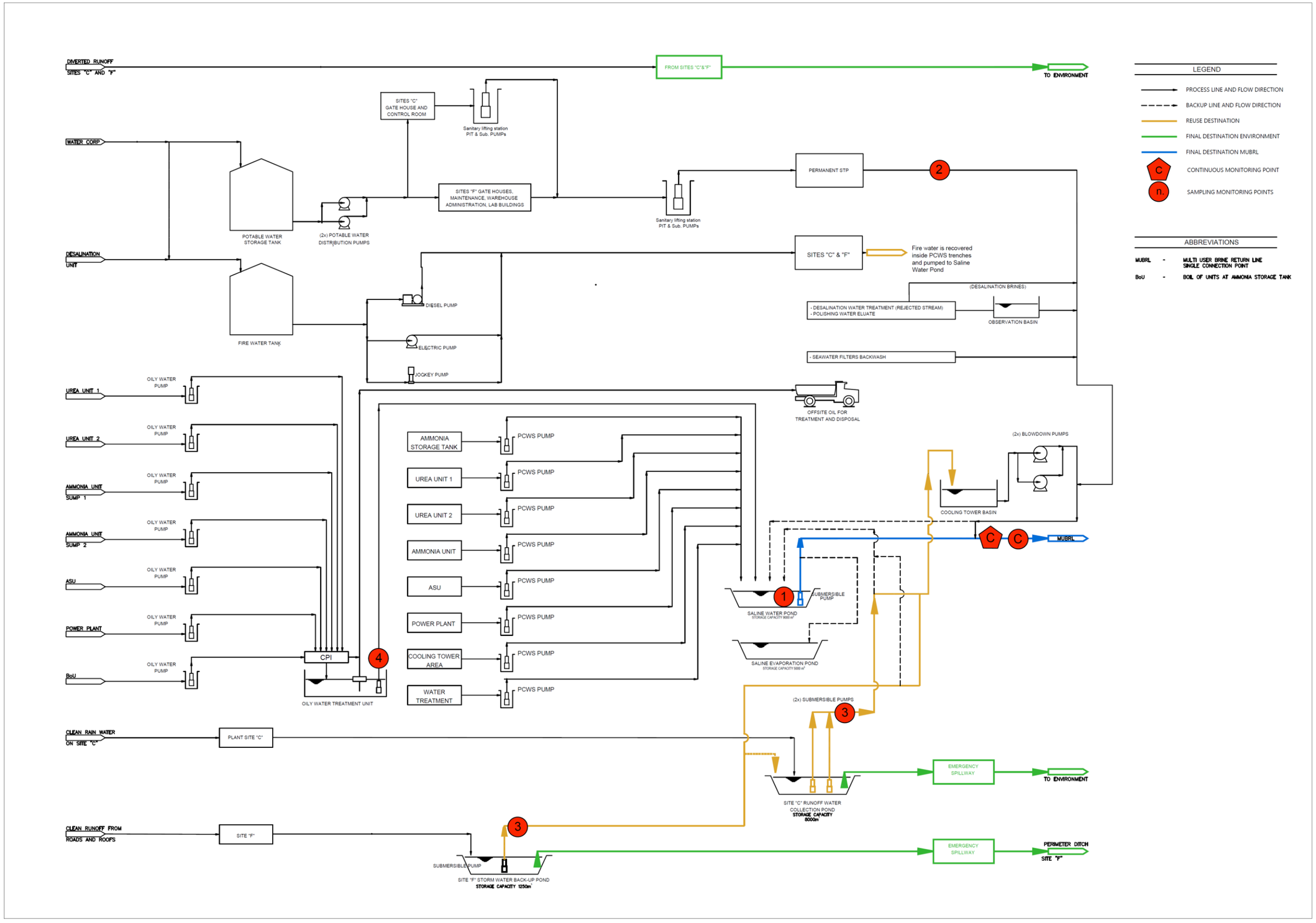

Figure 2: Wastewater schematic showing monitoring point locations.

3. Consultation

The application was advertised on the department's website on 18 June 2025 inviting public comment. The following stakeholders were also provided with notification of the application and invited to comment:

- Murujuga Aboriginal Corporation (MAC);
- City of Karratha;
- Department of Biodiversity, Conservation and Attractions (DBCA);
- Department of Energy and Economic Development (DEED);
- Department of Planning, Lands and Heritage (DPLH);
- Pilbara Ports;
- Water Corporation;
- Friends of Australian Rock Art (FARA); and
- Save our Songlines.

A summary of stakeholder comments received, and the departments consideration of these comments, is provided in Appendix 1.

The Works Approval/Licence Holder was provided with draft amendment on 22 December 2025. A Summary of the Works Approval Holder's comments on the draft amendment, and the department's response, is provided in Appendix 2.

4. Conclusion

Noting that the revised AQMP was confirmed on 22 December 2025, the delegated officer is no longer constrained under Part V of the EP Act in limiting the commencement of commissioning and time limited operations. Accordingly, the delegated officer has determined that a Revised Works Approval will be granted authorising commissioning and time limited operations, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

As discussed above, risks associated with emissions from the premises have not been reassessed as these were considered in the previous assessment (DWER 2024). Conditions have been applied aligned with the outcomes of that previous risk assessment as follows:

- Specifying the location of emission points;
- Specifying emission limits consistent with the design specifications provided in the revised AQMP (for air emissions) and OMEMP (for wastewater discharges);
- Monitoring requirements; and
- Other infrastructure and/or operational controls to ensure the effective operation of relevant pollution control equipment.

Air emissions

Emission controls, including emission limits and monitoring, have been applied consistent with the controls proposed by the Works Approval Holder and aligned with the commitments contained within the confirmed AQMP. Continuous emissions monitoring will provide real-time stack emission data, enabling early detection of potential exceedances of air quality limits and proactive intervention. This source-based monitoring is complemented by ambient air quality programs under the AQMP and MRAMP, which assess cumulative impacts on sensitive receptors, including cultural heritage. Together, these integrated systems ensure that

environmental objectives for the protection of human health and rock art are achieved.

Specified controls will be reviewed through the licence assessment process to confirm that they remain relevant, and will be updated as required. A review of limits will take into consideration outcomes of monitoring undertaken in accordance with the AQMP and MRAMP and any adjustments to triggers, thresholds and IEQC set through these programs.

Noise emissions

Risks associated with noise emissions have not been reassessed as updated modelling indicates a similar outcome as previous modelling, and therefore, the overall risk of noise is considered to remain unchanged. Noting the conservative nature of the modelling, noise validation will be required through commissioning and time limited operation to verify noise predictions and whether the predicted technical compliance will occur in practice. The Works Approval Holder will be required to address any technical non-compliance should model validation indicate that exceedance of the Noise Regulations is occurring.

Discharges to the MUBRL

Although discharges from the MUBRL are primarily managed through MS594 and the associated OMEMP, conditions have been included on the works approval to ensure that the premises contribution to the MUBRL is managed to achieve the environmental objectives of MS594 relating to the protection of marine waters within King Bay. Conditions include discharge criteria aligned with those specified in the OMEMP and monitoring requirements to verify that discharge criteria are being met. Monitoring data collected during commissioning will information a review of specified criteria and monitoring requirements through the licence assessment processing to ensure they remain adequate.

4.1 Summary of amendments

Table 8 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Works Approval as part of the amendment process.

Table 8: Summary of works approval amendments

Condition no.	Proposed amendments
Cover page	Assessed annual production capacity increased from 2.046 million tpa to 2.263 million tpa. The increased production capacity assumes the plant is operational for 365 days of the year, rather than 330 days which was the basis for the previous values.
1 – 4	General monitoring conditions transferred to this section.
5 – Table 1 (Item 4: Urea granulators)	EN 14181 included noting that CEMS Code does not include provisions for measuring NH_3.
5 – Table 1 (Item 5: Power generation)	NH_3 included in the requirements for CEMS installation consistent with commitments of the Environmental Commissioning Plan (Perdaman 2025b). NH_3 emissions are associated with slippage from the SCR technology.
5 – Table 1 (Item 11: Wastewater management)	Requirements specifying the monitoring equipment to be installed on the MUBRL tie-in consistent with commitments of the Environmental Commissioning Plan (Perdaman 2025b).
5 – Table 1 (new item: General)	General requirements for noise mitigation specified in the table, aligned with works approval holder commitments.

Previously 11	General monitoring requirement transferred to front of licence (condition 1)
Deleted (12 – 15)	Removed noting that report has been submitted and noise emissions will be further addressed through new conditions (condition 29 – 32)
Previously 17-18	Transferred to general monitoring requirements (conditions 1 and 2)
21 – 24	Commencement and duration (commissioning) Set out requirements for commencing commissioning as well as specifying the duration of commissioning and activities authorised for to be undertaken. Notification requirements relating to the commencement and completion of commissioning activities are also specified.
25 – 28	Infrastructure and equipment (commissioning) Set out operational infrastructure requirements for the duration of commissioning including air pollution and dust control requirements.
29 – 32	Noise modelling (commissioning) Specifies requirements for undertaking an additional noise assessment to verify that the premises achieves the assigned levels set out in the Noise Regulation (refer to section 2.5 above).
33 – 38	Air emissions and monitoring (commissioning) Specifies the authorised air emission points as well as emission limits, monitoring requirements and requirements for CEMS certification and reporting. Conditions for monitoring and reporting upset conditions as are included.
39 – 42	Discharges to marine waters/wastewater and monitoring (commissioning) Sets out requirements for discharges to the MUBRL including water quality limits and monitoring requirements. Also specifies monitoring requirements for wastewater inputs into the MUBRL to verify source contributions.
43 – 44	Reporting (commissioning) Specifies requirements for reporting data collected during commissioning to verify performance. Data will be used to inform the assessment of the licence application.
45 – 59	Time limited operations Conditions outline similar requirements relating to commissioning including commencement and duration, infrastructure controls, authorised emissions (with limits and monitoring) and reporting requirements.
63 – 64	Exceedance notification requirements outlining the timeframes for exceedance reporting and information required to be included in exceedance reports.
Definitions	Definitions were updated to support the above conditions. This includes definitions specifying emergency conditions and initial start-up.
Schedule 3	Figures and maps were updated

References

1. Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (ANZECC & ARMCANZ) 2000, *Australian Water Quality Guidelines for Fresh and Marine Water Quality*. Accessed from: https://www.waterquality.gov.au/anz-guidelines/resources/previous-guidelines/anzecc-armcanz-2000
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2019, *Guideline: Industry Regulation Guide to Licensing*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
5. DWER 2021, *Compliance and Enforcement Policy,* Perth, Western Australia.
6. DWER 2024, *Works Approval W6875/2023/1 Decision Report*, dated 25 June 2024 [Accessed at https://www.der.wa.gov.au/our-work/licences-and-works-approvals/current-licences].
7. Jacobs 2020, *Perdaman Urea Project Air Quality Impact Assessment*, Final Revision 7, 16 March 2020.
8. New South Wales Environmental Protection Authority (NSW EPA) 2016, *Approved methods for the modelling and assessment of air pollutants in New South Wales*, Department of Environment and Conservation, Sydney
9. Perdaman Fertilisers and Chemicals Pty Ltd (Perdaman) 2025a, *Air Quality Management Plan, Project Ceres, Burrup Peninsula, Western Australia* (Version PCF5).
10. Perdaman 2025b, *Attachment 4A Environmental Commissioning Plan*, *Project Ceres, Burrup Peninsula, Western Australia*
11. Ramboll 2024, *Ramboll - Project Ceres Final Air Quality Study Report*, Rev 3.
12. Saipem Clough Joint Venture (SCJV) 2025, *Flaring Air Quality Study*, Rev 1, Report prepared by SCJV for Perdaman Chemicals and Fertilisers Pty Ltd dated 9 January 2025.
13. Water Corporation 2025, *Burrup Peninsula Seawater Supply and Multi-User Brine Return Line – Operational Marine Environmental Management Plan*, Rev 11.

Appendix 1: Summary of stakeholder comments on the application

Stakeholder	Item No	Stakeholder comments	Department's response
MAC	a)	MAC did not oppose to the extension of the works approval to allow for commissioning and TLO however requested that TLO be awarded for the maximum 180 days rather than 240 days requested by the Works Approval Holder.	In accordance with the department's *Guideline: Industry Regulation Guide to Licensing* (DWER 2019), the purpose of authorising a TLO period is to allow the assessment of a licence application post commissioning. The guideline notes that TLO periods are generally between 90 and 180 days, although the department may exercise discretion where justified. In this case, an extended TLO period of 240 days has been authorised due to the complexity of the premises and the significant volume of monitoring data required to support a comprehensive licence assessment. This extended timeframe provides contingency to ensure that the licence assessment can be completed within the authorised TLO period. Operational controls have been applied to TLO activities under the works approval which include, but are not limited to, infrastructure controls, emission limits and monitoring requirements that are based on design performance. Typically, these conditions are transferred from the works approval to the licence. It is during TLO and the licence assessment process that conditions will be reviewed to ensure that they remain appropriate. Requirements of MS1180 and other regulatory instruments, including relevant management plans, will also continue to apply through TLO. On this basis the delegated officer considers 240 days to be a suitable period of TLO. The delegated officer considers that conditions of the works approval applicable to TLO combined with the requirements of MS 1180, and ongoing monitoring of the MRAMP, are suitable for regulating emissions and discharges from the premises during TLO.
	b)	Noting that there is the potential for short-term exceedances of emission thresholds while plant is wet commissioned and stabilised (as noted in the *Environmental Commissioning Plan)*, it was requested the DWER consider the MRAMP Interim Environmental Quality Criteria (IEQC) guideline levels for Nitrogen Dioxide, Sulphur Dioxide and Ammonia when determining appropriate emission limits to include in the amended works approval, to ensure risks to rock art are minimised. It was also recommended that the AQMP, which was not been submitted as part of the application, be reviewed and updated to acknowledge and align with rock art protection measures outlined in the MRAMP Interim EQC Report.	As outlined in section 2.4.1, the AQMP has since been submitted to the department and confirmed by the CEO on 22 December 2025. The AQMP includes provisions for an ambient air quality monitoring network with specified trigger and threshold criteria aligned with the published IEQC established through the MRAMP. Exceedances of triggers and thresholds require investigation and reporting with management response. Emission limits applied on the works approval are derived from emission rates specified in the Air Quality Study which are consistent with design emission concentrations specified for the nominated pollution controls and determined to be consistent with best practice pollution control. Modelling undertaken indicates that modelled rates will achieve the IEQC. The delegated officer understands there will be short periods during where emissions may be higher than normal operations while plant stabilisation occurs. Impacts to ambient air quality during this period will be appropriately identified and managed through the ambient air quality monitoring programs established under the AQMP and the MRAMP.
	c)	As a member of the MRAMP Stakeholder Reference Group, Perdaman are also expected to provide relevant operational information to Curtin University once the facility commences emitting pollutants, to enable reconciliation with monitoring data collected across the MRAMP network.	Condition 2-10 of MS1180 requires that monitoring data collected through monitoring undertaken under the AQMP is reported to MAC at least annually. The delegated officer understands that there are no formal arrangements are in place requiring ongoing submission of data to Curtin University, however members of the Murujuga Rock Art Stakeholder Reference Group provide data upon request to support the research phase of the MRAMP.
	d)	The amended works approval should clearly identify the discharge criteria for discharges to the MUBRL, as well as the monitoring requirements.	As outlined in section 2.6 above, conditions of the works approval specify discharge limits for wastewater disposed of via the MUBRL. These are consistent with requirements of Water Corporation's OMEMP developed under MS594 to ensure that environmental values of King Bay are protected. Requirements for monitoring wastewater are also specified through conditions of the works approval to ensure that limits are being achieved.
	e)	With regards to production capacity, this amendment is administrative to ensure alignment with MS1180, approved in January 2025. Urea nominal capacity of 6,200 tonnes per day remains unchanged, with annual production of 2.046 Mtpa is to be removed. Ammonia nominal capacity remains unchanged at 3,500 tonnes per day. The proponent notes the previous annual production rate was calculated incorrectly on the assumption of operating for fewer days. MAC suggested an annual limit is still required and should be re-calculated for inclusion in the amended works approval.	An annual assessed production capacity remains on the works approval. As noted by the submitter, the previous production capacity was calculated assuming that the plant operates for only 330 days per year, taking into consideration planned and unplanned shutdowns. The annual throughput value has been amended from 2.046 million tonnes per annum to 2,263 million tonnes per annum assuming operations continue for 365 days. The change does not alter the daily design capacity of the plant specified through MS1180 which remains at 6,200 tonne per day. The Works Approval Holder is required to report production rates at the completion of commissioning and TLO.
	f)	MAC noted changes to the proposed footprint and requested confirmation that the additional area has been subject to required heritage and environmental surveys prior to disturbance occurring.	Impacts to cultural heritage from direct disturbance are managed under Part IV of the EP Act, through MS1180 and the Cultural Heritage Management Plan, and the *Aboriginal Heritage Act 1972*. Changes to the development footprint were considered under section 45C (Part IV) of the EP Act with an amendment to MS1180 granted on 21 January 2025.

Stakeholder	Item No	Stakeholder comments	Department's response
Water Corporation	g)	Water Corporation confirmed the following: • All waste types proposed for discharge into the MUBRL, as stated in Commissioning Plan are in line with Water Corporation's approvals and requirements. This includes process wastewater, domestic wastewater, desalination wastewater and stormwater. • The Works Approval Holder's maximum waste daily discharge quantity is 59.70 ML/day and the maximum instantaneous flow rate of 2.4875 ML per hour to the MUBRL. • The discharge criteria in specified by the Works Approval Holder meet the discharge criteria for the MUBRL as assessed by Water Corporation's environmental technical marine consultant. • The proposed monitoring program of the quality of wastewater discharged to the MUBRL is consistent with Water Corporation's requirements.	Noted.
	h)	It was noted that that black and grey water from the STP will be tested and in-spec effluent will be sent directly to the MUBRL and all out of spec effluent will be sent back to the sewage balance tank prior to discharge to the MUBRL once it meets the specifications. Clarity was sought on whether the STP treatment values meet the overall specifications once diluted and combined with all other waste streams prior to discharge to the MUBRL. It was noted that the pH values from STP are 5.5-8.5 which does not align with the MUBRL range of pH >6.9 and <8.3. Confirmation was sought as to whether the effluent from the STP will be directed to the final observation pond or direct discharge into the MUBRL.	Treated wastewater from the SWP is directly discharged to the MUBRL. The delegated officer notes that the STP's contribution to the overall MUBRL is relatively minor and as such is expected to be sufficiently diluted so as not to significantly alter the quality of discharge to the MUBRL. Notwithstanding this, discharge criteria are specified on the works approval for discharges to the MUBRL and monitoring is required to verify the performance of the STP and the MUBRL discharge to confirm that these criteria are met. Both the tie-in to the MUBRL and STP output will be monitored continuously for pH, with automatic diversion activated should criteria not be met. In the case of the STP, out of spec wastewater will be redirected to the balance tank for additional treatment. Wastewater not meeting the discharge criteria for the MUBRL discharge will be automatically diverted to the Saline Water Pond. Other waste streams, such as stormwater, received in the Saline Water Pond will be held and sampled prior to discharge to the MUBRL to ensure water quality meets the specified discharge criteria.
	i)	Further clarification was sough regarding which waste streams are directed to which holding points for testing prior and diversions are in place to prevent out-of-spec discharge to the MUBRL.	
FARA	j)	Raised concern regarding the increase in throughput capacity for Category 12 activities (Screening, etc. of materials) authorised under L9426/2023/1 and potential impacts caused by dust, noise and vibration from these activities.	Activities associated with L9426/2023/1 are outside the scope of this assessment. It is noted however that, in accordance with the Minister determination of appeal (Appeal 016/24), crushing and screening activities associated with L9426/2023/1 ceased on 28 July 2025. The licence was subsequently surrendered on 4 December 2025. Impacts associated with dust, noise and vibration from these activities were considered in the assessment of Licence L9426/2023/1. Impacts to heritage sites from noise and vibration from the broader Project Ceres is also managed through the Cultural Heritage Management Plan developed under MS 1180.
	k)	Concern regarding protection of native vegetation and management of weeds.	Clearing of native vegetation is outside the scope of the assessment undertaken under Part V of the EP Act. Direct disturbance to native vegetation through clearing was considered under Part IV of the EP Act and clearing authorised under MS 1180. Weed management is also managed under MS1180 through the confirmed Flora Management Plan.
	l)	Environmental Commissioning Plan: 1. Concern was raised regarding higher than normal emissions during environmental commissioning until the plant is stabilised requesting that these are tightly controlled, particularly, that emissions should be monitored during commissioning and the frequency of monitoring during commissioning should be higher given uncertainties. 2. Confirmation that the Process Control System (PCS), Safety Instrumented System (SIS), and Fire and Gas System (FGS) will be in place prior to commencement of commissioning as they provide relevant information to support emergency response to incidents.	1. As discussed in item 2 above, regulatory controls are in place to manage emissions through commissioning. This includes emission limits and monitoring requirements specified through the works approval, supported by ambient monitoring established through the AQMP and MRAMP. Existing conditions of the works approval require that CEMS are installed on all stacks to continuously monitoring emissions during commissioning and TLO. Initial CEMS installation, functional checks and calibration will occur during stages of system operations and monitoring data will be available however. formal certification of CEMS is required within 500 hours (approximately 20 days) of completing initial start-up activities (i.e. achieving steady state operations). This ensures that results of CEMS verification are representative of normal operations. Stack monitoring is complemented by ambient air quality monitoring undertaken in accordance with the AQMP and MRAMP. The AQMP includes a network of monitors designed to provide early warning of potential exceedances of air quality criteria, supported by defined triggers and thresholds that initiate investigation, reporting, and management responses. These requirements align with the broader MRAMP monitoring program, which applies Interim Environmental Quality Criteria (IEQC) for the protection of rock art. While the Department acknowledges that there may be a short period where stack emissions data is not yet available, the ambient monitoring programs are considered adequate for detecting exceedances and managing potential air quality impacts during this time.

Stakeholder	Item No	Stakeholder comments	Department's response
		3. Questioned whether traditional owners and the public will be notified of the start-up of commissioning and in real time when emissions are elevated so that they may decide about risks to their personal health resulting from these higher-than-normal emissions and/or discharges. 4. Commented on staged submission of compliance reports and potential for changes associated with dates/duration of construction. 5. Limit production volumes during commissioning and time limited operations. 6. Clarification is sought regarding the lack of data relating to the average expected normal (g/s) in Table 10 of the Commissioning plant. Table 10 lists point source emission design criteria with expected steady state operational emissions however the column containing the average emissions states "To be verified".	2. The Commissioning Plan indicates systems and utilities will be mechanically completed and successfully commissioned prior to plant start-up and the Works Approval Holder confirmed that PCS, SIS and FGS will be operational. 3. The Works Approval Holder has established the Perdaman Urea Liaison Stakeholder Committee (PULSC) to facilitate community engagement and provide a platform for feedback. The Committee will be established for the duration of the construction of the project and will continue to operate through commissioning and time limited operations. 4. This matter refers to statements in the Environmental Commissioning Plan that indicate potential for a staged approach to commissioning and that indicate that "the dates and duration are estimated per the construction scheduled baseline and may vary depending on the date of received approvals and site conditions". Changes to construction schedules (prior to the commencement of environmental commissioning) does not alter the risk profile of the premises and this approach provides flexibility for the submission of compliance documentation as particular components are completed, rather than a singular submission at the completion of construction. This is a common approach for this type of complex premises and supported by the delegated officer. The period of commissioning and TLO is specified on the works approval. Should the Works Approval Holder wish to extend these periods, an application to amend the works approval will be required which will be subject to a risk assessment process. 5. Production of urea during commissioning and time-limited operations is essential for validating plant performance. Commissioning involves introducing feedstock to test and calibrate systems, which necessarily results in urea production. Completion of commissioning is defined by achieving stable operations at 100% nameplate capacity. The delegated officer considers that imposing production limits during commissioning is unnecessary, as risks are managed through conditions on the works approval, including a defined commissioning period and operational controls. Similarly, time-limited operations occur after commissioning when the plant is operating under steady-state conditions at nameplate capacity, and production during this period is expected. These measures, combined with monitoring and reporting requirements, are considered sufficient to manage environmental risks without additional production restrictions. 6. Emission limits are conservatively based on worst case emissions however it understood that the plant may operate below these emission rates during normal operating conditions when plant efficiency is greatest. Average emissions during normal operations will be confirmed through commissioning and TLO.
	m)	Acidic emissions and impacts on rock art 1. Raised issues with compartmentalised assessments which do not consider cumulative impacts. 2. Studies show that acidic emissions are impacting rock art. 3. All NO_2 and NOx should be removed from stacks before being emitted and SCR technology should be applied to all vents and stacks which can reduce emissions to near zero. 4. Decisions relating to control of acidic emissions that sacrifice efficiency of removal on the basis of cost are not supported. 5. Application of the precautionary principle & principle of intergenerational equity should be applied to these assessments 6. Cumulative emissions require consideration particularly noting that premises reliance on Woodside gas which is major air emissions contributor.	The department undertakes its assessment and decision-making process for applications received under Part V of the EP Act in accordance with the department's established regulatory framework and associated guidelines. While each application is considered on its merits, where appropriate, the department has regard for other associated applications made under Part V of the EP Act, as well as assessments undertaken by other decision-making authorities and any regulatory controls that are applied. In relation this application, the delegated officer acknowledges the cultural and heritage significance of Murujuga's rock art and the concerns raised regarding potential impacts from acidic emissions. These matters have been considered extensively under the existing regulatory framework, including the EPA's assessment of Project Ceres under Part IV of the Part IV of the EP Act and the conditions applied through MS1180. The EPA's assessment adopted a precautionary approach, recognising uncertainties regarding cumulative impacts of industrial emissions on rock art. MS 1180 requires that no air emissions from the proposal accelerate the weathering of rock art beyond natural rates. To achieve this, the Works Approval Holder must implement an AQMP that: • Demonstrates consistency with best available technology and contemporary best practice; • Establishes scientifically robust trigger and threshold criteria informed by the MRAMP; • Includes a trajectory for emission reductions over the life of the project; and • Specifies management responses, including adoption of advances in pollution control technology where practicable. Importantly, the EPA's assessment did not consider emissions from Project Ceres in isolation. It evaluated potential impacts in the context of cumulative emissions from all industrial sources on Murujuga, acknowledging that multiple contributors affect the regional airshed. As discussed in this Amendment Report, and the previous Decision Report published in 2024 (DWER 2024), the delegated officer considers that impacts to rock art from air emissions have been sufficiently considered under Part IV of the EP Act and as such risks relating to rock art have not been further assessed under the Part V assessment. The delegated officer is satisfied that the current regulatory framework, which includes MS 1180 and the Murujuga Rock Art Strategy, provides robust mechanisms to protect Murujuga rock art. Consistent with EPA advice, the delegated officer has applied conditions on the works approval to support the implementation of MS1180 in achieving the specified environmental outcomes and objectives relating to the protection of rock art. The delegated officer notes the request for all NO_2 and NO_x emissions to be removed from stacks and for SCR technology to be applied to all vents and stacks. The suitability of emission control technologies depends on process design, operational safety, and technical feasibility. SCR systems cannot be generically applied to all emission points. The EPA's assessment of the AQMP confirmed that the plant design incorporates best practice emission controls for the relevant processes, including: • low-NOx burners on fired heaters; • SCR technology and low NOx burners on gas turbine generators; and • advanced scrubbing systems for ammonia and particulate emissions from granulator stacks. MS1180 requires that best practice technology be implemented and reviewed periodically to ensure alignment with contemporary standards.

Stakeholder	Item No	Stakeholder comments	Department's response
			Acidic emissions impacting rock art While the delegated officer acknowledges other studies relating to rock art on Murujuga, some of which have been considered in the design of the MRAMP, the department remains of the view that the Murujuga Rock Art Strategy and MRAMP are the most appropriate mechanism for determining impacts on rock art from industrial emissions and establishing appropriate management response. This can be achieved through the current management framework under MS 1180, and in turn through the ongoing assessment and regulatory controls applied under approvals granted under Part V of the EP Act. Claims that acidic emissions are impacting rock art not currently supported by findings of the MRAMP. The MRAMP, a world-class, peer-reviewed monitoring initiative, is designed to determine whether anthropogenic emissions are accelerating natural weathering of rock art. Results of the study to date indicate that concentrations of key pollutants (SO_2, NO_2 and NH_3) remain below the interim EQC thresholds, indicating that regional air quality objectives for the protection of rock art are currently being met.
	n)	Various matters were raised regarding the Final Air Quality Study (Ramboll 2024): • Emissions modelling was based on 1-hour averaging periods that may not detect short term peaks. • Clarification was sought regarding statements that NOx deposition values were "significantly lower than the deposition values presented in the Jacobs Report". • While removal of emission sources (absorber vents) is appreciated, increased stack heights results in broader dispersion of emissions impacting rock art.	As discussed above, the delegated officer considers that risks associated with air emission impacts are managed under Part IV of the EP Act and have therefore not been further assessed through this application process. The Final Air Quality Study (Ramboll 2024) was provided to support the submission of the revised AQMP and was reviewed through that assessment process. In response to the request for clarification on deposition values presented in the Final Air Quality Study (Ramboll, 2024), the previous modelling for the FEED/ERD scenario (Jacobs 2020) was reproduced using the same methods applied to the updated EPC design scenario. This approach enabled a direct comparison between the two scenarios. The report explains that the lower deposition values in the updated modelling are primarily due to overestimated flue gas exit velocities in the earlier Jacobs report.
	o)	The AQMP should be available for public review.	Submission of the AQMP is a requirement under MS1180, and its consideration, including any associated consultation processes, forms part of a separate regulatory process under Part IV of the EP Act. The confirmed AQMP is available at https://perdamanchemicalsandfertilisers.com/project/ceres/.
	p)	Concern regarding increased risk of flaring emissions impacting rock art and public health of receptors on the Burrup and nearby towns (Karratha and Dampier). Requested a requirement for notification to be provided to community when flaring events are planned. It was requested monitoring/verification of emissions through commissioning.	Flaring and venting emissions for the Perdaman Urea Project were assessed during the initial works approval process and are expected to occur only during abnormal operating conditions such as start-up, shutdown, or emergency events, not during normal operations. These events are infrequent and short-lived, with flares and blowdown vents forming part of the plant's safety system. A Flaring Study submitted with the works approval application demonstrated that routine flaring during start-up and shutdown is expected to make negligible contributions to ambient pollutant concentrations, while larger events are rare and associated with emergency scenarios. The delegated officer considers that modelling used in the assessment is highly conservative, as it assumes continuous emissions from the flare over an entire year, whereas actual flaring events typically last only a few minutes or hours and occur infrequently. The delegated officer determined that risks from venting and flaring are appropriately managed under the Major Hazard Facility regulatory framework administered by DLGIRS, and no additional assessment was required under Part V of the EP Act. As discussed in section 2.4.4, the works approval conditions require flares to operate with pilot lights at all times, restrict blowdown vents to emergency use, and mandate reporting of upset conditions and volumes of gas flared and vented to ensure regulatory oversight through commissioning and TLO. Ambient monitoring networks established through the AQMP and MRAMP will also provide ongoing data on local airshed conditions, identifying any impacts from flaring and venting emissions.
	q)	Raised concern regarding the site suitability, particularly in relation to its potential impact to nearby receptors from air emissions and explosion risks, and requested that the plant be relocated to the Maitland Industrial Estate.	The risk-based assessment undertaken for the works approval is limited to assessing the impact of emissions and discharges from prescribed premises under Schedule 1 of the EP Regulations. The location of the plant is not within the scope of the assessment under Part V of the EP Act. The delegated officer notes that this matter was considered under Part IV of the EP Act and the location of the proposal authorised under MS 1180 (Condition 1). While the specific location of the project is not the subject of assessment under Part V of the EP Act, the assessment does consider the location of plant in relation to sensitive receptors to inform the risk assessment and apply suitable regulatory controls to manage risks. The premises is considered to be a Major Hazard Facility and subject to regulation under the *Dangerous Goods Safety Act 2004* (DGS Act) and *Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007* (MHF Regulations). This includes a requirement to obtain a Dangerous Goods Licence and operate in accordance with the safety management system outlined in an approved safety report. Per the requirements of the MHF Regulations, the safety report must include a risk assessment for the facility that: • identifies all hazards relating to dangerous goods; • for each of the identified hazard, assesses the probability of the hazard causing a major incident and the nature of harm to people, property and the environment that is likely to result from such an incident; and • identifies measures to be implemented to eliminate, or reduce as far as reasonably practicable, the probability of the hazard causing an incident and the impact of incident occurring. Additionally, the safety report must include a safety management system, demonstrating that appropriate policies and procedures are in place to implement the specified risk control measures. The delegated officer considers the DLGIRS regulatory framework for Major Hazard Facilities appropriately manages risks associated with the storage and handling of dangerous goods, including explosion risks, and therefore these risks are not further considered under Part V of the EP Act. This view is consistent with the

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			Department's *Guidance Statement: Setting Conditions,* where "conditions will not unnecessarily duplicate requirements imposed on licensees directly by the EP Act or another written law".
	r)	Raised concern regarding the quality of equipment manufactured offshore citing previous issues with neighbouring plant experiencing issues with faulty equipment.	The purpose of commissioning activities is to verify system performance in accordance with design specifications. Compliance documentation is required to be submitted at the completion of construction of equipment confirming it has been installed in accordance with design requirements. Compliance documentation is required to be certified by a suitably qualified engineer to verify. As discussed above, commissioning is subject to conditions of the works approval which specify the duration of commissioning as well as monitoring requirements and emission limits. These are further supported by regulatory controls applied under Part IV of the EP act through MS1180 and MS594, and the MRAMP.
	s)	Concern was raised regarding the discharge of increased volumes of wastewater to King Bay via the MUBRL and its potential impact on the marine environment. It was recommended that discharge be limited to certain optimal tidal times and hydrological modelling be undertaken to ascertain appropriate discharge limits. It was also recommended that ongoing monitoring be undertaken to verify impacts on the marine environment. Additionally, the use of monthly rolling averages based off weekly sampling was considered unsuitable for onsite monitoring and a more rigorous program was requested.	As outlined in section 2.6 above and the previous Decision Report (DWER 2024), the discharge of wastewater to King Bay via the MUBRL is primarily regulated through MS 594 and managed by Water Corporation's OMEMP. This includes requirements for monitoring discharges at end of pipe as well as within the mixing zone, with triggers and thresholds established to support the protection of the various environmental values of King Bay. The OMEMP specifies end of pipe water quality criteria as well as criteria for the receiving marine waters which are informed by outcomes of hydrodynamic modelling and WET (whole effluent toxicity) testing. Emission limits have been applied on the works approval for the premises contribution into the MUBRL and align with criteria specified in the OMEMP. Water quality monitoring requirements are also conditioned on the works approval to ensure that wastewater discharges meet the specified criteria. The Water Corporation was consulted throughput the assessment process and confirmed that emission limits applied are suitable for the purpose of achieving the environmental objectives set out in the OMEMP. Continuous monitoring of key constituents such as ammonia, pH and salinity, will occur at the MUBRL tie-in point which triggers automatic diversion to the Saline Water Pond should limits be exceeded. In addition to continuous monitoring, weekly sampling of the MUBRL discharge will occur to assess a broader range of parameters such as metals and coliforms. The delegated officer considers the application of monthly rolling averages during commissioning and TLO to be appropriate. This monitoring is intended to provide an early indication of combined discharge quality, which is further validated through Water Corporation's monitoring program under the OMEMP. That program includes both end of pipe and in-situ sampling to confirm that environmental objectives for King Bay are being achieved. The OMEMP also specifies actions to be taken in the event of an exceedance of any specified trigger under this plan. The delegated officer is satisfied that regulatory controls applied through the works approval and MS 594 (via the OMEMP) are adequate for managing wastewater discharges to King Bay. Monitoring results, including weekly sampling data, are required to be submitted in an Environmental Commissioning Report. These results will inform the licence assessment and confirm whether regulatory controls applied, including the application of a monthly rolling average, remain suitable.
	t)	Time limited operations: 1. Disagrees with the approach to allow production under TLO without a full licence 2. TLO should be limited to 240 days within reporting due within 60 days and information publicly available. 3. Hourly averaging periods for air emissions monitoring is not suitable for identifying short term peaks. 4. Requested that information contained within the Obligations & Compliance Register and Complaints register be made publicly available. Incident reporting should also be made publicly available.	1. Refer to item 12 above regarding the Environmental Commissioning Plan regarding production during TLO. 2. Noted. Conditions have been applied limiting TLO to 240 days with a TLO report required to be submitted within 60 days of the completion of TLO. 3. CEMS provide near real-time measurements at much shorter intervals than every hour; for example, every 15 minutes. These frequent measurements are aggregated into valid one-hour averages for compliance purposes, meaning each hourly average is based on multiple data points rather than a single reading. The requirement for one-hour averaging is consistent with the CEMS Code (DWER, 2016), which specifies that compliance data must be reported as valid hourly averages. Importantly, while compliance reporting uses hourly averages, CEMS data acquisition systems retain the underlying high-frequency data which is required to be reported post commissioning and TLO. This enables assessment of short-term variations and operational trends, informing the review and application of conditions through the licence assessment process. In addition to information regulatory processes, the high-frequency data also informs operators of any short-term trends enabling prompt action, despite formal compliance being assessed against the hourly average. 4. The delegated officer acknowledges the public interest in matters relating to this premises. In accordance with regulatory requirements and transparency, the applications for new approvals under Part V of the EP Act, as well as significant amendments, are advertised seeking input and comment from interested parties. Decisions for works approvals and licences are also published in accordance with the *Guideline: Regulatory Principles*. Requirements for ongoing submission and publication of a premises compliance with conditions is applied via licence conditions, in accordance with the *Guideline: Annual Audit Compliance Reports*. Annual Audit Compliance Reports are published on the Departments website. The review and assessment of compliance with the conditions of the Works Approval is conducted by the department in accordance with its *Compliance and Enforcement Policy*. The Works Approval Holder is obligated under the EP Act to comply with the conditions of the Works Approval which includes reporting requirements to assist with the determination of compliance against the specified conditions. Specifically for the Works Approval W6875/2023/1, this includes a requirement to submit Environmental Compliance Reports following construction, and reports on the commissioning and time limited operations conducted. The delegated officer considers that compliance monitoring and reporting is sufficiently managed via these reporting requirements under the Works Approval which are consistent with its regulatory framework and suitable for the determined level of risk associated with the premises.
	u)	Regular scrutiny of the monitoring data and reports is essential to ensure Project Ceres does indeed meet and comply with the air, light and water emissions conditions set out in MS1180.	The premises is subject to various reporting requirements under Part V and Part IV of the EP Act relating to air, light and water emissions. Light emissions are primarily managed through MS1180. For water and air emissions, the works approval requires the submission of detailed reports following the completion of commissioning and TLO. These reports must include all monitoring data collected during these periods, including results from continuous stack emissions monitoring and wastewater quality sampling. In addition, the works approval holder is obligated to report any exceedance of an emission limit specified in the works approval. Such notifications must include an investigation into the cause of the exceedance and outline corrective and preventative actions implemented to avoid recurrence. Under MS 1180, the AQMP establishes trigger and threshold criteria for air emissions. The works approval holder is required to report any exceedance of these criteria, ensuring that air quality risks are actively managed and communicated. Monitoring undertaken through the MRAMP and Murujuga Rock Art Strategy will continue to be reported in accordance with those established frameworks, providing

Stakeholder	Item No	Stakeholder comments	Department's response
			an additional layer of scrutiny for emissions that may impact rock art and associated heritage values. All monitoring data and reports submitted under these requirements will be reviewed as part of the licence assessment process to confirm that regulatory controls remain appropriate and effective. The premises will also remain subject to inspections and compliance audits under both Part IV and Part V of the EP Act, ensuring ongoing oversight and accountability.
	v)	The Proponent be penalised for unplanned emissions and/or discharges, either through a substantial monetary fine, or a penalty in the time limit of the contract each time this occurs; this would have to be compelling to ensure that the Proponent employs efficient monitoring systems, and the penalty is in alignment with the severity of the offense.	Any exceedances of emission limits reported in accordance with the works approval will be investigated and managed in accordance with the department's Compliance and Enforcement policy (DWER 2021). Penalties for breaches of works approval conditions are specified through the EP Act and EP Regulations.
	w)	Requested further information regarding the relocation of rock art removed from the Perdaman site.	Direct impacts to cultural heritage sites, including their relocation, is managed under the *Aboriginal Heritage Act 1972* and the confirmed Cultural Heritage Management Plan. Under the section 18 approval, the Works Approval Holder is required to provide a written report to the Registrar of Aboriginal Sites advising the extent to which the project has impacted on all or any sites, including the level, effect and type or impact, and in the case of salvage works, details such as when and how the salvage took place, who was present and where the material was relocated. The data submitted to the Registrar is managed by the Department of Planning, Lands and Heritage (DPLH). DPLH is considered the most appropriate contact for access to reported information regarding any salvage works conducted under the AH Act. The delegated officer understands that should this report be yet to be submitted to DPLH (i.e. where salvage works are ongoing), information regarding salvage works can be sought direct from the Works Approval Holder or MAC.
	x)	Clarification regarding claims of job opportunities produced through construction activities	This matter is outside the scope of the risk assessment undertaken under Part V of the EP Act.
	y)	Fara requested a specific point of contact for the officer(s) who will be appointed to oversee the commissioning phase of Project Ceres and clarification regarding the relevant agency responsible for decisions relating to Project Ceres.	Responsibility for decisions relating to Project Ceres does not rest with a single agency. The proposal is regulated through multiple statutory instruments issued under different legislation, with each agency responsible for administering the instruments relevant to its legislative remit. A summary of the legislative context for Project Ceres, including the applicable approvals, is provided in the previous Decision Report, available online at: https://www.der.wa.gov.au/our-work/licences-and-works-approvals/current-licences. Any queries relating to the works approval can be directed to info@dwer.wa.gov.au or by submitting an enquiry via Environment Online (https://environmentonline.dwer.wa.gov.au/). Reports of pollution or other environmental matters can be submitted online or calling the Environment Watch hotline on 1300 784 782. Further information is available at https://www.wa.gov.au/service/environment/pollutant-prevention/environment-watch.

Appendix 2: Summary of Works Approval Holder's comments on risk assessment and draft conditions

Condition	Summary of Works Approval Holder's comment	Department's response
Comments provided on 20 January 2026		
Condition 3	The requirement to demonstrate greater than 90% of measurement intervals in every calendar month and greater than 95% over any 12 consecutive calendar months is considered restrictive and not practicable for a remote Pilbara location. Under normal operating conditions, a monthly availability of approximately 90% (equivalent to around 27 days per month) is generally achievable. However, where spare parts or replacement equipment are required, the logistics associated with sourcing and transporting specialised CEMS components from Perth to Karratha may result in outages exceeding three days, despite timely maintenance and corrective action. In such circumstances, the project would be placed in non-compliance for reasons outside the reasonable control of the works approval holder. To reflect the realities of remote operations while maintaining a high level of monitoring reliability, Perdaman proposes alternative availability targets of greater than 80% of measurement intervals in each calendar month and greater than 85% over any 12 consecutive calendar months. These targets are considered achievable, defensible, and consistent with maintaining reliable and representative monitoring data.	The delegated officer acknowledges the operational challenges associated with managing monitoring systems in a remote environment. However, it is considered that the specified availability requirements remain achievable in most circumstances, as indicated by the Works Approval Holder. These requirements are intended to ensure that the CEMS are effectively maintained and do not experience routine or avoidable failures. While the delegated officer recognises that unforeseen events, such as unexpected equipment failure or delays in securing specialist contractors, may occasionally result in extended periods of downtime, such occurrences are expected to be infrequent and can be appropriately managed through timely communication with the department. Accordingly, the delegated officer has determined that the existing availability requirements should be retained for commissioning and time-limited operations, noting that they can be revisited during the subsequent licence assessment if persistent difficulties arise due to factors outside the Works Approval Holder's control.
Conditions 4 and 5	The project will comply with the WA CEMS Code which suitably governs combustion parameters. EN 14181 has not been considered in the original submission and goes beyond standard WA practice. If required, EN 14181 can be applied for NH_3 and only to the extent relevant, to avoid duplicating frameworks. Any reference to EN14181 across the document to be specifically referred to NH_3 monitoring	Noted. The conditions are considered sufficiently clear in specifying that compliance with EN 14181 applies only to NH_3, and therefore no changes have been made.
Condition 16	Figure 20 is not relevant to W6875 as it relates to construction-phase dust monitoring associated with crushing and screening activities previously authorised under Licence L9426 and Works Approval W6946. Licence L9426 has been revoked following completion of the crushing program, and crushing and screening activities authorised under W6946 have not been	Commitments for dust monitoring are included in the Construction Environmental Management Plan and Construction Environmental Management Plan for Port of Dampier (Portside CEMP) and therefore are applicable to this works approval as they relate to management of dust from construction activities including, but not limited to, dust generated from onsite vehicle movements, excavations and general construction

Condition	Summary of Works Approval Holder's comment	Department's response
	undertaken.	activities. The condition has been amended to provide greater flexibility regarding the location of the portside dust monitoring noting potential land access requirements for the existing monitor location specified in Figure 20.
Condition 23	The Works Approval Holder provided clarity regarding timeframes for wet commissioning phases (Phase 3 and 4 referred to in section 2.3).	Commissioning has been authorised for a period of 9 months (270 days) to accommodate expected timeframes.
Condition 25	Under normal operating conditions, it is unlikely that these systems would be required to operate for more than 100 hours in any annual period. However, in the event of interruptions to feedstock availability or gas turbine generator operation, extended operation of these units may be required to maintain critical plant safety functions, including refrigerated storage of ammonia and other safety-critical systems. In such circumstances, a fixed operating limit could inadvertently place the facility in breach of operating conditions despite actions being taken to maintain safety. It is proposed that the 100-hour restriction be removed, with operating hours recorded and reported on an annual basis.	The delegated officer has amended to condition to remove the operating hour limit noting that these systems are not intended for normal operations and will be limited to start-up or emergency conditions. To ensure that they are operated as intended, conditions require reporting of operational hours.
	An error was identified with the specified freeboard of the Saline Water Pond and Saline Evaporation Pond. Freeboards for these ponds should be as follows per the design of the facility as specified in Condition 9 (Table 3): • Saline Water Pond: 350mm • Saline Evaporation Pond: 500mm	Noted and adjusted accordingly.
Condition 26	Requested that the term "belt wash station" be altered as this implies water is used for cleaning which is not the case.	Noted. Terminology amended to "belt cleaning station".
Condition 35	It was noted that emission concentrations from the granulator stack are expressed as measured, at standard temperature and pressure and without normalisation to reference oxygen (O_2) content. This is because it there is combustion air or excess oxygen associated with the granulation process.	Noted. Reference to O_2 reference conditions relating to granulator stack emissions removed.
	The Works Approval Holder advised that formal verification of the CEMS will occur once the associated equipment achieves stable operating conditions. This ensures that the CEMS verification results are	The delegated officer notes that this is a standard approach consistent with the CEMS Code that suggests operational testing to be conducted when the emission source is operating under typical conditions. As such the condition has been amended to require CEMS verification to occur

Condition	Summary of Works Approval Holder's comment	Department's response
	representative of normal operating conditions.	following completion of initial start-up of the plant.
	The Works Approval Holder confirmed that CEMS will be installed on the HRSG Bypass Stack although noting that ammonia is not emitted via this stack, the CEMS will not monitor ammonia.	Noted and condition updated to include requirements for monitoring of the HRSG Bypass Stacks via CEMS.
Condition 40 (Table 18)	The works approval specified an annual limit for discharge to the MUBRL however there is no annual discharge limit included in Perdaman's agreement with Water Corporation. In practice, the facility will not operate continuously throughout the year due to planned shutdowns and maintenance activities. Based on expected operating patterns, average operating days are anticipated to be 330-345 days. At 345 days, a daily discharge of 59.7ML/day would result in an annual discharge of approximately 20.5GL, while at 330 operating days, the annual discharge volume would equate to approximately 19.5GL. Accordingly, the daily discharge limit of 59.7ML/day represents the operational discharge control, with actual annual discharge volumes varying depending on operating days. Discharge quantities will be recorded and reported on an annual or multi- year basis following commissioning and establishment of normal operations.	The annual limit of 20 GL/year specified in the works approval reflects the requirement set out in MS 1180 (Table 1). To avoid duplicating obligations already established under MS 1180, the delegated officer has determined that the limit can be removed from the works approval. This does not affect the applicability of the annual limit, which continues to apply under MS 1180.
	Recommendation to align water quality limits with agreement held with Water Corporation as follows: • Ammonia: 1,700 ug/L • E. coli 13,000 MPN/100,L • TCC 910 MPN/100mL • Chromium to be specified as Chromium VI for clarity (i.e. remove reference to Chromium III). • Removal of limits for aluminium, nitrite and nitrate as these are not applicable discharge criteria reference in the Water Corporation agreement. A discharge limit for total petroleum hydrocarbons will be confirmed, noting that a maximum concentration of 5 mg/L entering the saline system is expected to result in concentrations less than 350 µg/L at the MUBRL discharge point following dilution.	<u>Ammonia E. coli and TCC</u> The delegated officer has updated to the water quality limits to align with the Water Corporation Agreement. This approach is supported by the Water Corporation. <u>Chromium</u> The delegated officer notes that the Water Corporation agreement includes discharge criteria for Chromium III and VI which also aligns with the OMEMP. As such, limits and monitoring requirements for both species have been retained. <u>Aluminium, nitrite and nitrate</u> As discussed in section 2.6.1, aluminium, nitrate and nitrate have been included to align with the OMEMP and confirm the premises contribution of these constituents. Monitoring requirements associated with these parameters have been applied through commissioning and time limited operation. A review of these requirements will be conducted as part of the
Condition 41 (Table	Similar to above, the Works Approval Holder requested the removal of the	

Condition	Summary of Works Approval Holder's comment	Department's response
19)	following species from monitoring: • Aluminium; • Nitrate and nitrite; • Chromium III (only chromium VI to be monitored); and • Total petroleum hydrocarbons.	licence assessment to confirm whether they should be applied on an ongoing basis. <u>Total petroleum hydrocarbons</u> The delegated officer's reasons for included total petroleum hydrocarbons are outlined in section 2.6.1. As with other parameters, this requirement will be reviewed through the licence assessment process to determine if it is necessary for ongoing operations post time limited operations.
Condition 41 (Table 19)	Removal of chromium III as only chromium VI to be monitored	
Condition 41 (Table 19)	Monthly NATA sampling to be undertaken during commissioning only with biannual NATA sampling occurring through ongoing operations (including time limited operations)	Noted and accepted noting that these requirements will be reviewed through the assessment of the licence application.
Condition 36 and 53	Table 15 identifies monitoring parameters associated with venting and flaring events. It is noted that these activities occur under abnormal or upset operating conditions and do not represent normal or steady-state operations. During such events, it is not practicable to provide a detailed compositional breakdown of the flared or vented gases. In particular, the composition of the gas stream directed to the flare or vent cannot be directly measured; only the total flow rate can be determined through available instrumentation. Accordingly, values for parameters such as the average and maximum ammonia rate to flare or vent, total mass of ammonia flared, and total mass of process gas flared or vented can only be estimated on an indicative basis using conservative assumptions aligned with defined upset scenarios. These estimates are intended to characterise the potential magnitude of emissions during infrequent and short-duration upset conditions, rather than to provide precise mass balance data. This approach is consistent with the role of flaring and venting as safety and contingency measures, rather than routine emission sources.	Noted. Table 15 has been amended to include provisions that data is based on calculated estimations and considering available measured flow data.
Comments provided on 17 February 2026		
Condition 33 (Table 12), Condition 34 (Table 13) and Condition 35 (Table 14)	Noted that only one emergency diesel generator was listed in Table 12 when there are two (as per Figure 8).	Noted and table updated to include both emergency diesel generators.
	Requested that the name of the Gas Turbine Generator Stacks be updated to refer to the HRSG Stack for clarity and consistency with Figure 8.	Noted and table updated accordingly. Updates also made to the HRSG Bypass Stack reference for clarity.

Condition	Summary of Works Approval Holder's comment	Department's response
	Requested that the Common Stack be refer to as the Fired Process Heater & Fired Steam Superheat Common Stack	Noted and updated.
	Limits specified in Table 13 could be interpreted as combined limits for referenced emission points rather than limits for individual stacks. Requested that a footnote be included for clarity.	Noted and table updated with footnote for clarity.
	Updates to the emission limits were requested as follows: a) The NOx limit for each GTG updated to 2.49g/s rather than 2.54g/s. b) Include emission limits for PM_{10} from the Common Stack and GTGs.	a) Error corrected noting that the revised value is consistent with air quality modelling and the submitted commissioning plan. b) Updated.
Condition 36 (Table 15)	Note 1 at bottom of Table 15 refers to the total mass of gas flared and should also reference gas vented.	Noted and updated.
Condition 25 (Table 9) Decision Report (section 2.6.1)	Item 9 of Table 9 states "Wastewater will be held in the Saline Water Pond prior to discharge to the Multi-User Brine Return Line until sampling undertaken in accordance with 42 and/or 57 confirms it meets the limit specified in Table 18." This is incorrect as wastewater in the Saline pond will not be monitored for compliance with MUBRL discharge limits. It is requested that this operational requirement be removed. The Works Approval Holder advised that effluent in the saline pond may not meet MUBRL criteria but will be blended into the MUBRL discharge line at a rate which still maintains compliance of discharge criteria at the tie-in. Where this effluent cannot be successfully blended in the discharge line to achieve MUBRL tie-in compliance, the content of the saline pond will be transferred to the evaporation pond.	The delegated officer acknowledges these comments and has amended Item 9 of Table 9 to better reflect site operations. It is noted that the Works Approval Holder will conduct an assessment of the wastewater within the Saline Water Pond to determine whether it is suitable for discharge to the MUBRL. The following conditions have been included to ensure that these procedures are effective throughout commissioning and TLO: • Condition added requiring the volume and duration of each discharge to the MUBRL to be calculated and recorded; and • Requirement for the above information to be reporting in the commissioning and TLO reports along with information detailing how it was determined that the wastewater from the Saline Water Pond was suitable for discharge into the MUBRL.
Condition 40 (Table 18)	Request that limits for Aluminium, Nitrate and Nitrate are removed as these are not consistent with the commercial agreement held with Water Corporation. It is noted that no sources are expected on site and any discharge will consist of concentrated background amounts only.	The delegated officer has agreed to remove the limits for these parameters however has retained requirements to monitor these constituents through commissioning to verify the discharge component and inform contributions to the MUBRL. The requirement for limits will be reviewed through the licence assessment process in consultation with Water Corporation.

Condition	Summary of Works Approval Holder's comment	Department's response
Condition 42 (Table 20)	Requested that 'Total Flow' be removed from the monitoring requirements associated with the Saline Water Pond. The Works Approval Holder advised that per the commissioning plan, *flowrate will be monitored continuously at the Tie-in to MUBRL*. Flow rate from the Saline Water Pond is not monitored as the discharge quantity is only relevant at the Tie-in to MUBRL.	Noted and condition updated accordingly noting that total flow into the MUBRL is continuously monitored at the tie-in. As outlined above, conditions have been included requiring the volume and duration of each discharge from the Saline Water Pond to be calculated and recorded with this information reported post commissioning and TLO.
	Request that the table is amended to clarify sampling frequency. Column titled 'Frequency' correctly implies Total flow, Free chlorine and pH is continuously monitored, however column titled 'Averaging Period' contradicts this by implying these parameters are monitored via 'Spot sample'.	Noted and table updated.
Condition 44(k) and 59(j)	The conditions may be incorrectly interpreted to imply that water discharged from the Saline Water Pond will be monitored for compliance to MUBRL discharge limits. This is not the case. Please note that discharge from the Saline Water Pond is blended and heavily diluted with the continuous stream from the cooling tower basin and brine from the desalination and demineralisation. Monitoring for compliance with MUBRL discharge limits will occur via continuous inline monitoring at the MUBRL tie-in and via spot samples taken from the MUBRL discharge flow for laboratory analysis, as outlined in the commissioning plan. It was requested that a footnote be included to note that wastewater monitoring in Table 20 shall not be compared to criteria in Table 18 for compliance purposes.	Noted and conditions have been updated accordingly for clarity.
General	Various references to condition and table numbers were incorrect and require amending.	Noted and corrections made.
Decision Report (Table 2)	Error noted with MRAMP EQC for NOx.	
Decision Report (Table 4)	Requested a note included in the table outlining the reference conditions for the concentration limits (e.g. STP and reference O_2 conditions).	Table updated for clarity.
Decision Report (section 2.4.3)	Provided extra detail regarding sequencing of CEMS certification and data availability as described in Section 2.4.3 of the draft Decision Report. CEMS verification will take place once the associated equipment has	The delegated officer acknowledges that formal certification will be completed once the plant reaches stable operating conditions, at which point CEMS data will be reliable and suitable for compliance use.

Condition	Summary of Works Approval Holder's comment	Department's response
	reached stable operating conditions (in line with the CEMS Code, which recommends conducting operational testing when the emission source is operating under typical conditions). This implies that the formal certification will occur after start-up and therefore cannot be available for the entire duration of the commissioning phase, as initially drafted. Propose this section is reworded.	Wording updated for clarity. The delegated officer notes that, despite certified CEMS data not being available during early commissioning, ambient air quality monitoring will be undertaken in accordance with the AQMP and MRAMP.
Decision Report (Table 5)	Noted that brine from desalination is sent directly to the MUBRL while all other effluents from the desalination water treatment process is directed first to the Observation Basin. Table updates required.	Noted and table updated accordingly.