



Yara Pilbara Nitrates Operational Environmental Management Plan
EPBC 2008/4546 Technical Ammonium Nitrate Plant

Process Domain: Environment

Knowledge grows

HESQ-YPN-PLN-035-04

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1. Purpose and Scope

The Operational Environmental Management Plan (OEMP) provides direction on the implementation of environmental controls and monitoring during the operational life of the TAN plant and reflects YPN’s commitment to a high standard of environmental performance. It has been prepared to meet the requirements of:

- Condition 7(b) of EPBC 2008/4546 and additional environmental management activities to be implemented under EPBC 2008/4546 to provide a consolidated approach for operation of the TAN plant
- Yara’s HESQ Management System (YMSPilbara-329755810-863
- ISO 14001:2015 Environmental Management System
- ISO 9001:2015 Quality Management Systems.

This OEMP should be read in conjunction with the other documentation referenced within this manual and is applicable to all operational activities occurring on the Yara Pilbara Nitrates TAN Plant site.

2. Responsibilities

Plant Manager	<ul style="list-style-type: none"> • Responsible and accountable for the overall commitments in this Management Plan.
Management Team	<ul style="list-style-type: none"> • Management Team shall commit to compliance with the policies, processes and procedures outlined in this OEMP and associated management system and are accountable for their effective implementation.
All employees and contractors	<ul style="list-style-type: none"> • Management expects that each member of Yara Pilbara will individually and collectively respect, support and follow this OEMP.

Roles and responsibilities specific to the processes defined in this manual are within the referenced documentation.

3. Declaration of Accuracy

Declaration of Accuracy

I declare that:

1. To the best of my knowledge, all the information contained in, or accompanying this Operational Environmental Management Plan is complete, current and correct.
2. I am duly authorised to sign this declaration on behalf of the approval holder.
3. I am aware that:
 - a. Section 490 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) makes it an offence for an approval holder to provide information in response to an approval condition where the person is reckless as to whether the information is false or misleading.
 - b. Section 491 of the EPBC Act makes it an offence for a person to provide information or documents to specified persons who are known by the person to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) where the person knows the information or document is false or misleading.
 - c. The above offences are punishable on conviction by imprisonment, a fine or both.

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Signed**Full Name**

Ty Hibberd

Position

Environment and Quality Manager

Organisation

Yara Pilbara Nitrates Pty Ltd, ABN 33127391422

Date

21-07-2023

4. Executive Summary

Yara Pilbara Nitrates Pty Ltd (YPN) operates a Technical Ammonium Nitrate production facility (TAN plant) within the Burrup Industrial Estate located near Karratha, in Western Australia. The TAN plant operates in accordance with Licence L9223/2019 granted under Part V of the Environmental Protection Act 1986. This licence was issued to replace licence L7997/2002 which expired on 20 April 2020.

This Operational Environmental Management Plan (OEMP) provides direction on the implementation of environmental control and monitoring techniques during the operational life of the TAN plant, meeting the requirements of Condition 7(b) of EPBC 2008/4546 and reflects YPN's commitment to a high standard of environmental performance.

Consistent with the previously approved OEMP, YPN has addressed Flora and Fauna Management, though not required by Condition 7(b), in this OEMP. Aboriginal Heritage Management and Hazardous Materials Management are also addressed to comply with Condition 7(d) and removes the need for standalone Plans, as the relevant sections in this OEMP are aligned with and supersedes the approved Plans. The Emergency Response Management Plan required by Condition 7(d) remains as a standalone document.

An assessment of the potential impacts and risks as a result of operating the TAN plant has been undertaken and the risk assessment used to develop the management measures within this OEMP.

Objectives, targets and performance indicators have been developed for key aspects of plant operation. Environmental impact avoidance and mitigation measures will be implemented for management of erosion control and storm water, water quality, air quality and dust, waste and blasting (if required).

Monitoring activities will be implemented to demonstrate performance against objectives. Contingency measures will be initiated if monitoring indicates that targets and performance indicators are not being attained or maintained.

This OEMP revision is an administrative update to current licences and site conditions, Yara's HESQ policy, the approved Air Quality Management Plan, and Yara's Integrated Management System Document Control Procedure) and retains all approved management controls. It also provides further definition and controls for management of contaminated groundwater, soils and premises water during Site operations.

5. Introduction

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5.1. Background

This document is the Operational Environmental Management Plan (OEMP) for the Yara Pilbara Nitrates Pty Ltd (YPN) Technical Ammonium Nitrate (TAN) plant (the TAN plant). The TAN plant is located on Lot 3017 (the Site) on the Burrup Peninsula near Dampier, in the Pilbara region of Western Australia and adjacent to Yara Pilbara Fertilisers Pty Ltd (YPF) ammonia plant (Figure 1).

YPN is owned by Yara International ASA (Yara) and Orica Limited. YPN is the operator of the TAN Plant.

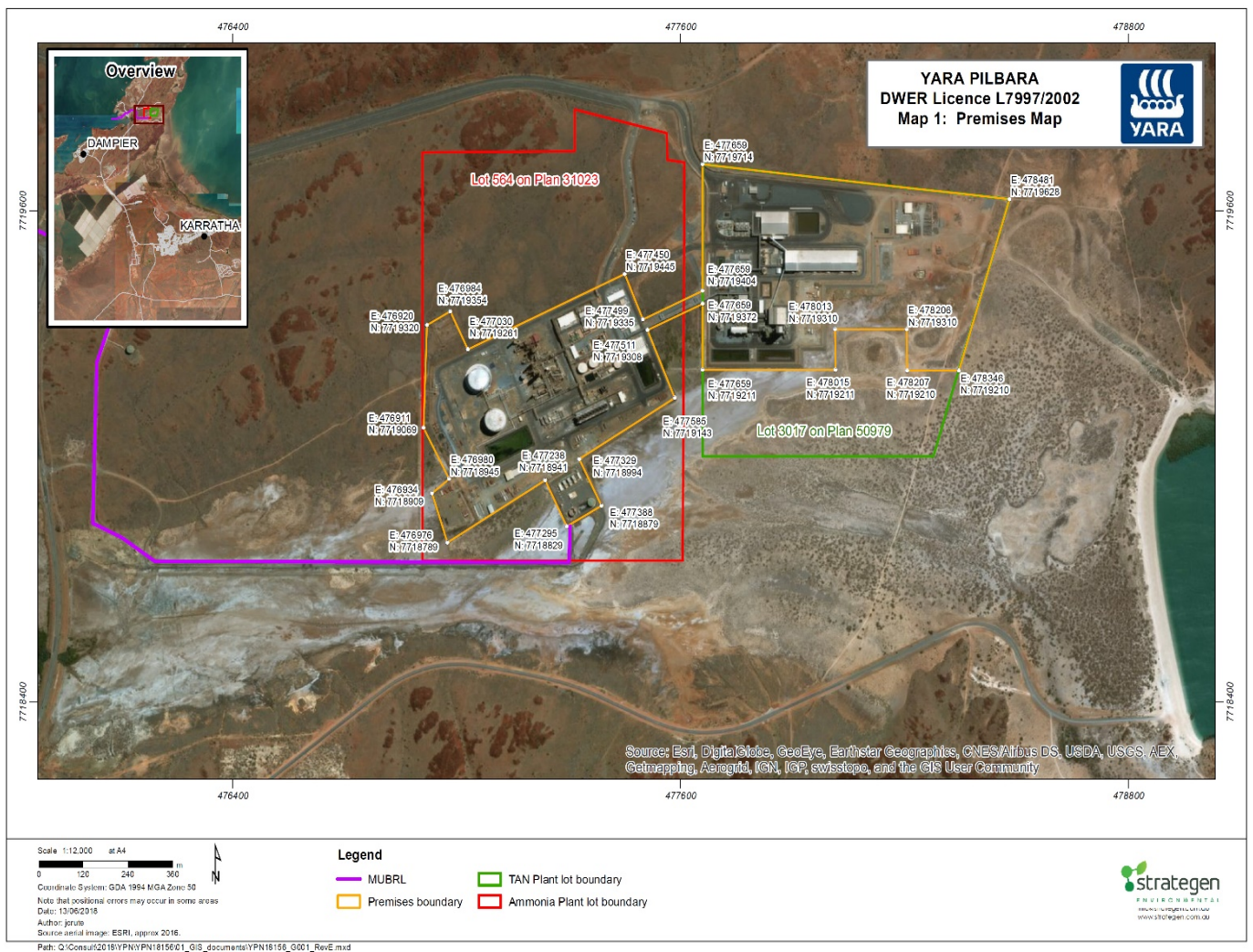


Figure 1: Site Location



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The TAN plant is located in the Burrup Strategic Industrial Area and comprises the following three (3) key manufacturing components:

1. Nitric Acid (NA) plant to convert ammonia and atmospheric air into NA with a production capacity of 760 metric tonnes per day (tpd).
2. Ammonium Nitrate (AN) solution plant to convert ammonia and NA into AN solution with a production capacity of 965 tpd.
3. TAN prilling plant to convert AN solution into TAN prills (final product) with a production capacity of 915 tpd.

The TAN Plant also has storage, loading and transport facilities, including an incoming liquid ammonia pipeline, bulk and bagged TAN storage, bulk loading system, bagging unit and truck loading.

The OEMP was approved by the Department of Environment and Energy on the 14th of September 2011. The site is a 'Prescribed Premise' and operates subject to the conditions of DWER Licence No. L9223/2019. The TAN Plant commenced operation in May 2018 and there have been uncontrolled releases of Ammonium Nitrate at the site. Various remedial works have been completed at the site and it is currently operational.

The site was first classified by the Department of Water and Environmental Regulation (DWER) on 7 December 2018 under the Contaminated Sites Act 2003 as 'Possibly contaminated – investigation required'. On 6 February 2023, the site classification was updated to 'Contaminated – remediation required'. YPN has committed to implementing active remediation in accordance with an approved Remediation Action Plan (RAP), which commenced with Phase 1 remedial works at the end of 2021. Notwithstanding the remediation requirements, the site is considered suitable for the current land use with the adoption of an approved Site Management Plan (SMP) to manage investigation, monitoring and risk assessment of the potentially affected downstream sites. Recent assessments including Ecological Impact Assessment Studies in 2021 and 2022 concluded that the environmental value of the downstream marine ecosystem (King Bay) has been maintained.

5.2. Purpose

The purpose of this OEMP is to ensure that YPN's environmental objectives, including those described in approval and permit conditions, are met during the operational phase of the TAN plant.

This OEMP has been prepared in accordance with the overall requirements of Yara's Health, Environment, Safety and Quality (HESQ) Management System and Commonwealth approval requirements under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), administered by Department of Climate Change, Energy, the Environment and Water (DCCEEW); EPBC 2008/4546 approval decision (as varied) (herein referred to as EPBC 2008/4546).

Matters of National Environmental Significance (MNES) to be addressed includes:

1. National Heritage places (Dampier Archipelago [including Burrup Peninsula] National Heritage Place)
2. Listed threatened species and communities
3. Listed migratory species.

The location of the TAN plant in relation to the Dampier Archipelago National Heritage Place, including registered heritage sites are shown in **Error! Reference source not found.**

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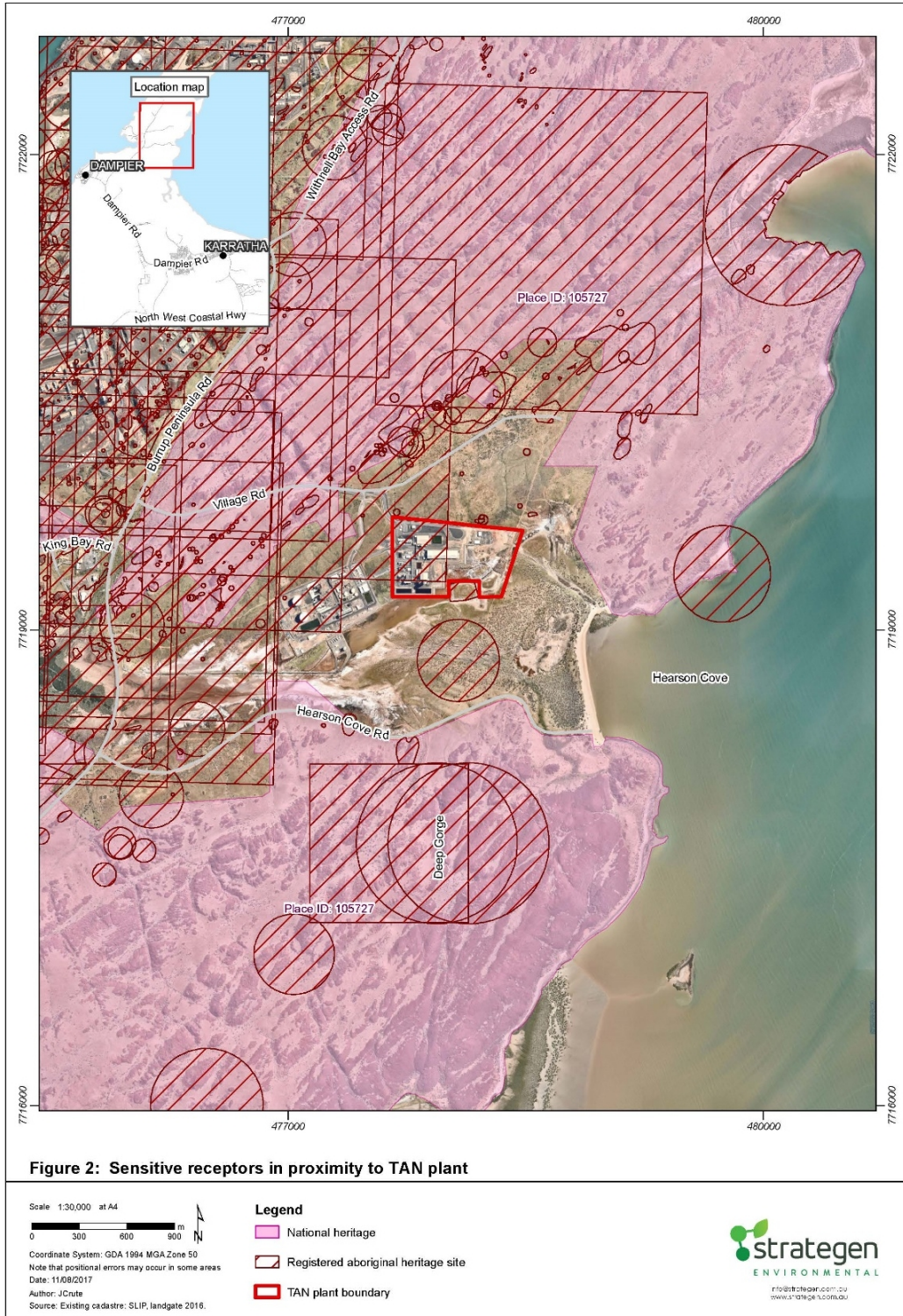


Figure 2: Site proximity to National Heritage Place & Registered Aboriginal Heritage Sites



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5.3. Implementation

This OEMP provides direction on the implementation of environmental controls and monitoring techniques during the operational life of the TAN plant and reflects YPN's commitment to a high standard of environmental performance.

5.4. Scope

This OEMP has been prepared to meet the requirements of Condition 7(b) of EPBC 2008/4546. Yara has also incorporated additional environmental management activities to be implemented under EPBC 2008/4546 to provide for a consolidated approach to the operation of the TAN plant.

The TAN plant also operates under the requirements of Ministerial Statement No.870 (MS870), including update via Ministerial Statement No. 1121 (MS1121) to replace Condition 5, granted under Part IV of the Western Australian (WA) Environmental Protection Act 1986 (EP Act), and Licence L9223/2019 issued under Part V of the EP Act, both administered by DWER. Where relevant, YPN will ensure consistency with this OEMP and other relevant approvals.

Table 1 identifies the approval obligations under the EPBC Act that are relevant to the operational phase of the TAN plant and the corresponding section of this OEMP that addresses each approval obligation. A full copy of EPBC 2008/4546 and the variation of conditions attached to the approval are included as **Error! Reference source not found.**

Table 1 EPBC 2008/4546 Conditions of Approval Requirements for this OEMP

Condition and Requirement	OEMP Section
<p><u>4) Water Management</u></p> <p>The person taking the action must ensure that wastewater from the facility meets the requirements set out in Statement 594 for discharges into the Multi User Brine Return Line (MUBRL).</p>	Section 16.2
<p><u>7b) An Operational Environmental Management Plan (OEMP) must be submitted to the Department at least two (2) months prior to operations. The OEMP must include, but not be limited to, management measures for the following:</u></p> <ul style="list-style-type: none"> • Erosion Control and Storm Water • Water Quality • Air Quality and Dust (including dust caused by vehicle traffic) • Waste • Blasting (if required). <p>7c) Operations must not commence unless the OEMP is approved by the Minister.</p> <p>7d) Additional management plans covering both construction and operations, must be submitted to the Department at least two (2) months prior to construction, including:</p> <ul style="list-style-type: none"> • Aboriginal Heritage Management Plan • Hazardous Materials Management Plan • Emergency Response Management Plan. <p>7e) Once approved by the Minister, all plans required under Condition 7 must be implemented.</p>	<p>b) Sections 16 and 17</p> <p>c) Section 5.1</p> <p>d) Sections 13 and 17</p> <p>e) Sections 16 and 17</p> <p>Note: Blasting is not required during operation</p>
<p><u>9A On-going Air Quality Monitoring</u></p> <p>To protect the values of the Dampier Archipelago (including Burrup Peninsula) National Heritage Place, particularly the rock art sites, the person taking the action must ensure:</p>	Section 16.5

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- a) Ongoing air quality monitoring is undertaken within 30 days after this condition comes into effect (the date the relevant variation to conditions notice is signed), and until expiry of the approval.
- b) Air quality monitoring parameters are monitored at the rock art sites: Site 5 (Burrup Road), Site 6 (Water tanks site) and Site 7 (Hearson Cove Road site) as shown in Attachment 2.
- c) Monitoring of air quality at rock art sites is undertaken by a suitably qualified person (Air Quality).
The air quality monitoring parameters in the table below must be monitored at the frequencies indicated in the table below.

Element of air quality to be monitored	Specific air quality parameter to be sampled	Minimum frequency of monitoring
Ambient air concentration of gases	NH ₃ (ammonia)	Continuous monitoring for at least 14 consecutive days, every month
	NO ₂ (nitrogen oxide)	
	SO ₂ (sulfur oxide)	
Airborne particulate concentration	Total suspended particulates up to 50 µm (TSP)	Every 6 days
Deposited dust	Total dust deposition per month (Insoluble Fraction)	Quarterly
	Total dust deposition per month (Soluble Fraction)	

10A On-going Rock Art Monitoring

To protect the values of the Dampier Archipelago (including Burrup Peninsula) National Heritage Place, particularly the rock art sites, the person taking the action must ensure that on-going rock art monitoring is undertaken to identify any changes to the appearance, or cultural value, of rock art sites, as per the requirements below:

- a) On-going rock art monitoring must be undertaken at the same 6 sites as monitored under Condition 10 (or other sites if agreed to in writing by the Minister).
- b) The first on-going rock art monitoring event must be complete by no later than 31 December 2017. Subsequent rock art monitoring must be undertaken annually (undertaken between 15 July and 15 September) for the life of the approval.
- c) On-going rock art monitoring must be undertaken by a suitably qualified person (Heritage).
- d) On-going rock art monitoring must be undertaken either:
 - i. by the person taking the action, using a methodology approved by the Minister in writing; or
 - ii. through provision of an annual pro-rata amount for the Burrup Rock Art Monitoring Program or another program administered by the Western Australian Government Department of Water and Environmental Regulation.
- e) At least once annually, the person taking the action must engage with the Murujuga Aboriginal Corporation in the planning and reporting associated with the on-going annual rock art monitoring.

Section 17

11 To protect the Dampier Archipelago (including Burrup Peninsula) National Heritage Place the person taking the action must ensure that there is no measurable impact from air pollutants to any rock art sites within 2km of the boundary of the action, at any time during the life of the approval. This includes measurable changes in patination, including but not limited to: discolouration of the surface of the rock art

Section 17.1



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<p>motif or the surrounding rock surface including patina; or changes that make the rock art site more difficult to interpret (for example a decrease in definition).</p>	
<p>If the Minister is not satisfied that the outcome described in Condition 11 is being met, the Minister may request (in writing) that the person taking the action submit a Rock Art Impact Mitigation Review (RAIMR) to the Department for approval by the Minister.</p> <p>a) The RAIMR must:</p> <ul style="list-style-type: none"> i. Be prepared by a suitably qualified person (Heritage) in consultation with a suitably qualified Person (Air Quality); ii. Be submitted within a timeframe specified by the Minister; iii. Include an analysis of the cause or causes of the detected change in the rock art surface; iv. Include a review of operations, including changes to operations to reduce the impact of air emissions on rock art; and v. Include mitigation and management measures to protect rock art sites within 2km of the boundary of the action from further impacts, to meet the requirements of Condition 11. <p>b) If the Minister approves the RAIMR required under this condition, then the approved RAIMR must be implemented.</p>	<p>Section 17.1</p>
<p>If the Minister is not satisfied that the outcome in Condition 11 is being met, or the person taking the action has not submitted a Rock Art Impact Mitigation Review to the satisfaction of the Minister within 6 months of Condition 11A coming into force: then the Minister may order (in writing) the person taking the action to reduce air emissions from operations to a level specified by Minister, for a period of time specified by the Minister. The person taking the action must implement any such order.</p>	<p>Section 17.1</p>

5.5. Structure of the OEMP

This OEMP is structured as follows:

- Sections 5 to 7 present the introduction and background information for the TAN plant, the requirements and purpose of the OEMP and the Yara HESQ Management system.
- Sections 8 to 15 outline the management protocols and processes that support the OEMP framework, including:
 - responsibility and accountability
 - induction and training
 - communication and stakeholder consultation
 - incident management and corrective actions
 - emergency response
 - performance review and continuous improvement
 - monitoring and auditing
 - reporting, review and revision.



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- Section 16 presents the environmental aspects relevant to the TAN plant as specifically identified in Condition 7(b) of EPBC 2008/4546. Each identified environmental aspect contains the proposed actions to manage the environmental aspect and references to the relevant legislative or internal standard compliance documents.

The structure of each environmental aspect is as follows:

1. Overview of the aspect.
 2. Environmental risks to be managed.
 3. Environmental objectives and performance targets.
 4. Management measures required to achieve the environmental objectives, including details of the timing and persons responsible for implementation.
 5. Monitoring actions to enable assessment of the effectiveness of the management actions.
 6. Contingency actions to be implemented in the event of unacceptable environmental outcomes.
- Section 17 describes the additional environmental management activities (not required under Condition 7(b)) that Yara will implement to ensure its obligations under EPBC 2008/4546 are achieved and follows the same structure as Section 16.

5.6. Public Availability

In accordance with Condition 14(a) of the EPBC 2008/4546 approval decision, this OEMP will be made publicly available at the [yara.com.au](https://www.yara.com.au/about-yara/about-yara-australia/pilbara/yara-pilbara-nitrates/) website, or an equivalent website, for the life of the TAN plant. This OEMP is publicly available at: <https://www.yara.com.au/about-yara/about-yara-australia/pilbara/yara-pilbara-nitrates/>

As per Condition 2 of the EPBC 2008/4546 approval decision, the Department will publicise the summary of audits on the DCCEEW website and may publicise the results through the general media.

5.7. Relationship to Other Management Plans

This OEMP is aligned with the requirements of Yara's HESQ Management System (YMSPilbara-329755810-863).

6. Yara's Health Environment Safety and Quality Management System

6.1. Mission, Vision and Values

Yara's mission, vision and values have been adopted by YPN. Our Mission, Vision and Values capture the essence of why we exist and the role we serve in society and provide the direction and guidance for our strategic decision.

Yara's mission is to responsibly feed the world and protect the planet. Yara Pilbara contributes to this mission by operating our world class assets safely and sustainably, to produce quality products exceeding customer expectations, while continually exploring measures to decarbonise our operations.

Yara's vision is a collaborative society; a world without hunger; a planet respected.

Yara's values are ambition, curiosity, collaboration and accountability.

6.2. Yara HESQ Policy

Yara maintains a HESQ Policy which is regularly reviewed and updated. The existing policy was endorsed by Yara's Chief Executive Officer and Head HESQ in September 2020 and was adopted by the Yara Pilbara Management Team

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in September 2021. Through this policy, we commit to excellence in our HESQ performance, which is also critical to the success of our business.

6.2.1. Our HESQ Vision

Yara's HESQ Vision:

- A safety culture that can make zero injuries a real possibility.
- A safe and healthy work environment for everybody working for Yara.
- A sustainable operation that optimises resource utilisation to mitigate harm to environment and cultural heritage values.
- Quality products and services that exceed customer expectations.

This vision is delivered by adopting an integrated approach to our HESQ management systems, and complying with all relevant legislation, regulations and other legal and industry requirements. This provides a framework for integration of the ISO 14001:2015, ISO 45001:2018 and ISO 9001:2015 standards.

6.2.2. Our HESQ Principles

Yara's HESQ principles:

- **Health and safety:** Safe by Choice is our collaborative journey toward preventing incidents. Our first priority is to responsibly care for ourselves and others.
- **Environment:** Yara uses a precautionary approach to identify risks and take preventive measures to mitigate the potential harm to environment and cultural heritage values.
- **Resources:** We see waste as a misplaced resource and will always search for resource optimisation opportunities and ways to prevent pollution, reduce emissions and optimise energy efficiency.
- **Security and Emergency Response:** We will protect our organisation, employees and assets from intended harm or unplanned events by ensuring adequate safeguards and competency in our emergency response.
- **Product Stewardship and Chemical Compliance:** We systematically monitor and review the quality, handling and use of all our products, ensuring that proper care is taken along the entire value chain. We will mitigate the risks associated with product misuse.
- **Quality:** We continually improve our performance and our HESQ management systems. We will monitor, prepare and handle emerging issues, regulatory changes and technical innovations, adjusting our practices and processes to respond proactively to global and local challenges and opportunities.
- **Competency:** We will educate and motivate our employees and contractors to carry out tasks in a safe and environmentally responsible manner.
- **Transparency and Continuous Improvement:** We will monitor, report and verify our performance. We will have open stakeholder dialogues to learn and share so we all can improve.

6.2.3. Our HESQ Commitment

Yara Pilbara's HESQ Policy commitment:

- This Policy has been adopted by Yara Pilbara Management and applies to all activities.
- Yara Pilbara employees and contractors are all responsible for the application of this Policy.

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- Alongside Yara’s commitment to the UN Global Compact to adopt sustainable and socially responsible policies, our company values and the Code of Conduct; this Policy is part of a consistent framework defining how Yara Pilbara will responsibly govern its growth and operations.
- This Policy will be communicated to all employees, contractors and visitors and updated as required.

7. Legal and Other Requirements

7.1. Legal Obligations

This OEMP incorporates the implementation actions required by Condition 7(b) of EPBC 2008/4546. In addition to Condition 7(b), this OEMP has also been prepared to ensure a consolidated approach to ensure full compliance with EPBC 2008/4546, for example, management of other relevant environmental factors (flora and vegetation, fauna, heritage) and administrative conditions.

The TAN plant also operates under the requirements of the MS870 including update via MS 1121 to replace Condition 5, granted under Part IV of the EP Act and Licence L9223/2019 issued under Part V of the EP Act.

In addition to EPBC Act and EP Act considerations, this OEMP has been prepared with due consideration to the requirements of other applicable Acts and Regulations. YPN must comply with all relevant environmental legislation, regulations, Australian Standards, Codes of Practice and Treaties administered by other State and Federal Government agencies. Table 2 lists the relevant Commonwealth and Western Australian environmental legislation.

Table 2 Environmental Legislation Relevant to the TAN Plant

Legislation	Relevance	Regulatory Authority
Commonwealth Legislation		
Environment Protection and Biodiversity Conservation Act 1999	Protection of environmental matters of national significance.	Department of Climate Change, Energy, the Environment and Water (DCCEEW)
State Legislation		
Aboriginal Heritage Act 1972	Protection of sites of Aboriginal heritage significance.	Department of Planning, Lands and Heritage (DPLH)
Agriculture and Related Resources Protection Act 1976	Obligations for control, destruction and notification of gazetted noxious plants and animals.	Department of Primary Industries and Regional Development (DPIRD)
Biodiversity Conservation Act 2016	Conservation and protection of biodiversity in Western Australia.	Department Biodiversity Conservation and Attractions (DBCA)
Bush Fires Act 1954	Minimising dangers or, prevention and control of bush fires.	Department of Fire and Emergency Services (DFES)
Conservation and Land Management Act 1984	Conservation of flora and fauna.	DBCA
Contaminated Sites Act 2003	Regulation of matters relating to the identification, assessment and clean-up of contaminated land.	DWER

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Dangerous Goods Safety Act 2004	Safe storage, handling and transport of dangerous goods.	Department of Mines, Industry Regulation and Safety (DMIRS)
Dangerous Goods Safety Regulations 2007	Dangerous goods regulations.	DMIRS
Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007	Safe design, construction and operation of major hazard facilities.	DMIRS
Dangerous Goods Safety (Security Sensitive Ammonium Nitrate) Regulations 2007	Dedicated security regulations for security sensitive ammonium nitrate.	DMIRS
Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007	Safe storage and handling of non-explosive materials.	DMIRS
Environmental Protection Act 1986 (general provisions)	Prevention, control and abatement of pollution. Conservation, protection and enhancement of environment.	DWER
Environmental Protection Regulations 1987		DWER
Environmental Protection (Clearing of Native Vegetation) Regulations 2004	Control of native vegetation and administration of Clearing Permits.	DWER
Environmental Protection (Controlled Waste) Regulations 2004	Control of potentially hazardous waste and the administration of the Controlled Waste Tracking System.	DWER
Environmental Protection (Noise) Regulations 1997	Control and abatement of noise emissions.	DWER
Environmental Protection (Unauthorised Discharges) Regulations 2004	Prevention and control of pollution.	DWER
Land Administration Act 1997	Consolidates the law about Crown land, to repeal the Land Act 1933.	DPLH
Local Government Act 1995	Provide system of local government in Western Australia, amended the Local Government Act 1960.	City of Karratha (formerly Shire of Roebourne)
Planning and Development Act 2005	Provides for a system of land use planning and development in WA.	DPLH
Rights in Water and Irrigation Act 1914 and Regulations 2000	Protection and licensing of water resources.	DWER
Soil and Land Conservation Act 1945	Conservation of soil and land resources and prevent of erosion.	DPIRD
Waterways Conservation Act 1976	Management of waterways and their associated environment.	DWER

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8. Responsibilities

8.1. Operations Management Structure

Yara Pilbara operates as a management structure for both the YPN and YPF business units as illustrated in Figure 1

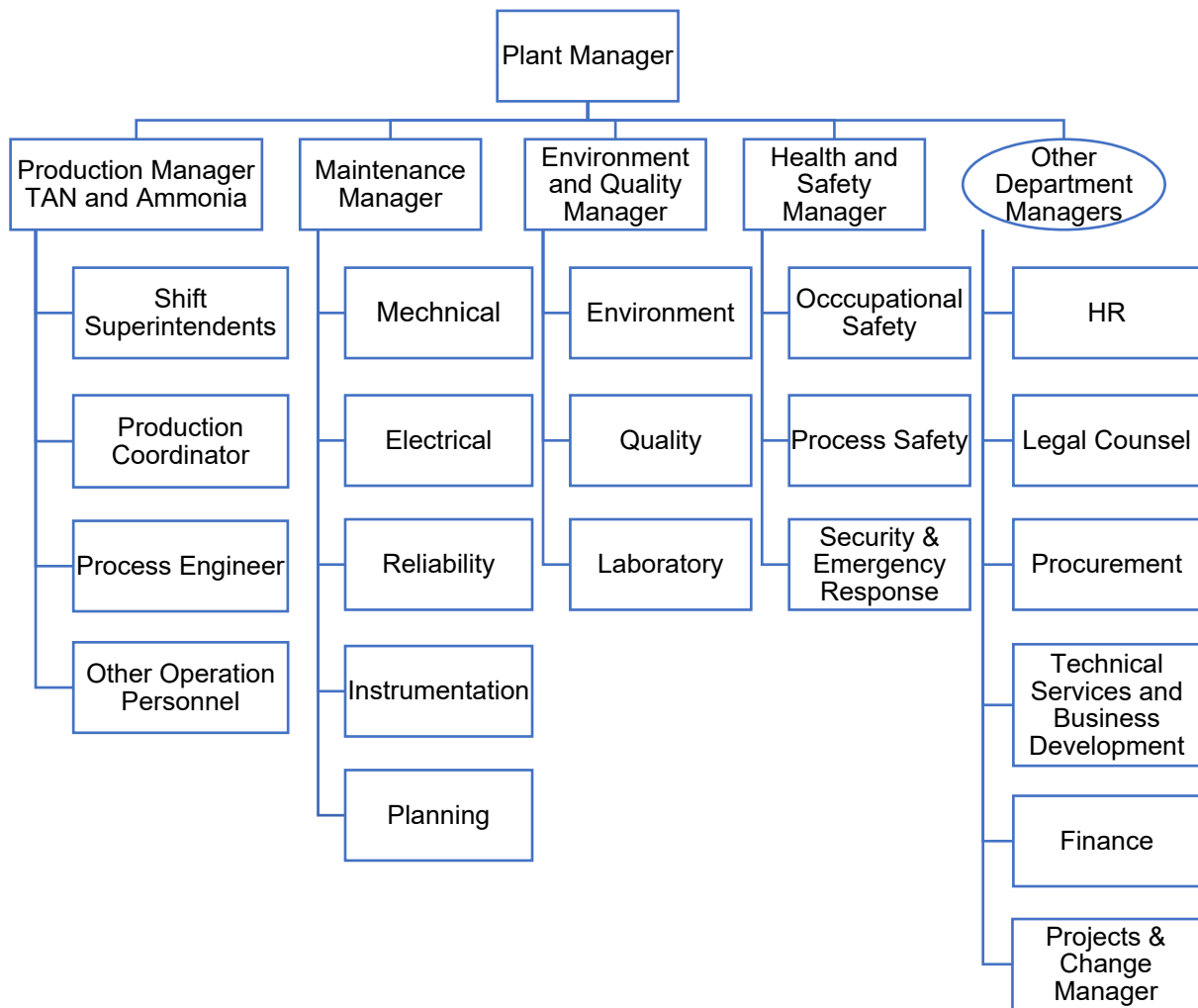


Figure 1 Yara Pilbara Operational Organisational Structure

The Plant Manager reports to the YPN Board of Directors. Environmental responsibilities for key positions are described in Table 3.

Table 3 Environmental Management Responsibilities for Key Positions

Role	Responsibility
------	----------------



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Board of Directors	<ul style="list-style-type: none"> Ensuring the health and safety of employees and stakeholders and that of the environment in which YPN operates. Ensuring that adequate resources are made available to enable compliance to Yara’s HESQ policy and all applicable statutory obligations.
Plant Manager	<ul style="list-style-type: none"> Ensuring that systems, process and adequate resources are in place to enable the Yara HESQ policy to be achieved and all statutory obligations to be met. Informing the BoD about HESQ performance and any pertinent issues relating to HESQ which may expose YPN to significant risk. Ensuring that policies and enforcement are in place and supported by actions to achieve compliance to YPN’s corporate and statutory requirements as applicable to the TAN Plant.
Environment and Quality Manager	<ul style="list-style-type: none"> Implementation of the OEMP to ensure the Yara HESQ policy is achieved, and all statutory obligations are met. Informing the Plant Manager of any non-compliance with the statutory obligations that may expose YPN to significant risk.
Department Managers and Shift Superintendents	<ul style="list-style-type: none"> Ensuring all activities and functions carried out, either by employees, contractors or others within their area of responsibilities, adheres to the HESQ Management System and OEMP and its supporting procedures. Ensuring any environmental spill, damage or contamination is immediately contained and reported for investigation and remediation due to any activity within their area of responsibility or control. Ensuring employees and contractors under their supervision or control receive the appropriate environmental awareness training.
Environmental Superintendent (or delegate)	<ul style="list-style-type: none"> Content of the Environmental Induction. Liaising with external regulatory agencies and authorities and external stakeholders when environmental issues are involved. Providing advice and assistance to Department Managers on ways to achieve their environmental objectives and compliance with regulatory approvals. Direct environmental incident investigations. Overseeing the completion of internal reporting records, ensuring the details of non-compliance are correct and forwarded to the applicable regulatory agency (e.g. DWER, DCCEEW and DMIRS) as required and that actions are assigned and completed. Management of environmental monitoring. Preparation, review and submission of environmental reports to regulatory agencies or other external stakeholders in consultation with the Environment and Quality Manager and the Plant Manager. Ensuring any environmental-related complaints received from the public or government agencies are investigated and reported as required. Ensuring the OEMP and its supporting procedures are consistent with and ensure compliance with the regulatory approval conditions, including those of EPBC 2008/4546 approval decision.

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Environment Team	<ul style="list-style-type: none"> • Upon occurrence of an environmental incident (including non-compliance), internally report and immediately inform the Environment and Quality Manager and the appropriate Department Manager, who will determine the appropriate corrective action to be implemented. • Undertake environmental monitoring and associated data management. • Assist with the preparation, review and submission of environmental reports. • Participate in environmental incident investigation. • Maintaining all relevant environmental documentation on-site in consultation with Document Control. • Develop, update and support the environmental audits/inspections and environmental awareness programs.
All Personnel	<ul style="list-style-type: none"> • Comply with relevant environmental Acts, Regulations, Codes of Practice and Standards. • Comply with Yara’s Environmental Policy, OEMP, procedures and work instructions. • Promptly report any hazards, non-conformances, incidents and/or breaches and record in Yara’s incident reporting and investigation system. • Participate in inductions and environmental awareness training as directed. • Conduct operational activities in an environmentally responsible manner.

9. Risk Assessment

A qualitative risk assessment has been undertaken using the methods, definitions and matrix described in the Environmental Management Plan Guidelines (Department of the Environment and Energy 2014). The risk framework matrix is presented in Table and the definitions for the qualitative measure of likelihood and consequence are presented in **Error! Reference source not found. 5.**

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Table 4: Risk Framework

		Consequence				
Likelihood		Minor	Moderate	High	Major	Critical
	Highly Likely	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

Table 5: Likelihood and Consequence

Qualitative measure of likelihood (how likely is it that this event/circumstances will occur after management actions have been put in place/are being implemented)	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances
Qualitative measure of consequences (what will be the consequence/result if the issue does occur)	
Minor	Minor risk of failure to achieve the plan’s objectives. Results in short term delays to achieving plan objectives, implementing low cost, well characterised corrective actions.
Moderate	Moderate risk of failure to achieve the plan’s objectives. Results in short term delays to achieving plan objectives, implementing well characterised, high cost/effort corrective actions.
High	High risk of failure to achieve the plan’s objectives. Results in medium-long term delays to achieving plan objectives, implementing uncertain, high cost/effort corrective actions.
Major	The plan’s objectives are unable to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies.
Critical	The plan’s objectives are unable to be achieved, may include widespread and severe environmental harm, with no evidenced mitigation strategies.

Operational risks were determined for key project impacts identified as part of the EPBC Act assessment process. Qualitative measures of likelihood and consequence were determined to establish a risk ranking in accordance with the risk framework, after identification of mitigation/management measures to reduce the risk to As Low As Reasonably Practicable (ALARP) to be applied. The outcomes of the risk assessment are presented in **Error! Reference source not found..** All potential project impacts have been reduced to a low residual risk except for groundwater and air



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emissions, which retained acceptable moderate residual risk outcomes. The mitigation measures for each key impact/risk are presented in Sections 16 and 17.

10. Induction and Training

10.1. Inductions

All employees, contractors and visitors to the TAN plant shall receive suitable environmental training to ensure they are aware of their responsibilities and are competent to carry out their work in an environmentally responsible manner. Relevant health, environment and safety policy and site-specific requirements shall be explained to all on-site personnel during inductions. Ongoing instruction and knowledge update opportunities shall be provided via toolbox meetings. Inductions and ongoing instruction shall be recorded.

10.2. Environmental Awareness Training

Environmental awareness training of relevant staff will be conducted with a focus on the following aspects:

1. Areas of Heritage significance.
2. Protection of flora and fauna – weeds, fire control, specially protected fauna.
3. Management of noise.
4. Management of air quality.
5. Surface and groundwater protection.
6. Management of water emissions/discharges.
7. Waste and contaminated water / soils management.
8. Complaints response procedures.
9. Spill response and incident management and reporting.

11. Communications

11.1. Internal Communications

Internal communication methods will include the following (as applicable):

- Formal and informal meetings.
- Emails and environmental notices.
- YPN BoD reports.
- Notice boards.
- On-site personnel inductions, training and toolbox sessions.

These mechanisms will be used to address queries from YPN personnel, and to communicate any new environmental management procedures and information.

11.2. External Communications

External communications will include the following (as applicable):

- Meetings, correspondence and reporting with appropriate regulatory authorities, stakeholders and industry groups.

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- Discussions and consultation with adjoining land managers.
- Consultation with representatives of local Aboriginal groups and Native Title claimants.
- Handling of, and responding to, stakeholder complaints or requests.
- Annual reporting (e.g. Annual Compliance Report).

11.3. Community Complaints

All external environmental complaints are recorded and reported to the Environment Team for investigation, as per the Yara Pilbara complaints process. An investigation will be terminated if the complaint is found to be unsubstantiated and records updated accordingly. Where the Environment Team confirms that the environmental complaint is related to the TAN plant, an incident will be recorded in Yara Pilbara's incident reporting and investigation system.

12. Incidents and Corrective Actions

12.1. Environmental Incidents

The procedure for reporting environmental incidents is in accordance with the YPN's incident investigation and reporting process. Depending on the significance of the incident, a root-cause analysis will be undertaken in consultation with the Environmental Superintendent (or delegate), the Environment and Quality Manager, and the relevant Department Manager. The Environment and Quality Manager (or delegate) will communicate with the regulatory agency, if required, within the appropriate time frame for the different types of notifications as per Table 6. Further detail is outlined in the Environmental Reporting Procedure (HESQ-YP-PRO-035).

Table 6 Environmental notification responsibilities and timeframes

Approval	Condition	Responsibility
EPBC 2008/4546	3A	YPN shall notify DCCEEW of a potential or actual non-compliance with any of the Conditions in EPBC 208/4546 in writing within seven (7) days of becoming aware of the potential or actual non-compliance.
EPBC 2008/4546	9B	If a reporting requirement is triggered for air emissions re Condition 22 of L9223/2019, YPN will notify DCCEEW in writing within the same timeframe as reporting is required to be provided to DWER CEO.
L9223/2019	Condition 21	Notify the DWER CEO in writing within seven (7) days of start-up identifying when start-up occurred and when steady state was achieved.
L9223/2019	Condition 22	Notify the DWER CEO in writing within seven (7) days of becoming aware of any noncompliance with Conditions 3, 4 and 5 of the licence for discharge to air.
L9224/2019	Condition 25	YPF licence condition to notify the DWER CEO in writing within seven (7) days of becoming aware of any noncompliance with Condition 8 of the licence for discharge to marine waters. EPBC 2008/4546 Condition 4 requires YPN to ensure that wastewater from the facility meets the requirements set out in Statement 594 for discharges into the Multi User Brine Return Line (MUBRL).

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MS870	Condition 8-5	In the event that monitoring required by Condition 8-4 indicates an exceedance of trigger levels, the proponent shall report such findings to the CEO within 7 days of the exceedance being identified.
MS1121	Condition 5-5	Should monitoring of air emissions from the proposal indicate that the objectives of Condition 5-2 are not being met, the proponent shall report the non-compliance in writing to the CEO within seven (7) days of the non-compliance being identified.
EP Act	Section 72(1)	Any discharges of waste to the environment assessed by YPN as likely to cause pollution or environmental harm will be reported to DWER as soon as practicable via the Section 72 waste discharge notification.

13. Emergency Response

The Emergency Management Plan (EMP) (250-500-PLN-000-0003) has been prepared as a standalone document to meet the on-site and off-site emergency planning and response requirements for both YPF's ammonia plant and YPN's TAN plant during operation. Both the ammonia plant and TAN plant are classified as major hazard facilities under the Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007.

The purpose of the EMP is to establish the organisational structure and identify procedures and available resources to enable YPF and YPN Emergency Service personnel to manage an emergency within the operations by providing a safe and practicable response. The EMP provides guidelines to initiate actions to achieve a safe and desired response. The EMP also outlines the procedures to notify and communicate with emergency services, neighbouring facilities, regulators and local administration/ community.

14. Data Handling

YPN will maintain accurate records substantiating all activities associated with, or are relevant to the conditions of approval outlined in EPBC 2008/4546 and L9223/2019.

14.1. Data Management

Data collected by Yara Pilbara, Contractors and/or any other specialists during monitoring activities will be provided to the Environment Team who will ensure all data and records are stored and maintained to inform reporting, review and compliance assessments. Numerical data will be stored using an appropriate database and spatial data in shapefile format or similar widely used formats. Data across site is backed up daily by the global backup system.

14.2. Quality Assurance / Quality Control

This OEMP describes methods and protocols for monitoring of various environmental parameters including air emissions, groundwater, surface water and waste. Where appropriate and relevant, methods and protocols may include quality assurance requirements and quality control specifications.

All monitoring activities must be carried out in compliance with the relevant Quality Assurance / Quality Control requirements as defined in the Environmental Monitoring Procedure (HESQ-YP-PRO-036 and associated SOPs), the Site Management Plan and the Sampling and Analyses Quality Plan. This includes requirements for:

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- Staff training, equipment calibration, sample collection, handling, and decontamination of equipment.
- Collection of field blanks, duplicate or triplicates samples, where applicable.
- Storage, preservation and transport of samples to the laboratory.
- Record keeping and traceability of information throughout the monitoring process. All sampling activities will be documented using field data sheets, samples submitted for analyses at the Yara Pilbara site laboratory or external laboratories must be accompanied by chain of custody documentation.
- Quality control data must be reviewed before the measurement data can be approved for use. Data which is not supported by acceptable quality control results or where quality control results are not available must be quarantined and advice sought regarding its use and interpretation.

All documentation and records from these activities are retained by Yara, with measurement data and the QC results stored in electronic databases, and an appropriate backup system in place.

15. Audit and OEMP Review

15.1. Auditing

Monitoring of implementation performance of this OEMP is undertaken by auditing to confirm that specified objectives and performance criteria are met. YPN and regulatory agencies may also undertake audits of YPN.

15.1.1. Internal

YPN undertakes internal site inspections including a review of compliance with EPBC 2008/4546 on an annual basis. A summary of the compliance inspections is reported to the DCCEEW through the annual compliance report against EPBC 2008/4546.

15.1.2. External

Regulators undertake regular compliance audits and provide written reports to YPN with all non-conformances tracked for corrective actions. The responsible regulatory agency will be provided with the evidence of completion for corrective actions raised. Summaries of these audits will be posted on the DCCEEW website and may also be publicised through the general media as per Condition 2 of the EPBC approval.

15.2. OEMP Review

This OEMP is to be reviewed and updated in keeping with YPN's commitment to continuous improvement. The OEMP performance review shall be initiated every 2 Years and may be either:

- an administrative update with content updated to current whilst retaining the same level of existing management measures, or
- a detailed technical review update where significant changes to the monitoring programs and management controls are proposed.

15.2.1. Administrative update

The administrative OEMP update will occur to reflect current licences, site conditions (i.e. DWER's reclassification of Site) and may also provide additional management controls. Importantly, the administrative OEMP update retains all management controls and the activity remains in accordance with the previously approved OEMP.

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The updated document will be filed as per YPN's Document Control system, made publicly available and implemented. A copy will be provided to DEECCW for their records and is not anticipated to require further approval. DCCEEW will advise YPN if it intends on reviewing administrative updates for approval.

15.2.2. Detailed technical review update

The detailed technical review and evaluation of the monitoring programs outlined in the OEMP will be undertaken to ensure monitoring parameters, timing, location and outputs are addressing all key risk areas and management plan objectives adequately. The review will be undertaken by Yara and/or delegate with advice from technical specialists as appropriate (e.g. air quality specialists).

The key areas of uncertainty associated with implementing the plan relate to ambient air quality (including contribution from TAN plant and other emitters to the airshed), rock art monitoring and risks to rock art. To ensure uncertainty is reduced over time, and that OEMP outcomes and performance indicators are achieved, the following will be evaluated during review stages during the technical revisions of the OEMP:

- New and relevant data/information gained from implementing the plan or supplied by external sources (e.g. modelling, monitoring outcomes, academic literature, or EPBC Act policy statements).
- Effectiveness of OEMP scheduling, monitoring, risk management, auditing, and reporting activities.
- Risks, including in response to the risk level, changing circumstances or the results from implementing corrective actions.
- Effectiveness of management measures that have significant levels of uncertainty, relatively long implementation timeframes, and upon which the plan is highly dependent.

In accordance with Condition 12 of EPBC 2008/4546, if YPN wishes to carry out any activity otherwise than in accordance with this OEMP (including the Rock Art Impact Mitigation Review [RAIMR] required under Condition 11A of EPBC 2008/4546), YPN must submit to DCCEEW (for the Minister's written approval) a revised version of this OEMP. The varied activity will not commence until the Minister has approved the varied management plan in writing. If the Minister approves the revised OEMP, the revised OEMP must be implemented in place of the management plan originally approved. Once a change to the OEMP or applicable procedures has been approved, the updated document will be filed as per YPN's Document Control system, made publicly available and implemented.

15.3. OEMP Compliance Reporting

Condition 3(a) of EPBC 2008/4546 requires that by 6 October each year, YPN will

3 (a) i. Publish a report on their website addressing compliance with each of the conditions in EPBC 2008/4546 (for the reporting period 1 July of the previous year to 30 June of the reporting year), implementation of any management plans and monitoring programs specified in the conditions, including an analysis of monitoring data required under Conditions 9A and 10A of that has been collected during the reporting period.

3 (a) ii. Provide documentary evidence providing proof of the date of publication to the Department.

Condition 3(b) of EPBC 2008/4546 requires the reports referred to in Condition 3(a) to be published for the life of the approval unless otherwise advised by the Minister in writing.

The annual report required by Condition 3(a) of EPBC 2008/4546 will assess conformance with the actions described in this OEMP, to substantiate implementation of the plan.

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The annual report will be informed by monitoring data and reports. The report will address exceedance of thresholds (if any), risk management, management actions, monitoring and continuous improvement outcomes.

16. Environmental Management

16.1. GROUNDWATER MANAGEMENT

16.1.1. Overview

This section details how groundwater is managed to ensure compliance with TAN plant approval requirements. To support the ongoing site investigations, groundwater monitoring is undertaken for:

- MS870 - Five (5) groundwater wells
L9223/2019 - Nine (9) groundwater wells
SMP – Fifty (50) groundwater wells.

Management of surface water associated with the operation of the TAN Plant is outlined in Section Error! Reference source not found..

16.1.2. Environmental Risks to be Managed

The following environmental activities or aspects of the TAN plant operation will be managed to minimise the potential for groundwater contamination within and surrounding the plant:

- storage, handling and disposal of hydrocarbons and chemicals which can lead to groundwater contamination.
production, storage and handling of nitrogen compounds, including nitric acid, ammonium nitrate solution and ammonium nitrate prill which can lead to groundwater contamination.
dewatering activities and movement of soils from the site, or within the site, which can spread contamination to other groundwater areas (section 16.3).

16.1.3. Environmental Objectives and Performance Targets

The YPN objectives and targets for groundwater are detailed in Table.

Table 7 Objectives and Performance Targets – Groundwater

Table with 2 columns: Objectives, Performance Targets. Row 1: To maintain to the extent practicable the quality of groundwater to minimise environmental impacts on the surrounding environment as a result of operations. Compliance with groundwater quality performance triggers per Condition 8-4 of MS870. Row 2: Changes to groundwater quality, as a result of the operation of Site, does not adversely impact on the surrounding vegetation. No impact to surrounding vegetation as a result of changes to groundwater quality caused by operations.

16.1.4. Management

Management measures to achieve the groundwater management objectives are described in Table 8.

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Table 8 Management Actions – Groundwater

Performance Indicator	Management Actions	Timing	Related Monitoring
Storage, handling, disposal or importing a hazardous material	Any Yara Pilbara employee or contractor (working at the TAN plant) proposing to import a new hazardous material to the TAN plant must comply with the hazardous materials management process.	At all times	Hazardous materials inspection
	Maintain inventory records of hazardous materials on-site as per the hazardous materials management process.	Ongoing	Hazardous materials register
	Store hazardous materials, including all flammable and combustible liquids, in accordance with AS 1940-1993: The Storage and Handling of Flammable and Combustible Liquids.	Ongoing	Visual inspection
	Ensure hazardous materials are clearly labelled and placarded as required by State legislation.	Ongoing	Visual inspection
	Ensure that Safety Data Sheets (SDS) are available and used to direct all storage and handling of hazardous materials including: <ul style="list-style-type: none"> transport requirements use of personal protective equipment storage requirements clean-up/disposal processes. 	Ongoing	Visual inspection
	All stock items are approved on the Yara Pilbara system. If an item received at the warehouse is detected that is not approved, then appropriate steps shall be taken to obtain approval.	At all times	Hazardous materials register
	Provide appropriate containment (e.g. drip trays) for all works in unbunded areas.	Ongoing	Visual inspection
	The storage of gases is to be in accordance with the provision of AS 1596: LP Gas - Storage and handling and AS 2030: SAA Gas Cylinder Code.	At all times	Visual inspection
	Record all spillages (outside banded areas) as per Yara's incident reporting process and report to Environment Team as soon as practicable.	Ongoing	Incident reporting

16.1.5. Monitoring

Monitoring actions to evaluate the effectiveness of the groundwater management measures are described in Table 9. All sampling and/or monitoring will be conducted by a member of the Yara Pilbara's Environment or Laboratory Team

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or a suitably qualified person. Analyses will be conducted by the Yara Pilbara site laboratory or external commercial laboratories using recognised methods from ASTM, USEPA and other agencies. Quality assurance and quality control protocols will be implemented as specified by the methods for all analyses.

Table 9 Monitoring Program – Groundwater

Objective	Parameters Measured	Methodology	Frequency	Location
To maintain purchasing and inventory records for all hazardous materials on-site.	Materials manifest records	Visual inspection	Ongoing	Hazardous materials register
To confirm storage of hazardous materials is in accordance with AS 1940-1993 and DWER licence requirements.	Storage of hazardous materials	Visual inspection	Monthly	TAN plant
Undertake groundwater monitoring to detect changes in quality attributable to operations	cations and anions (calcium, magnesium, ammonium, chloride, nitrate) and total nitrogen total dissolved solids, total suspended solids and total alkalinity metals (aluminium, arsenic, cadmium, chromium (III), chromium (VI), copper, iron, lead, manganese, mercury, nickel and zinc) oil and grease pH	Ion chromatography analysis based on APHA 4500 methods APHA 2540 methods ICPAES and ICPMS analyses based on APHA 3120 and 3125 methods GC-FID analysis based on USEPA methods pH meter	Six monthly	MW1 MW2 MW3 MW4 MW5

16.1.6. Contingency Actions

In the event that the objectives for groundwater management are not being met the contingency actions described in Table 10 will be initiated.

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Table 10 Contingency Actions – Groundwater

Table with 2 columns: Threshold and Contingency Actions. It details actions for spills and groundwater quality exceedances.

16.2. SURFACE WATER AND STORMWATER

16.2.1. Overview

This section details how surface water and stormwater are managed to ensure compliance with the YPN objectives and TAN plant approval requirements.

Licence L9223/2019 outlines the function of the six ponds at Site as:

- Clean/contingency contaminated water ponds (Pond 1 and Pond 2)
• Contaminated water ponds (Pond 4 and Pond 5)
• Treated effluent ponds (Pond 3 and Pond 6).

Clean stormwater is managed as follows:

- Stormwater coming from upstream of site is diverted around the site via drainage swales and flows downstream to the upper supratidal flats.

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- Onsite, the clean stormwater runoff (from buildings and roads) is either allowed to infiltrate in unpaved areas or is directed via sealed, drain channels and connecting gravity-flow pipes and pits to Ponds 1 and 2 for storage and evaporation.

Potentially contaminated surface water and premise water is managed as follows:

- A separate contaminated drainage system, comprising sealed surfaces (concrete pads, bunds) channels and pipes, collects and transfers potentially contaminated stormwater and premises wastewater from process areas to Ponds 4 and 5 for storage and evaporation.
Ponds 1 and 2 are also allowed to receive contaminated water (where required as a contingency).

Treated effluent ponds (Pond 3 and Pond 6) are approved for storage and evaporation of treated effluent received from the wastewater treatment plants.

Process water from the TAN Plant is sent to the YPF process water pipework, and is then combined with the YPF process water before discharge to the MUBRL and into the marine waters of King Bay. Discharges to the MUBRL are managed via an agreement between YPF and Water Corporation in alignment with Ministerial Statement No. 594 (MS594). Condition 4 of EPBC 2008/4546 approval also requires YPN to confirm that wastewater from the facility meets the requirements set out in MS594 for discharges into the MUBRL.

16.2.2.Environmental Risks to be managed

The following environmental activities or aspects of the TAN plant operation have been identified as requiring management so that ongoing site activities do not result in contamination to the marine, inland waters and terrestrial environment within and surrounding the TAN plant, as follows:

- Treatment of process water prior to the discharge of water to the MUBRL.
Treatment of septic waste prior to discharge to ponds.
Diversion of surface water flows around site to mitigate erosion (loss of soil and landform) and reduce the volume of water flowing onto site.
High sediment loads leading to deposition of sediments and silting-up of drainage channels.
Storage, handling and disposal of contaminated waters are managed in accordance with Section 16.3.

16.2.3.Environmental Objectives and Performance Targets

The YPN objectives and targets for surface water and stormwater are detailed in Table 11.

Table 11 Objectives and Performance Targets – Surface Water and Stormwater

Table with 2 columns: Objective, Performance Target. Row 1: Maintain the quality of surface water within and surrounding the site. No contamination of surface water outside the TAN plant boundary as a result of site operations. Row 2: Maintain the quality of water discharges to minimise potential for offsite contamination. No discharges of process water to the MUBRL from the TAN Plant exceeding targets/limits outlined in MS 594.



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To minimise erosion and environmental damage due to stormwater diversion within the lease area.	No degradation of downstream water quality due to stormwater diversion.
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16.2.4. Management

Management measures to achieve the surface and stormwater management objectives are described in Table 12.

Table 12 Management Actions – Surface Water and Stormwater

Performance Indicator	Management Actions	Timing	Related Monitoring
Contaminated water is contained onsite and not released to the environment.	Water storage ponds to have freeboard maintained (so that ponds do not overtop during rainfall events).	Ongoing	Visual inspection
Discharges of process water to the MUBRL meet limits.	Manage process water streams within the plant so that wastewater discharged to MUBRL is within discharge criteria specified in L9224/2019 and MS594.	Ongoing	Water quality monitoring
Erosional features identified and mitigated at an early stage.	Maintain surface drains in an open free-flowing condition such that flows can occur as designed and intended.	Ongoing	Visual inspection
No loss of listed threatened species and listed migratory species as a result of the operations.	Only apply larvicide or adulticide within or outside the project area (as shown in Attachment 1 of EPBC 2008/4546) that is an Approved Class 11 insecticide.	Ongoing	Visual inspection
	Employ structures and apparatus as necessary and agreed by the Western Australian Government to deter birds from entering the ponds onsite.	Ongoing	Visual inspection

16.2.5. Monitoring

Monitoring actions to evaluate the effectiveness of the surface and stormwater management measures are described in Table 13. Unless indicated otherwise, all monitoring will be conducted by a member of Yara Pilbara’s Environment Team, or Laboratory Team, or suitably qualified person.

Table 13 Monitoring Program – Surface Water and Stormwater

Monitoring Activity	Objective	Parameters Measured	Methodology	Frequency	Location
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Visual inspection	No overtopping of water storage ponds	Freeboard	Not applicable	Weekly	Ponds onsite
Visual inspection	To ensure effectiveness of structures and apparatus to deter birds from entering water storage ponds	Integrity and function of structures and apparatus	Not applicable	Monthly	Ponds onsite
Water quality monitoring	Water discharged to MUBRL does not exceed criteria.	As per L9224/2019 monitoring requirement for water going to the MUBRL			Combined wastewater at monitoring point (W4)
Erosion detection	Detect evidence of erosion	Erosion	Visual inspection	Following rainfall event (>100 mm)	Lease boundary
			Visual inspection	Quarterly	Drainage system and Jora Evaporation Pond embankments

16.2.6. Contingency Actions

In the event that the objectives for water management are not being met the contingency actions described in Table 14 will be initiated.

Table 14 Contingency Actions – Surface Water and Stormwater

Threshold	Contingency Action(s)
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<p>Overtopping of water storage pond</p>	<ol style="list-style-type: none"> 1. Report to Environment Team who will assess water type, quality and determine appropriate management option. 2. Transfer of excess water: <ul style="list-style-type: none"> • To another pond within TAN that is approved for that water type and has capacity • Pump to the MUBRL if compliant with L9224/2019 / MS594 discharge limits, or • Off-site for disposal at suitably licenced facility. 3. Environmental Superintendent (or delegate) to report to the relevant authorities in accordance with L9223/2019 within the timeframe per Table 6.
<p>Integrity and function of structures to deter birds from the water ponds compromised</p>	<ol style="list-style-type: none"> 1. Report to the Environment and Quality Manager. 2. Repair or modify affected structures and apparatus as soon as practicable.
<p>Exceedance of MUBRL discharge limits</p>	<ol style="list-style-type: none"> 1. Report to the Environment and Quality Manager. 2. Production Department to identify source and mitigate the source of the problem if possible. 3. Undertake monitoring to confirm mitigation measures have returned water quality to within licence limits. 4. Environmental Superintendent (or delegate) to report to the relevant authorities in accordance with L9224/2019 and Water Corporation seawater agreement within the timeframe per Table 6. 5. Report annually to DCCEEW.
<p>Degradation of downstream water quality due to sedimentation</p>	<ol style="list-style-type: none"> 1. Investigate the cause. 2. Determine source of sediment. 3. Remove sediment. If quantities are large enough, sediment can be used in repairing erosion if practicable. 4. Rehabilitate area as soon as practicable if required.
<p>Identification of gully, sheet or rill erosion</p>	<ol style="list-style-type: none"> 1. Determine an appropriate repair method with low environmental risk. 2. Fill and level surface using rock or other appropriate material. 3. Reshape surface to blend with surrounding relief. 4. Stabilise surface using matting, hydromulch or equivalent. 5. Rehabilitate area as soon as practicable if required. 6. The effectiveness of the preventative action will be monitored, and additional measures implemented if required.

16.3. CONTAMINATED SOILS AND WATER

16.3.1. Overview

This section details how contaminated groundwater, soils and premises wastewater are managed to ensure compliance with YPN objectives and TAN plant approval requirements.

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The site is a 'Prescribed Premise' and operates subject to the conditions of DWER Licence No. L9223/2019. The TAN Plant commenced operation in May 2018 and there have been uncontrolled releases at the site. The site was first classified by DWER on 7 December 2018 under the Contaminated Sites Act 2003 as 'Possibly contaminated – investigation required'. On 6 February 2023, the site classification was updated to 'Contaminated – remediation required'.

Contamination with ammonium nitrate is present in the soils and groundwater underlying TAN plant, and in surface sediments at the eastern toe of TAN Plant rock armour. Site premises wastewater generated during operations is also contaminated with ammonium nitrate. YPN has committed to active remediation and has gained approval to construct and operate the necessary remedial infrastructure.

The level of contamination in soils and groundwater is variable across site and as such, the uncontrolled movement of soils, or disposal of contaminated water to ground may result in spreading of the contamination plume beyond its current extent. Management of these contaminated soils and waters follows the principles of waste management (Section 14), with additional testing and management controls as outlined below.

16.3.2. Environmental Risks to be Managed

The TAN plant operation will be managed to minimise the potential for migration of contamination within and surrounding the plant from:

- Stockpiling of contaminated soils which can lead to migration of contamination in groundwater in other areas onsite.
- Dewatering of groundwater, which can lead to migration of contamination to other areas onsite.
- Transfer of premises water which can lead to groundwater contamination onsite.
- Movement of contaminated soils or water from the site which may contaminate offsite areas.

The storage and handling of contaminated soils and water at site requires management so that these activities do not result in further contamination of surface water, groundwater or terrestrial environment within and surrounding the plant, or offsite.

16.3.3. Environmental Objectives and Performance Targets

The YPN objectives and targets for contaminated soils and water management are detailed in Table .

Table 15 Objectives and Performance Targets – Contaminated soils and waters

Objective	Performance Target
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To identify, manage and monitor contaminated soils and waters to minimise impact to the environment as a result of operations.	Handling and storage of contaminated soils and waters onsite does not increase contamination levels in the groundwater onsite.
	All stockpiles proposed for reuse onsite are classified in accordance with DWER 1996 Landfill Waste Classification Definitions (as amended 2019)
	All contaminated soils and waters that are removed from Site are: - classified in accordance with DWER 1996 Landfill Waste Classification Definitions (as amended 2019) - accounted for in accordance with the Environmental Protection (Controlled Waste) Regulations 2004.

16.3.4. Management

Management measures to achieve contaminated soils and water management objectives are described in Table 20.

Table 16 Management Actions – Contaminated soils and waters

Performance Indicator	Management Actions	Timing	Related Monitoring
Excavated contaminated soils are contained and not spread to other areas onsite, or the environment.	<p>All material excavated from the Site that is not reused at the job site, shall be removed from site.</p> <p>Temporary placement of soil material next to the job site is allowed. However, all stockpiles must be removed at the completion of the scope.</p> <p>Analysis / waste classification to be undertaken in accordance with DWER 1996 Landfill Waste Classification Definitions (as amended 2019).</p> <p>Contaminated soils excavated from the Site shall only be stockpiled in an area authorised by the Environment and Quality Manager.</p> <p>Waste classification results shall be provided to the licenced waste disposal facility and agreement obtained to receive the waste.</p> <p>All contaminated soils that are removed from Site are accounted for in accordance with the Environmental Protection (Controlled Waste) Regulations 2004.</p>	Ongoing	<p>Inspections</p> <p>Inspections</p> <p>Laboratory analyses / waste classification email from Environment Team or memo.</p> <p>Authorisation communications.</p> <p>Authorisation communications.</p> <p>Waste disposal receipts</p>
Contaminated water is not released to the environment.	<p>Extracted groundwater and site premise water may be sent to the Evaporation Ponds in accordance with W6639/2022 (or amended licence) and the SMP.</p>	Ongoing	Transfer records

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	<p>Abstraction of groundwater may occur for dewatering (e.g. infrastructure installation / maintenance), these activities must be consistent with the SMP and consider the behaviour/geometry of the site's groundwater contaminant plumes.</p> <p>No reuse of abstracted groundwater unless appropriate analysis and treatment is undertaken and is approved by the Environment and Quality Manager.</p> <p>All controlled waste removed from Site must be accounted for in accordance with the Environmental Protection (Controlled Waste) Regulations 2004.</p>		<p>Laboratory analyses</p> <p>Groundwater abstraction licence.</p> <p>Authorisation communications.</p> <p>Waste disposal receipts</p>
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16.3.5. Monitoring

Monitoring and measurement actions to evaluate the effectiveness of the contaminated soils and water management measures are described in Table 21. Unless indicated otherwise, all monitoring will be conducted by a member of the Yara Pilbara's Environment Team, Site Services Team, or other suitably qualified person.

Table 17 Monitoring Program – Contaminated soils and waters

Monitoring activity	Objective	Parameters measured	Frequency	Location
Waste classification	Evidence of classification of wastes from TAN plant site.	Classification email from Environment Team / memos / laboratory certificates	Ongoing	Within TAN plant boundary
Site inspections	Conduct visual inspections for new stockpiles within Site.	Presence of new stockpiles	Monthly	Within TAN plant boundary
Waste receipts	Record quantity and type of waste disposed and disposal end point.	Waste tip receipts	Ongoing	Within TAN plant boundary
Contaminated water transfer	Premises water and extracted groundwater volumes tracked.	Volume Water quality	Ongoing	Within TAN plant boundary

16.3.6. Contingency Actions



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In the event that the objectives for contaminated soils and water management are not being met the contingency actions described in Table 22 will be initiated.

Table 18 Contingency Actions – Contaminated soils and waters

Table with 2 columns: Threshold and Contingency actions. It lists actions for 'New stockpile' and 'Detection of contaminant migration caused by groundwater / soil handling storage'.

16.4. WASTE MANAGEMENT

16.4.1. Overview

This section details how waste is managed to ensure compliance with the YPN objectives and TAN plant approval requirements. Solid waste streams from the operation of the TAN plant include:

- General office waste, including paper, cardboard, plastics, glass, aluminium cans, food scraps, printer cartridges, e-waste.
• General site waste, including scrap metal, spent conveyor belts, wood, expired fire extinguishers, cement and fluorescent tubes.
• Hazardous (controlled) waste, including waste hydrocarbons, oily rags, AN contaminated waste, empty additive bags, off-spec prill coating, contaminated soils, waters, and premises water.

16.4.2. Environmental Risks to be Managed

The storage and removal of waste from site requires management so that these activities do not result in contamination to the marine or surface water, groundwater or terrestrial environment within and surrounding the plant.

16.4.3. Environmental Objectives and Performance Targets

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The YPN objectives and targets for waste are detailed in Table .

Table 19 Objectives and Performance Targets – Waste

Objective	Performance Target
To identify, avoid, manage and monitor waste streams to minimise impact to the environment as a result of operations.	Commercially viable recyclable materials separated for recycling as far as practicable
	All controlled waste removed from Site and accounted for in accordance with the Environmental Protection (Controlled Waste) Regulations 2004

16.4.4. Management

Management measures to achieve the waste management objectives are described in Table 200.

Table 20 Management Actions – Waste

Performance Indicator	Management Actions	Timing	Related Monitoring
Reduce waste	Manage materials that come to site to reduce potential for waste.	On going	Materials manifest records
Waste segregation	Segregate waste using different storage vessels into different categories as far as practicable.	Ongoing	Waste disposal receipts from waste disposal carriers
Appropriate storage	Contain all waste, taking into consideration: <ul style="list-style-type: none"> • fire safety; • pest control; • odour control; and • protection of water and soil resources. 	Ongoing	Waste inspection
	Clearly mark waste bins and provide at convenient locations.	Ongoing	
Recovery, reuse and recycling	Provide a laydown area where materials can be re-used or recyclable where practicable.	As required	Waste inspection
	Recover spent catalyst wherever possible.	Ongoing	Catalyst manifest documentation
Disposal	No burning of waste material.	Ongoing	Waste inspection
	Provide litter and general waste vessels around site to ensure waste is disposed appropriately.	Ongoing	
	Prior to the removal of waste from the Site, the generator of the waste ensures that:	Prior to contractor pick-up	Waste disposal receipts in the waste register



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	<ul style="list-style-type: none"> • sufficient information is provided to the contractor to categorise the waste and select a disposal site; • the waste is stored appropriately for transportation; • the contractor has a valid Controlled Waste approval if required; and • the quantity and type of waste is recorded in Waste Register. 		
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16.4.5. Monitoring

Monitoring and measurement actions to evaluate the effectiveness of the waste management measures are described in Table 211. Unless indicated otherwise, all monitoring will be conducted by a member of the Yara Pilbara’s Environment Team, Site Services Team or suitably qualified person.

Table 21 Monitoring Program – Waste

Monitoring activity	Objective	Parameters measured	Frequency	Location
Waste audits	To conduct an audit of one external waste contractor per year.	Waste amount and disposal activities	Annually	Site
Waste storage inspections	To undertake visual inspections of waste storage and disposal facilities to ensure that storage and disposal facilities are functioning effectively and dealing adequately with the quantities of waste generated.	Waste segregation	Monthly	Waste vessels on Site
Site inspections	Conduct visual inspections for litter and general waste within and around the perimeter of the Site.	Litter	6 Monthly	Within TAN plant boundary
Waste receipts	Record quantity and type of waste disposed and disposal end point.	Waste receipts	Ongoing	Within TAN plant boundary

16.4.6. Contingency Actions

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In the event that the objectives for waste management are not being met the contingency actions described in Table 22 will be initiated.

Table 22 Contingency Actions – Waste

Table with 2 columns: Threshold and Contingency actions. It lists actions for incidents involving waste, significant waste spills, and minor waste spills.

16.5. AIR QUALITY MANAGEMENT

16.5.1. Overview

Air emissions are managed to assist in the maintenance of regional air quality to protect human health and amenity, to minimise the risk of adverse impacts to rock art on Murujuga, and to ensure compliance with YPN’s internal and external environmental standards and regulations.

Atmospheric emissions refers to the waste gases and particulates that are discharged to the atmosphere through the stacks and vents in the course of normal operations, start-up, upset and maintenance periods.

The primary air emissions from the TAN plant are:

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- Oxides of nitrogen (NO_x) consisting of nitrous oxide (N₂O), nitric oxide (NO) and nitrogen dioxide (NO₂)
- Sulfur dioxide (SO₂)
- Ammonia (NH₃)
- Ammonium nitrate (NH₄NO₃)
- Total suspended particulates (TSP)
- Particulate matter of less than 10 µm in aerodynamic diameter (PM₁₀)
- Particulate matter of less than 2.5 µm in aerodynamic diameter (PM_{2.5}).

Key emissions to air from the TAN Plant include point source emissions, comprising mainly ammonia and particulates (ammonium nitrate) from the Common Stack and oxides of nitrogen and ammonia from the Nitric Acid Plant Stack. There is also the potential for ammonia to be intermittently vented from the Unit 12 (U12) and Unit 31/32 (U31/32) vents during start-up or normal operations.

Exhaust emissions from diesel engines in mobile and fixed equipment contribute a minor proportion to the overall emissions profile from the plant. The operational areas of the lease are paved (bitumen or gravel) and no dust generating activities (i.e. earthworks) are occurring, therefore the risk of dust from the site during operations from traffic movement is considered insignificant.

Key sensitive receptors to be protected include recreational areas and rock art. Hearson Cove and Deep Gorge are recreational areas; however, air quality standards are not prescribed for assessment of risks to human health and amenity at such locations. A conservative approach has been adopted whereby risks to persons visiting those locations are assessed from application of air quality standards for residential areas, i.e. the National Environment (Ambient Air Quality) Protection Measure (AAQ NEPM).

The AAQ NEPM is not intended as a regulatory tool to manage air emissions from individual facilities; rather the NEPM is intended to assess the air quality of a region for protection of human health and well-being. The National Pollutant Inventory shows that other industries on the Burrup provide significantly greater contributions of NEPM parameters (namely NO_x, SO₂ and particulates) to the air shed, which are regulated under licences issued by DWER under Part V of the EP Act.

An overview of the other contributors of emissions to the ambient air at the Burrup is shown in **Error! Reference source not found.** This includes an indication of the “air shed” in which all emissions can disperse and equilibrate over time in the atmosphere to provide a background air quality that prevails across the area. The significance of individual contributors and their localised impacts can then be assessed in comparison with the background concentrations within the air shed.



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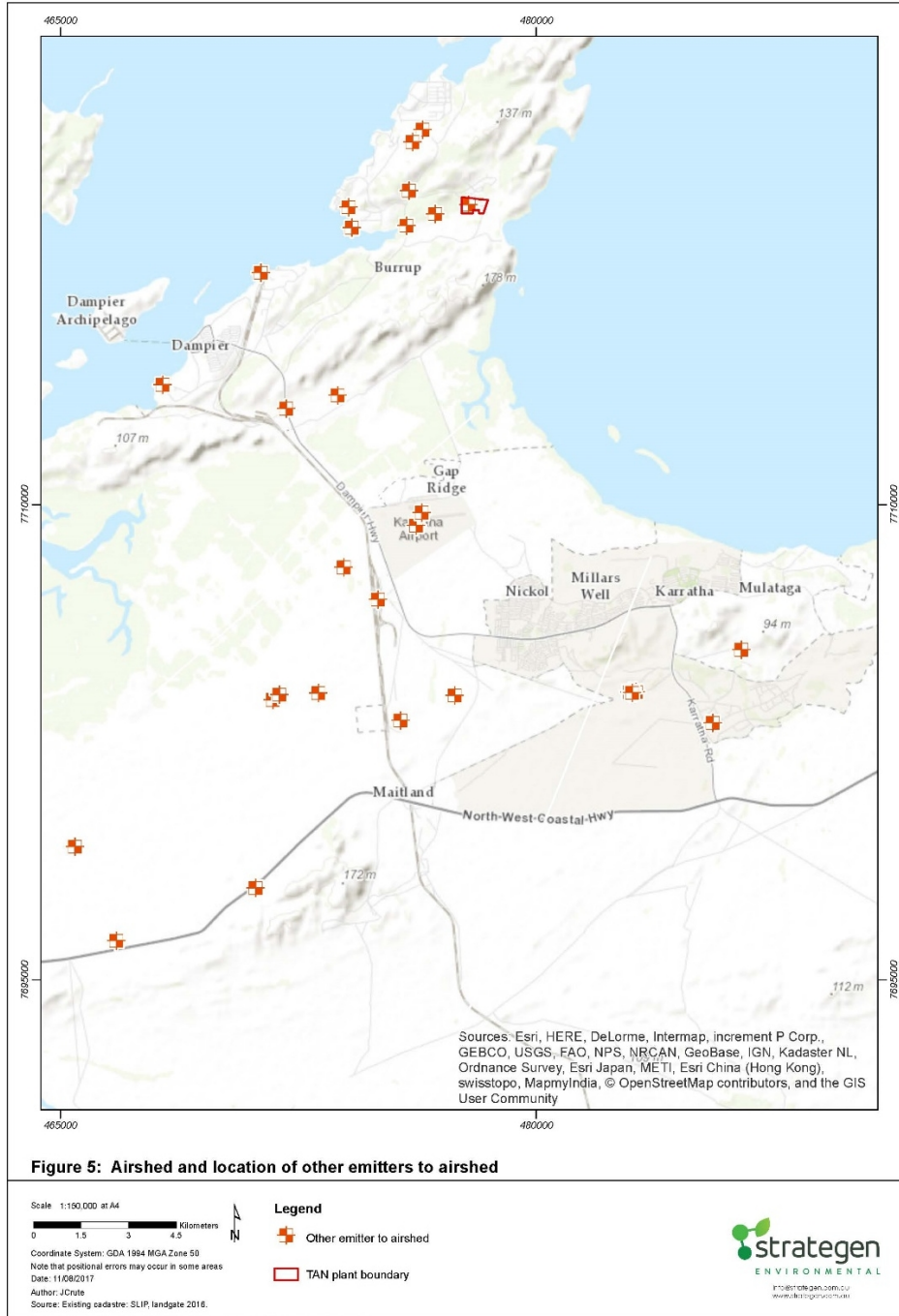


Figure 4 Airshed and Location of Other Emitters to Airshed



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The assessment and subsequent management of potential air quality impacts on rock art is informed by monitoring of ambient air concentrations of NO₂, NH₃, HNO₃ and SO₂, particulate phase deposition rates of certain cations and anions (including ammonium and nitrate ions), and wet deposition rates of those substances dissolved in rain water. Yara has three dedicated offsite Air Quality Monitoring Stations (Sites 5, 6 and 7) which collect this information

In the absence of air quality standards that specify a concentration limit or target for assessment of risks to the rock art, YPN continues to monitor the change in acid deposition as determined from airborne concentrations of NO₂, NH₃, HNO₃ and SO₂, and concentrations of corresponding cations and anions in rainwater collected at the monitoring stations. It should be noted, however, that the ambient air concentrations of these parameters are a consequence of emissions from all sources, including other industry on the Burrup and not just the TAN Plant.

Monthly deposition rates (dry, dust and wet) are calculated from the fortnightly and/or monthly monitoring data collected for each of the four (4) gases (NO₂, SO₂, NH₃ and HNO₃) carried out at Sites 5, 6 and 7. This monthly data is then used to calculate rolling annual total deposition rates.

16.5.2. Environmental Risks to be Managed

The activity associated with operation of the TAN plant has been identified as requiring management to maintain air quality to an acceptable standard includes:

- discharge of particulate and gaseous emissions to atmosphere from process gas streams.

16.5.3. Environmental Objectives and Performance Targets

Stacks

The YPN objectives and targets for stack emissions are detailed in Table 23.

Table 23 Objectives and Performance Targets – Air Quality

Objective	Discharge Point	Emission	Performance Target
To minimise the impacts of the TAN plant's atmospheric emissions	Steady state operation		
	Common Stack	PM	15
		NH ₃	10
	Nitric Acid Plant Stack	NO _x (as NO ₂)	103
		NH ₃	0.75
		N ₂ O	196
	Start-up		
Nitric Acid Plant Stack	NO _x (as NO ₂)	1,540 [max period 2 hrs]	
	NH ₃	11.5 [max period 2 hrs]	

Compliance with Licence point source air emission limits is assessed continuously for the Nitric Acid Plant Stack using CEMS and quarterly for the Common Stack using stack testing. Data from the Nitric Acid Plant Stack CEMS is continuously monitored by the Distributed Control System (DCS) Operator, with alarms in place if limits are exceeded.

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Receiving environment

The YPN objectives and targets for air quality in the receiving environment are detailed in Table 234. These have been calculated in the AQMP and use the baseline dataset from September 2013 to the end December 2016 which predates commencement of significant periods of TAN Plant operations and emissions.

Table 24 Air Quality Criteria at the Rock Art Sites

Location	Species	Averaging period	Investigation Trigger Value
Offsite – Ambient air criteria			
Site 5, Site 6 & Site 7	TSP	24-hours	No criteria applicable
	Dry Deposition rates for NO ₂ , SO ₂ , NH ₃ and HNO ₃	Rolling annual total (meq/m ² /y) calculated from fortnightly and/or Monthly measurements.	Site 5 – 27 meq/m ² /y Site 6 – 46 meq/m ² /y Site 7 – 56 meq/m ² /y Values which exceed the investigation trigger value for the rolling annual total deposition rates will trigger an investigation.
	Dust Deposition (insoluble fraction - gravimetric)	Monthly	No criteria applicable
	Dust Deposition (soluble fraction – speciated cations and anions)	Rolling annual total (meq/m ² /y) calculated from fortnightly and/or Monthly measurements.	Site 5 – 27 meq/m ² /y Site 6 – 46 meq/m ² /y Site 7 – 56 meq/m ² /y Values which exceed the investigation trigger value for the rolling annual total deposition rates will trigger an investigation.
	Rain water	Annual average	No criteria applicable



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16.5.4. Management

Management measures to achieve the air quality management objectives are described in Table 25.

Table 25 Management Actions – Air Quality

Performance Indicator	Management Actions	Timing	Related Monitoring
Emission performance criteria in L9223/2019 for process exhaust gas streams [Table 23]	DeNO _x reactor installed on Nitric Acid Plant stack and wet scrubbers and demisters installed on the Ammonium Nitrate Plant Common Stack. Emissions control equipment maintained in effective operational condition.	Ongoing	Stack emissions monitoring (continuous emissions monitoring system (CEMS) and stationary source sampling). Service and maintenance records to be reviewed annually to ensure effective operational performance is maintained.
Implement best practice pollution control technology	4 yearly review of current air pollution control technology and industry best practice.	Every 4 years	Review findings incorporated into site planning and OEMP update.

16.5.5. Monitoring

Monitoring actions to evaluate the effectiveness of the air quality management measures are described in Table 26. All ambient air monitoring will be managed and carried out by a member of the Yara Pilbara’s Environment Team, Laboratory Team or other suitably qualified person. Continuous monitoring of Nitric Acid Plant stack emissions is provided by the installed CEMS, operated and managed by the Yara Pilbara operations team. Stack emissions testing of the Nitric Acid Plant stack and the Ammonium Nitrate Plant Common stack will be carried out by a National Association of Testing Authorities accredited stack emissions testing company. Ongoing air quality monitoring has been undertaken since Condition 9A of EPBC 2008/4546 came into effect, approval of the AQMP in December 2022 and will continue through operations.

Table 26 Monitoring Program – Air Quality

Monitoring Activity	Objective	Parameter Measured	Methodology	Frequency	Location
Stack emissions monitoring	To quantify atmospheric emissions from TAN plant	Volumetric flow rate Oxides of nitrogen Ammonia Nitrous oxide	CEMS operated as per DWER CEMS Code Stack testing using USEPA methods	Continuous with annual verification ¹	Nitric acid plant stack
		Ammonia PM	Stack testing using USEPA methods	Quarterly ¹	AN common stack
Ambient air quality monitoring at rock art sites	Compliance with EPBC 2008/4546 Condition 9A and	TSP up to 50 µm	MicroVol 1100 (as per AS/NZS 3580.9.9:2006)	24-hour average every 6 days ²	Site 5 Site 6 Site 7



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	to assess risk to rock art from airborne pollutants	Total dust deposition per month (Insoluble Fraction, and Soluble Fraction)	Dust deposition (AS3580.10.1:2003) with speciation of cations and anions in soluble fraction	Monthly (EPBC 2008/4546 Condition 9A requires min of Quarterly)	Site 5 Site 6 Site 7
		Ammonia (NH ₃), nitrogen dioxide (NO ₂), nitric acid (HNO ₃) and sulfur dioxide (SO ₂)	Passive gas samplers	Continuous monitoring for at least 14 consecutive days per month	Site 5 Site 6 Site 7
	For wet deposition calculations	Rainfall	Tipping rain gauge, (AS 2292:1987 and AS3580.14 011)	24 hour rainfall total	Site 5 Site 6 Site 7
	Analysis of cations and anions to calculate wet deposition rates	Rain water	Automatic rain water sampler	Monthly or as occurs	Site 5 Site 6 Site 7
	Generate correlation factor for MicroVol TSP referenced to HVAS TSP and carried out every 6 months	TSP	MicroVol 1100 (as per AS/NZS 3580.9.9:2006)	24-hour average	On site
High volume air sampler (as per AS/NZS 3580.9.3:2015)			24-hour average	On site	
Rock Art Monitoring	Compliance with EPBC 2008/4546 Condition 10A	Appearance of rock art sites	Refer to Murujuga Rock Art Monitoring Program administered by DWER.		6 Sites
Weather	To assist with acid gas source apportionment calculations	Wind speed/direction	Anemometer (AS 2292 – 1987 and AS 3580.14 011)	Continuous	On site
		Temperature	Temp sensor, (AS 2292 – 987 and AS 3580.14 011)	Continuous	On site
		Rainfall rate	Tipping rain gauge, (AS 2292 – 1987 and AS 580.14011)	24 hour rainfall total	On site

NOTES:

- Annual verification of stack emissions carried out by NATA accredited stack testing company using USEPA methods 7E (for NO_x), CTM027 (for NH₃), CTM038 for N₂O, method 17 for particulates with PM¹⁰ fraction determined from particulate size distribution analysis
- Six daily sampling is carried out as per recommendation in AS3580.9.9:2006

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16.5.6. Contingency Actions

In the event that the objectives for air quality management are not met the contingency actions described in Table 27 will be implemented.

Table 27 Contingency Actions – Air Quality

Threshold	Contingency Actions
Stack testing or CEMS monitoring identifies exceedance of DWER licence limits for point source stack emissions (Table 23)	<ol style="list-style-type: none"> Investigate cause(s), including stack emissions performance, scrubber efficiency, maintenance records and TAN Plant operating parameters. Environmental Superintendent (or delegate) to report to the relevant authorities in accordance with L9223/2019 within the timeframe per Table 8. Report the incident as per Yara’s incident reporting process, including results of investigation and any corrective actions. If an exceedance of licence limit occurs that is statistically significant, then a qualitative risk assessment will be carried out to ascertain if the material risk of adverse impacts at sensitive receptors has increased. If that risk is deemed likely to have increased, then dispersion modelling will be carried out to predict ambient air concentrations and carry out a quantitative risk assessment. If necessary, make any repairs or carry any maintenance required. Re-test stack emissions to confirm effectiveness of actions.
Monitoring identifies exceedance of an air quality investigation trigger value for dust and dry deposition rates (Table 24)	<ol style="list-style-type: none"> Investigate cause(s), including sampling errors, laboratory analysis errors, stack emissions performance, scrubber efficiency and maintenance records. Identify potential contributions of airborne pollutants from other sources in the air shed using meteorological data. Estimate contributions from YPN and/or YPF operations using dispersion modelling of stack emissions. If necessary, make any repairs or carry any maintenance to minimise stack emissions Test stack emissions to confirm effectiveness of actions.
New emission reduction technology identified	<ol style="list-style-type: none"> Assessment and cost/benefit analysis of new available technology conducted. Business case prepared and submitted. If viable, include option in the long-term capital investment portfolio. Update AQMP with timeframe for implementation and proposed emission reduction. Implement new technology and measure effectiveness.

17. Additional Environmental Management Activities

The following section outlines the additional environmental management activities that are not expressly required in the OEMP (as outlined in Condition 7(b) of EPBC 2008/4546) but will be implemented during operation of the TAN plant. The purpose of this section is to consolidate all approval obligations within EPBC 2008/4546 within this OEMP.

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17.1. HERITAGE

17.1.1. Overview

There are two (2) sensitive receptors of relevance on the Burrup Peninsula - communities and indigenous rock carvings (petroglyphs). A number of archaeological sites have been recorded in the area. Indigenous rock art is of cultural significance to Australia and possibly dates back more than 30,000 years.

Rock art is considered sensitive to air pollution as corrosion can be accelerated by sulfur dioxide and oxides of nitrogen. These substances convert into acids which wear away rock carvings particularly on easily weathered materials such as limestone and sandstone. Increased development on the Burrup Peninsula has the potential to increase the concentrations of these pollutants and consequently the rate of corrosion. Major rock art locations are within 2 km of the TAN plant. Six (6) representative sites were selected from the monitoring program undertaken by the CSIRO to assess potential impacts of air pollutants on rock art including:

- Burrup Road (Site 5)
Water Tanks (Site 6)
Deep Gorge (Site 7)
Yara West (Site 21)
Yara Northeast (Site 22)
Yara East (Site 23).

17.1.2. Environmental Risks to be Managed

The following environmental activities or aspects relating to operation of the TAN plant have been identified as requiring management to ensure protection of heritage values:

- Unauthorised access outside the approved 35 hectare (ha) disturbance area.
Air emissions that may alter the appearance, or cultural value of rock art.

17.1.3. Environmental Objectives and Performance Targets

The YPN objectives and targets for heritage are detailed in Table 28.

Table 28 Objectives and Performance Targets – Heritage

Table with 2 columns: Objective, Performance Targets. Objective: To protect the values of the Dampier Archipelago (including Burrup Peninsula) National Heritage Place, particularly the rock art sites. Performance Targets: No unauthorised access outside the approved 35 ha disturbance area; No measurable impact from air pollutants to any rock art sites within two (2) kilometre (km) of the boundary.



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17.1.4. Management

Management measures to achieve the heritage management objectives are described in Table 29.

Table 29 Management Actions – Heritage

Performance Indicator	Management Actions	Timing	Related Monitoring Activity
No unauthorised access outside the approved 35 ha disturbance area	Restrict access outside approved disturbance boundary through the installation of appropriate fencing, barriers or signage.	Ongoing	Visual inspection
	Induct all personnel accessing site to ensure awareness of: <ul style="list-style-type: none"> the significance of rock art and its conservation and protection the location of the site boundary, including an explanation of the importance to keep all activities within this boundary. 	Ongoing	Induction register
No measurable impact from air pollutants to any rock art sites within two (2) km of the TAN plant boundary.	Ensure stack emissions comply with L9223/2019 limits (Table 23)	As per L9223/2019 TAN plant Nitric Acid Plant and Common Stack monitoring requirements.	
	Comply with Condition 10A of EPBC 2008/4546 (2017 - 2021)	Annually between 15 July and 15 September	Colour and spectral analysis monitoring at the six (6) sites.
	Comply with Condition 10A of EPBC 2008/4546 (2022 onwards)	Annual contribution made to the WA DWER led Murujuga Rock Art Monitoring Program.	

17.1.5. Monitoring

Condition 10A of EPBC 2008/4546 requires YPN to either financially contribute to the WA Government to support the Burrup Rock Art Monitoring Program or for YPN to undertake ongoing Rock Art monitoring to identify any changes to the appearance, or cultural value, of rock art sites via engagement of a suitably qualified person (Heritage).

Correspondence between YPN and DCCEEW (Appendix 4) in 2022 has confirmed that:

- YPN implemented the rock art monitoring as approved by the Minister in October 2017 up to and including the September 2021 monitoring event.
- The Murujuga Rock Art Monitoring Program administered by the Department of Water and Environmental Regulation (DWER) is now underway and actively monitoring the rock of Murujuga via a world leading, peer reviewed and statistically robust scientific program.

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- DCCEEW confirmed that the annual financial contributions made to the Western Australian DWER led Murujuga Rock Art Monitoring Program meet the requirements of Condition 10A(d).
YPN has ceased ongoing rock art monitoring after September 2021.

As the rock art monitoring is now achieved through the independent Murujuga Rock Art Monitoring Program, the YPN heritage rock art monitoring methods has been removed from this OEMP.

All historical rock art reports (2018-2021) have been uploaded to Yara Pilbara's webpage and include the approved methods: https://www.yara.com.au/about-yara/about-yara-australia/pilbara/yara-pilbara-nitrates/

Monitoring actions to evaluate the effectiveness of the heritage management measures are described in Table 30.

Table 30 Monitoring Program – Heritage

Table with 6 columns: Monitoring activity, Objective, Parameter measured, Methodology, Frequency, Location. Rows include Visual inspection, Induction register, and Rock art.

YPN will continue to engage with DWER and the Murujuga Aboriginal Corporation at least quarterly regarding the released results and findings of the Murujuga Rock Art Monitoring Program.

17.1.6. Contingency Actions

In the event that the objectives for air quality management and Heritage monitoring are not being met the contingency actions described in Table 29 will be implemented. YPN recognise that the Minister can request a RAIMR to be prepared and implemented if DCCEEW are not satisfied with the outcomes of the rock art monitoring program.



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Table 31 Contingency Actions – Heritage

Threshold	Contingency Action(s)
Unauthorised access identified	<ol style="list-style-type: none"> 1. Notify Environment Team and Security Team. 2. Report the incident as per Yara’s incident reporting process. 3. Determine how access was gained and, if possible, the likely time of access. 4. Implement remedy, which could include: <ul style="list-style-type: none"> • repair fences • erect signs to highlight prohibited access • review education measures (e.g. inductions, toolbox/site meetings and communications) • re-induct contractors including revision of induction as required • reiterate to contractors the importance of not accessing areas outside the approved disturbance boundary unless authorised, through toolbox meetings, training sessions etc. 5. Monitor success of control.
Rock art monitoring identifies changes in patination, including but not limited to, discolouration of the surface of the rock art motif or the surrounding rock surface, including patina; or changes or make the rock art site more difficult to interpret within 2 km of the TAN plant	<ol style="list-style-type: none"> 1. Report the event to the Environment and Quality Manager. 2. Investigation/assessment as to whether the measurable changes detected is likely to be attributed to the operation of the TAN Plant 3. In the event that changes in patination is attributed to the operation of the TAN Plant Environmental Superintendent (or delegate) to: <ul style="list-style-type: none"> • Report the incident as per Yara’s incident reporting process. • Report to the event to the DCCEEW within the timeframes per Table 6. 4. If directed by the Minister, engage a suitably qualified person (heritage) in consultation with suitably qualified person (air quality) to prepare the RAIMR as outlined in Condition 11A of EPBC 2008/4546 for approval by the Minister. 5. Once approved, implement the mitigation and management measures in the RAIMR.

17.2. FLORA AND VEGETATION MANAGEMENT

17.2.1. Overview

Vegetation on the Burrup Peninsula and the surrounding islands is of significant conservation value. The TAN plant is established within 35 ha of cleared land within an overall 49 ha lease area.

Clearing and disturbance of vegetation (and associated habitat) were minimised during the planning and construction phase of the TAN plant. The majority of clearing was restricted to the lower slopes, and coastal and tidal flats of the King Bay-Hearson Cove Valley, with the clearing of the rocky outcrops and scree slopes avoided where possible. Subsequent disturbance outside of the designated 35 ha disturbance area is only by approval from relevant authorities.



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No Declared Rare Flora or Priority Flora species were identified on the YPN site during flora field studies prior to construction.

Environmental management issues relating to flora include:

- The conservation value of remaining vegetation communities within the lease.
The weed species within the lease area increasing or spreading.

17.2.2.Environmental Risks to be Managed

The following environmental activities or aspects of the TAN plant operation have been identified as requiring management to ensure flora and vegetation values are protected:

- Unauthorised clearing or disturbance of vegetation outside the approved 35 ha disturbance area.
Vehicle traffic introducing or promoting the spread of weed species and threatening vegetation communities.

17.2.3.Environmental Objectives and Performance Targets

The YPN objectives and targets for flora and vegetation are detailed in Table 32.

Table 32 Objectives and Performance Targets – Flora & Vegetation

Table with 2 columns: Objective, Performance Targets. Objective: To minimise adverse impacts on the abundance, species diversity, geographic distribution and productivity of vegetation communities. Performance Targets: No native vegetation clearing or disturbance outside of authorised disturbance boundary. No introduction of new weed species and no spreading of existing weed species as a result of operations.

17.2.4.Management

Management measures to achieve the flora and vegetation management objectives are described in Table 3333.

Table 33 Management Actions – Flora & Vegetation

Table with 4 columns: Performance Indicator, Management Actions, Timing, Related Monitoring Activity. Performance Indicator: No clearing or disturbance outside approved disturbance boundary. Management Actions: Restrict access outside approved disturbance boundary through the installation of appropriate fencing, barriers or signage. Induct all personnel accessing site to ensure awareness of: the significance of flora on the site and its conservation and protection;. Timing: Ongoing. Related Monitoring Activity: Visual inspection, Training records.



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	<ul style="list-style-type: none"> the onsite occurrence of weeds and how to prevent the spread of same by the prohibition of vehicular or pedestrian activity in specified areas; the prohibition of clearing outside the approved disturbance boundary; and the location of the site boundary, including an explanation of the importance to keep all activities within this boundary. 		
	Prohibit clearing outside approved disturbance boundary. Clearing outside the disturbance boundary is by written authorisation the Yara’s Environment and Quality Manager; or other regulatory clearing approval.	Ongoing	Visual inspection
Control of weeds	Undertake weed control actions whenever the spread of weed species are observed.	As required	Visual inspection

17.2.5. Monitoring

Monitoring actions to evaluate the effectiveness of the flora and vegetation management measures are described in Table 344. All monitoring will be conducted by Yara Pilbara’s Environment Team or other suitably qualified person.

Table 34 Monitoring Program – Flora and Vegetation

Monitoring Activity	Objective	Parameter Measured	Methodology	Frequency	Location
Visual inspection	To identify evidence of unauthorised clearing, access or disturbance	Loss or damage to vegetation due to operations	Not applicable	Quarterly	Outside operational areas
Visual inspection	To determine if weed control is required	Increase of weeds due to operations	Not applicable	Annual	Outside disturbed areas



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17.2.6. Contingency Actions

In the event that the objectives for flora and vegetation management are not being met the contingency actions described in Table 3535 will be initiated.

Table 35 Contingency Actions – Flora and Vegetation

Threshold	Actions
Unauthorised clearing /disturbance of native vegetation identified	<ol style="list-style-type: none"> 1. Notify Environment and Quality Manager. 2. Environmental Superintendent (or delegate) to report the incident as per Yara's incident reporting process. 3. Determine extent of additional clearing. Report additional clearing to DCCEE and other relevant State authority. 4. Implement remedial actions, as required, which could include: <ul style="list-style-type: none"> • erect and/or repair fence/s • erect signs to highlight prohibited access • review education measures (e.g. inductions, toolbox/site meetings) • re-induct contractors including revision of induction as required • reiterate to contractors the importance of not accessing areas outside the approved disturbance boundary unless authorised, through toolbox meetings, training sessions etc. • rehabilitate disturbed area(s) 5. Monitor success of control.
Unauthorised access identified	<ol style="list-style-type: none"> 1. Notify Environment and Quality Manager. 2. Environmental Superintendent (or delegate) to report the incident as per Yara's incident reporting process. 3. Determine how access was gained and, if possible, the likely time of access 4. Implement remedy, which could include: <ul style="list-style-type: none"> • repair fence/s • erect signs to highlight prohibited access • review education measures (e.g. inductions, toolbox/site meetings and communications) • re-induct contractors including revision of induction as required • reiterate to contractors the importance of not accessing areas outside the approved disturbance boundary unless authorised, through toolbox meetings, training sessions etc. 6. Monitor success of control.
Increased presence of weed/pest species due to operations	<ol style="list-style-type: none"> 1. Spray/remove plants as appropriate. 2. Review relevant processes (e.g. weed control program) and modify as required.



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17.3. FAUNA MANAGEMENT

17.3.1. Overview

This section details how fauna is managed onsite to ensure compliance with the YPN fauna objective and TAN plant approval requirements.

Disturbance of vegetation and fauna habitats (including low-lying grassed slopes and supratidal flats) was managed by YPN during the construction process and restricted to the fenced 35 ha footprint required for operations.

Error! Reference source not found.6 provides a list of the conservation significant fauna species that may be encountered during operation of the TAN Plant (derived from ERM 2010). **Error! Reference source not found.**7 lists the bird species that are subject to an agreement, or agreements, between the government of Australia and the governments of Japan (JAMBA), China (CAMBA), the Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds that may be encountered at or near the TAN plant.

Table 36 Conservation Significant Fauna that may be Encountered at the TAN Plant Area

Species Name	Common Name	Conservation Status ¹	
		BC Act ²	EPBC Act
Mammals			
<i>Dasyurus hallucatus</i>	Northern Quoll	EN	E
<i>Macroderma gigas</i>	Ghost Bat	VU	V
<i>Pseudomys chapmani</i>	Western Pebble Mound Mouse, Ngadji	P4	-
<i>Rhinonicteris aurantia (Pilbara)</i>	Pilbara Leaf Nosed Bat	VU	V
Birds			
<i>Falco peregrinus</i>	Peregrine Falcon	OS	-
<i>Calidris canutus rogersi</i>	Red Knot (Northeastern Siberia)	VU	E, M
<i>Calidris ferruginea</i>	Curlew Sandpiper	VU, IA	CE, M
<i>Calidris tenuirostris</i>	Great Knot	VU, IA	CE, M
<i>Charadrius leschenaultii</i>	Great Sand Plover	IA	V, M
<i>Charadrius mongolus</i>	Lesser Sand Plover	EN, IA	E, M
<i>Macronectes giganteus</i>	Southern Giant Petrel	IA	E, M
<i>Numenius madagascariensis</i>	Eastern Curlew	VU, IA	CE, M
Migratory Species (see Error! Reference source not found.7)		IA	M

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Reptiles			
<i>Liasis olivaceus barroni</i>	Pilbara Olive Python	VU	V
<p>NOTES:</p> <p>1. BC Act species are listed in the Wildlife Conservation (Specially Protected Fauna) Notice 2017, published 16 January 2018 and EPBC Act species from the Species Profile and Threats Database, Department of the Environment & Energy, available from: http://www.environment.gov.au/sprat, accessed 22 July 2018.</p> <p>BC Act Codes: EN – Endangered species VU – Vulnerable species OS – Other specially protected fauna IA – Migratory birds protected under an international agreement P1 – Priority 1 P4 – Priority 4</p> <p>EPBC Act Codes: CE – Critically Endangered E – Endangered M – Migratory V – Vulnerable</p> <p>2. Biodiversity Conservation Act 2016</p>			

Table 1 EPBC Listed Migratory Species that may Occur at the TAN Plant Area

MNES – Migratory Species		Potential to Occur on Site¹
Species Name	Common Name	
<i>Apus pacificus</i>	Fork-tailed Swift	Site is potential habitat
<i>Arenaria interpres interpres</i>	Ruddy Turnstone	Occasional supratidal
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Occasional supratidal
<i>Calidris alba</i>	Sanderling	Occasional supratidal
<i>Calidris ruficollis</i>	Red-necked Stint	Occasional supratidal
<i>Calidris subminuta</i>	Long-toed Stint	Occasional supratidal
<i>Charadrius veredus</i>	Oriental Plover, Oriental Dotterel	Occasional supratidal
<i>Cuculus optatus</i>	Oriental Cuckoo	Site is potential habitat
<i>Fregata ariel</i>	Lesser Frigatebird	Occasional supratidal
<i>Gallinago stenura</i>	Pin-tailed Snipe	Occasional supratidal
<i>Glareola maldivarum</i>	Oriental Pratincole	Site is potential habitat
<i>Hirundo rustica</i>	Barn Swallow	Site is potential habitat
<i>Limicola falcinellus</i>	Broad-billed Sandpiper	Occasional supratidal
<i>Limosa lapponica</i>	Bar-tailed Godwit	Occasional supratidal
<i>Numenius minutus</i>	Little Curlew, Little Whimbrel	Occasional supratidal
<i>Numenius phaeopus variegatus</i>	Whimbrel	Occasional supratidal
<i>Oceanites oceanicus</i>	Wilson’s Storm Petrel	Occasional supratidal
<i>Phalaropus lobatus</i>	Red-necked Phalarope	Site is potential habitat
<i>Pluvialis squatarola</i>	Grey Plover	Occasional supratidal



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<i>Ardenna pacificus</i>	Wedge-tailed Shearwater	Occasional supratidal
<i>Onychoprion anaethetus</i>	Bridled Tern	Occasional supratidal
<i>Thalasseus bergii</i>	Crested Tern	Occasional supratidal
<i>Hydroprogne caspia</i>	Caspian Tern	Occasional supratidal
<i>Sterna hirundo</i>	Common Tern	Occasional supratidal
<i>Chlidonias leucopterus</i>	White-winged Black Tern	Occasional supratidal
<i>Sula leucogaster plotus</i>	Brown Booby	Occasional supratidal
<i>Tringa brevipes</i>	Grey-tailed Tattler	Occasional supratidal
<i>Xenus cinereus</i>	Terek Sandpiper	Occasional supratidal
<i>Actitis hypoleucos</i>	Common Sandpiper	Recorded on site
<i>Tringa nebularia</i>	Common Greenshank	Recorded on site
<i>Tringa stagnatilis</i>	Marsh Sandpiper	Occasional supratidal
NOTES: Occasional supratidal = supratidal flat is likely to provide an occasional foraging resource.		

17.3.2.Environmental Risks to be Managed

The following environmental activities or aspects of the TAN plant operation have been identified as requiring management to ensure protection of fauna values:

- Water ponds may attract migratory and/or threatened bird species.
- Vehicle traffic may result in increased number of road kills.
- Increased human activities and rubbish may encourage habitation of introduced species (and possibly pests).

17.3.3.Environmental Objectives and Performance Targets

The YPN objectives and targets for fauna are detailed in Table 3838.

Table 38 Objectives and Performance Targets – Fauna

Objective	Performance Target
To avoid disturbance to and mortality of protected or listed fauna as a result of operations.	No operations-attributable mortality of listed fauna of conservation significance.
To minimise the impact of ongoing site activities on fauna habitat surrounding the TAN plant as a result of operations.	No operations-attributable loss of habitat for conservation listed fauna habitat outside TAN plant boundary.



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17.3.4. Management

Fauna management measures are described in Table 39.

Table 39 Management Actions – Fauna

Performance Indicator	Management Actions	Timing	Related Monitoring Activity
No loss of listed fauna of conservation significance as a result of operations.	Bird deterrent system designed to deter birds from entering the ponds on site.	At all times	Visual inspection
	Induct all personnel to ensure awareness of: <ul style="list-style-type: none"> the significance of fauna on the site and its conservation & protection fauna encounter processes (including reporting) and operational observations prohibition of feeding native fauna prohibition of domestic pets speed limits the location of the site boundary, including an explanation of the importance to keep all activities within this boundary. 	Ongoing	Training records
	Fence the operational boundary to prevent larger fauna from accessing storage ponds.	At all times	Visual inspection
	Allow native animals encountered on site the opportunity to move on if there is no threat to personnel safety in doing so.	At all times	Visual inspection
	Contact DBCA for advice if conservation significant native fauna encountered on site is likely to be directly affected by activities. Relocation of native fauna will be undertaken by appropriately trained Site personnel.	As required	Visual inspection
	Install traffic speed limit signs around site of 20 km/hr	At all times	Observations
	Prohibiting the feeding of fauna on site.	At all times	Observations
No operations-attributable loss of listed fauna habitat outside TAN plant boundary.	Refer to management measures to ensure no clearing or disturbance outside approved disturbance boundary (Table 333).		

Additional measures are contained within the waste management section (Section **Error! Reference source not found.**) which contribute to reducing the likelihood of impacts to native fauna.



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17.3.5. Monitoring

Monitoring actions to evaluate the effectiveness of the fauna management measures are described in Table . Unless indicated otherwise, all monitoring will be conducted by a member of the Environment Team (or delegate).

Table 40 Monitoring Program – Fauna

Monitoring Activity	Objective	Parameter Measured	Methodology	Frequency	Location
Visual inspection of water ponds	To identify presence of fauna in ponds	Presence of trapped, injured, or deceased fauna	Anyone onsite may report an observation.	When encountered	All ponds on site.
Visual inspection of bird deterrent system	To enable assessment of effectiveness of bird deterrent system	Integrity of bird deterrent system	Not applicable	Monthly	All ponds on site.
Visual inspection of site fencing	To ensure perimeter fence is intact	Integrity of fencing	Not applicable	Quarterly	Operational areas
Feral fauna	Detect increases in feral fauna activity within the Site area	Interactions with feral fauna	Not applicable	Ongoing	Operational areas
Loss of listed fauna habitat outside TAN plant as a result of operations	Refer to monitoring for clearing or disturbance outside approved disturbance boundary (Table 34).				

17.3.6. Contingency Actions

In the event that the fauna objectives are not being met the contingency actions in Table 41 will be initiated.

Table 41 Contingency Actions – Fauna

Threshold	Contingency Action(s)
Fauna mortality	<ol style="list-style-type: none"> Determine species, and presence of young. Arrange removal of animal carcass. Report the incident as per Yara’s incident reporting process. If required, report to DBCA and DCCEEW.
Sick or injured animals found	<ol style="list-style-type: none"> Contact Environment Team. Environment Team to seek advice via the DBCA Helpline. Environment Team to arrange care for sick or injured animal or transporting to a wildlife rehabilitation centre.



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Table with 2 columns: Incident/Issue and Response Actions. Rows include: 4. Critically injured wildlife will be euthanized...; Loss or disturbance to critical habitat for listed fauna...; Increase in abundance and/or distribution of feral animals.

17.4. HAZARDOUS MATERIALS MANAGEMENT

17.4.1. Overview

The TAN plant is classified as a major hazard facility under Western Australia’s Dangerous Goods Safety Act 2004 and Dangerous Goods (Major Hazard Facilities) Regulations 2007 and is required to operate in accordance with a Safety Report, which demonstrates the HESQ management of hazardous materials associated with the TAN plant.

The management of hazardous materials aims to minimise the environmental impact of the use of hazardous materials during operation of the TAN Plant. Hazardous materials refer to any explosives, dangerous goods or other substance with the potential to cause harm to people, plant or the environment.

17.4.2. Environmental Risks to be Managed

The critical environmental management issue is the prevention of spills from the production, transport, handling, storage (containment) and disposal of hazardous materials so that these activities do not result in contamination.

17.4.3. Environmental Objectives and Performance Targets

The YPN objectives and targets for hazardous materials are detailed in Table 42.

Table 42 Objectives and Performance Targets – Hazardous Materials

Table with 2 columns: Objective and Performance Target. Row: To minimise impact to the environment by implementation of prescribed transportation, storage, management, handling, use and disposal of hazardous materials; No contamination of soil, surface water and/or groundwater

17.4.4. Management, Monitoring and Contingency Actions

Management, monitoring and contingency measures to achieve the hazardous materials management objectives are consistent with those relating to the protection of groundwater from storage and handling of hazardous material. Management, monitoring and contingency measures are therefore addressed in Table 8, Table 9 and Table 100.



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18. Definitions

EPBC2008/4546	Approval granted under the EPBC Act including all variations.
Ministerial Statement No. 870 or MS870, including update via MS1121.	A statement from Western Australia's Minister for the Environment issued in response to the Environmental Impact Assessment process undertaken for the YPN TAN plant, and authorising the proposal to proceed subject to a number of environmental conditions. MS1121 was issued to replace Condition 5
Contaminated water or soils	Having a substance present in soil or water at above background concentrations that presents, or has potential to present, a risk of harm to human health, the environment, or any environmental value.
Controlled Waste	Waste material classified under the Environmental Protection (Controlled Waste) Regulations 2004.
Environmental Incident	An environmental incident is an uncontrolled event or incident that negatively impacts on the environment. Examples include accidental spillage of fuel outside of bunded storage area(s), accidental discharge of contaminated water or the outbreak of fire.
Suitably qualified person	A person who has appropriate technical and/or academic qualifications, training and a history of demonstrated acceptable performance for conducting tasks in this OEMP.
The TAN plant	When specifying the facility.
Yara Pilbara	Management structure for the YPN and YPF business units.
YPN personnel	Includes employees and contractors engaged on the site.

19. Acronyms

AN	Ammonium nitrate
BC Act	Biodiversity Conservation Act 2016 administered by DBCA
BoD	Board of Directors
CEMS	Continuous emission monitoring system
CS Act	Contaminated Site Act 2003 administered by DWER
CSIRO	Commonwealth Scientific & Industrial Research Organisation
DBCA	WA's Department of Biodiversity Conservation and Attractions
DCCEEW	Commonwealth of Australia's Department of Climate Change, Energy, the Environment and Water
DFES	WA's Department of Fire & Emergency Services
DMIRS	WA's Department of Mines, Industry Regulation and Safety
DPIRD	WA's Department of Primary Industry and Regional Development
DPLH	WA's Department of Planning, Land and Heritage
DWER	WA's Department of Water and Environmental Regulation (formerly Department of Environment Regulation)
EMP	Emergency Management Plan
EP Act	Environmental Protection Act 1986 administered by DWER

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EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 administered by Commonwealth of Australia's DCCEEW
g/m ² /month	grams per square metre per month
g/m ² /year	grams per square metre per year
Ha	hectare
HESQ	Health Environment Safety and Quality
HNO ₃	nitric acid
Km	kilometre
km/hr	kilometre/hour
L9223/2019	Licence number L9223/2019/1 for prescribed premise Category 31.
meq/m ² /y	Milliequivalents per square metre per year
MS594	Ministerial Statement No. 594 – Desalinated Water and Seawater Supplies Project Burrup Peninsula.
MS870	Ministerial Statement No. 870 – Technical Ammonium Nitrate Production Facility, Burrup Peninsula.
MS1121	Update to MS870 to replace Condition 5.
mtpa	metric tonnes per annum
MUBRL	Water Corporation's multi-user brine return line
NH ₃	Ammonia
NO ₂	Nitrogen dioxide
OEMP	Operational Environmental Management Plan
QA/QC	Quality Assurance / Quality Control
RAP	Remedial Action Plan
RAIMR	Rock art impact mitigation review
SMP	Site Management Plan
SO ₂	Sulfur dioxide
TAN	Technical ammonium nitrate
Tpd	Metric tonnes per day
TSP	Total suspended particulates
Yara	Yara International ASA
YPF	Yara Pilbara Fertilisers Pty Ltd
YPN	Yara Pilbara Nitrates Pty Ltd

20. References

Author	Year	Document Title
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DWER	2019	L7997/2002/11 - Yara Pilbara Fertilisers Ammonia Plant and the TAN Plant.
DWER	2020	Licence L9223/2019/1 - Yara Pilbara Nitrates TAN Plant. New licence issued in place of L7997/2002/11
DWER	2020	Licence L9224/2019/1 - Yara Pilbara Fertilisers Ammonia Plant. New licence issued in place of L7997/2002/11
EPA	2011	Technical Ammonium Nitrate Production Facility, Burrup Peninsula – Report and recommendations of the Environmental Protection Authority.
EPA	2019	Report 1648 – Technical Ammonium Nitrate Production Facility, Burrup Peninsula – inquiry under section 46 of the Environmental Protection Act 1986 to amend Ministerial Statement 870
EPA	2017	Consolidated Approval Notice Proposed technical ammonium nitrate production facility (EPBC 2008/4546)
EPA	2017	EPBC 2008/4546 - Proposed Technical Ammonium Nitrate Production Facility - Operational Environmental Management Plan. Approval letter.
EPA	2020	Variation of Conditions Attached to Approval - Proposed Technical Ammonium Nitrate Production Facility (EPBC 2008/4546)
ERM	2010	Public Environmental Review – Technical Ammonium Nitrate Production Facility, prepared for Burrup Nitrates Pty Ltd.
Golder	2022	Remediation Action Plan, June 2022.
Golder	2023	Site Management Plan, Jan 2023.
WA Minister for Environment	2002	Ministerial Statement No. 594 – Desalinated Water and Seawater Supplies Project Burrup Peninsula, Shire of Roebourne.
WA Minister for Environment	2011	Ministerial Statement No. 870 – Technical Ammonium Nitrate Production Facility, Burrup Peninsula, Shire of Roebourne.
WA Minister for Environment	2019	Ministerial Statement No. 1121 – Statement to Change the Implementation Conditions Applying to a proposal – Technical Ammonium Nitrate Production Facility, Burrup Peninsula, Shire of Roebourne.
YPN	2021	Emergency Management Plan - Ammonia Plant & Technical Ammonium Nitrate Production Facility
YPN	2022	Air Quality Management Plan - Technical Ammonium Nitrate Plant.
WA Minister for Environment	2002	Ministerial Statement No. 594 – Desalinated Water and Seawater Supplies Project Burrup Peninsula, Shire of Roebourne.

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21. Appendix 1 - Consolidated Approval Notice (includes all variations to the project's EPBC conditions of approval since the 14th of September 2011 approval decision)



Australian Government
Department of the Environment and Energy

CONSOLIDATED APPROVAL NOTICE

Proposed Technical Ammonium Nitrate Production Facility (EPBC 2008/4546)

The attached notice (Attachment A) is provided to consolidate the approval conditions for the above project, approved on 14 September 2011. The approval conditions were subject to variation at various times during the post-approval phase. These decisions are publicly available on the Department's website at <http://epbcnotices.environment.gov.au/referralslist/>. The publication of this notice does not alter the dates of: effect for the approval; the variations to conditions; the expiry date of the approval; or any other dates mentioned in conditions. The consolidated approval notice is for ease of reference only.

Name and position

Monica Collins
Chief Compliance Officer
Office of Compliance

Date of Consolidated Approval Notice

Monica
12/9/2017



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Australian Government
Department of the Environment and Energy

Attachment A

Proposed Technical Ammonium Nitrate Production Facility (EPBC 2008/4546)

This decision is made under sections 130(1) and 133 of the Environment Protection and Biodiversity Conservation Act 1999.

Proposed action

Table with 2 columns: field name (e.g., person to whom the approval is granted, proponent's ACN, proposed action) and value.

Approval

Table with 2 columns: Controlling Provision and Decision. Rows include National Heritage places, Listed threatened species, and Listed migratory species.

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 31 December 2040.

Decision-maker

Table with 2 columns: field name (e.g., name and position, signature, date of decision) and value.



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Record Keeping and Compliance Reporting

1. Within 30 days after the commencement of the action, the person taking the action must advise the **Department** in writing of the actual date of commencement.
2. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the plan(s) and program(s) required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
3. a) By 6 October each year, the person taking the action must:
 - i. Publish a report on their website addressing compliance with each of the conditions of this approval (for the reporting period 1 July of the previous year to 30 June of the reporting year), including implementation of any management plans and monitoring programs as specified in the conditions, including an analysis of monitoring data required under condition 9A and 10A that has been collected during the reporting period; and
 - ii. Provide documentary evidence providing proof of the date of publication to the **Department**.b) Reports required under Condition 3a) must remain published for the life of the approval unless otherwise advised by the **Minister** in writing.
- 3A. The person taking the action must advise the **Department** of a potential or actual non-compliance with these conditions in writing within 7 days of becoming aware of the potential or actual non-compliance.

Water Management

4. The person taking the action must ensure that wastewater from the facility meets the requirements set out in **Statement 594** for discharges into the Multi User Brine Return Line (MUBRL).
5. To ensure the protection of listed threatened species and listed migratory species, the person taking the action must only apply **larvicide** or **adulticide** within or outside the project area (as shown in Attachment 1) that is an **Approved Class 11 insecticide**, unless agreed to in writing by the **Minister**.
6. To ensure the protection of listed threatened species and listed migratory species, the person taking the action must:
 - a) Employ such structures and apparatus as are necessary and agreed by the Western Australian Government to deter birds from entering the contaminated water pond, clean water pond, and sewage wastewater treatment station evaporation pond, as per **Statement 870**.
 - b) Ensure these structures and apparatus are in place prior to **commissioning** and are maintained for the life of the approval.

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Environmental Management Plans

7. To ensure the protection of the listed threatened species; listed migratory species and the values of the **Dampier Archipelago (including Burrup Peninsula) National Heritage Place**, the person taking the action must submit to the **Department** the management plans mentioned below.
- a) A Construction Environmental Management Plan (CEMP) must be submitted to the **Department** at least two (2) months prior to **construction** and must include, but not be limited to, management measures for the following:
- Air Quality and Dust
 - Water Quality
 - Erosion Control and Storm Water
 - Waste
 - Traffic
 - Blasting (if required).
- b) An Operational Environmental Management Plan (OEMP) must be submitted to the **Department** at least two (2) months prior to **operations**. The OEMP must include, but not be limited to, management measures for the following:
- Erosion Control and Storm Water
 - Water Quality
 - Air Quality and Dust (including dust caused by vehicle traffic)
 - Waste
 - Blasting (if required).
- c) Operations must not commence unless the OEMP is approved by the **Minister**.
- d) Additional management plans covering both **construction** and **operations**, must be submitted to the **Department** at least two (2) months prior to **construction**, including:
- Aboriginal Heritage Management Plan
 - Hazardous Materials Management Plan
 - Emergency Response Management Plan.
- e) Once approved by the **Minister**, all plans required under condition 7 must be implemented.
- 7A. The management plans required under conditions 7 and 11A must not contain management actions that are inconsistent with these approval conditions or the **National Heritage management principles**.

Unauthorised Access

8. To protect the values of the **Dampier Archipelago (including Burrup Peninsula) National Heritage Place**, particularly the **rock art sites**, the person taking the action must ensure that:

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- a) There is no **unauthorised access** by employees or contractors of the person taking the action to the **Dampier Archipelago (including Burrup Peninsula) National Heritage Place** outside of the project area (shown in [Attachment 1](#)) while those employees or contractors are undertaking work duties.
- b) Chain mesh fencing of at least 2.5 metres in height is installed around the perimeter of the project site prior to **construction**.
- c) Signs of at least 1m² in size are attached to fencing at the entrance to the project site and at no less than 50 metre intervals along the fence. These signs must clearly indicate the requirements of condition 8a).
- d) The relevant supervisor of the person taking the action must record the names of all those required to access areas containing **rock art sites** inside the **Dampier Archipelago (including Burrup Peninsula) National Heritage Place** boundary and is able to provide these records if asked to do so by the **Department**.
- e) Any impact the action has on the heritage values of the **Dampier Archipelago (including Burrup Peninsula) National Heritage Place** must be reported to the **Department** in writing within 72 hours. Impacts may include (but will not necessarily be limited to) any impacts caused by **construction** activity; vandalism perpetrated by personnel involved in plant **construction** or **operations**; spillage of potentially corrosive materials into the **Dampier Archipelago (including Burrup Peninsula) National Heritage Place**; impacts from blasting activity.

Baseline Air Quality Monitoring

9. To protect the values of the **Dampier Archipelago (including Burrup Peninsula) National Heritage Place**, particularly the **rock art sites**, the person taking the action must undertake an air quality monitoring program. Under the air quality monitoring program, the person taking the action must:
- a) Undertake air quality monitoring at three (3) sites as shown in [Attachment 2](#). These sites being sites previously selected, designed, fenced off and used in the original **Burrup Rock Art Monitoring Program**.
- Site 5 - Burrup Road site
 - Site 6 - Water tanks site
 - Site 7 - Deep Gorge site.
- The air quality monitoring must be undertaken for a period of not less than 24 months beginning from the commencement of **construction**. The results of this monitoring will be used to establish baseline data on levels of:
- Ammonia (NH₃);
 - Nitrogen Oxides (NO_x);
 - Sulphur Oxides (SO_x); and
 - Total suspended particulates (TSP), including dust at those **rock art sites**.
- b) Ensure that the monitoring of air quality at **rock art sites** is undertaken by a **suitably qualified person (Air Quality)**.



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- c) Ensure air quality readings during the twenty four (24) months of baseline monitoring are taken at least four (4) times in every 12 months.

Note: Conditions 9 d) e) and f) were revoked. Requirements to publish air quality data are now in condition 14.

On-going Air Quality Monitoring

9A. To protect the values of the Dampier Archipelago (including Burrup Peninsula) National Heritage Place, particularly the rock art sites, the person taking the action must ensure:

- a) Ongoing air quality monitoring is undertaken within 30 days after this condition comes into effect...
b) Air quality monitoring parameters are monitored at the rock art sites: Site 5 (Burrup Road), Site 6 (Water tanks site) and Site 7 (Deep Gorge site) as shown in Attachment 2.
c) Monitoring of air quality at rock art sites is undertaken by a suitably qualified person (Air Quality).

The air quality monitoring parameters in the table below must be monitored at the frequencies indicated in the table below.

Table with 3 columns: Element of air quality to be monitored, Specific air quality parameter to be sampled, Minimum frequency of monitoring. Rows include Ambient air concentration of gases, Airborne particulate concentration, and Deposited dust.

Outcomes Relating to Air Emissions

9B. To protect the values of the Dampier Archipelago (including Burrup Peninsula) National Heritage Place, particularly the rock art sites:

- a) emissions of air pollutants during operations must not exceed the limits described in a Licence under Part V of the Environmental Protection Act 1986 issued by the Western Australian Government.



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b) if a reporting requirement is triggered for air emissions in the conditions of the Licence issued by the Western Australian Government under Part V of the *Environmental Protection Act 1986*, the person taking the action must also report to the **Department** in writing within the same timeframe as reporting is required to be provided to the Western Australian Government.

Baseline Rock Art Monitoring

10. To protect the values of the **Dampier Archipelago (including Burrup Peninsula)**

National Heritage Place, particularly the **rock art sites**, the person taking the action must participate in monitoring of rock art by:

a) Contributing a **pro-rata amount** annually (in line with that currently utilised by the Western Australian Department of Water and Environmental Regulation, but not exceeding 15,000/year) for a period of not less than two (2) years from the beginning of **construction** to the **Burrup Rock Art Monitoring Program**, which is an independent scientific program of monitoring, to detect any changes in patination, including any discolouration, of the surface of the rock art or the surrounding rock surface;

b) Note: Condition 10b) was revoked. On-going rock art monitoring is now in condition 10A.

c) In addition to the above condition 10(a) requirements, the person taking the action must provide for additional monitoring of **rock art sites** in a manner that is consistent with the **Burrup Rock Art Monitoring Program**. The monitoring of additional **rock art sites** must meet the following requirements:

i. Engage a **heritage monitor** or other **suitably qualified person (Heritage)** to survey **rock art sites** within a two (2) kilometre radius of the project site, to provide advice on any changes to the appearance, or cultural value, of **rock art sites** within the examined area.

ii. The monitoring must be undertaken in a manner that is consistent with and complementary to the monitoring of **rock art sites** undertaken through the **Burrup Rock Art Monitoring Program**. If agreed by Department of Water and Environmental Regulation the monitoring of additional **rock art sites** may be integrated with the **Burrup Rock Art Monitoring Program**, with the person taking the action providing full contribution to the Department of Water and Environmental Regulation for the additional site monitoring.

iii. Prior to undertaking condition 10(c) monitoring, provide the **Department** with written endorsement from a **heritage monitor** or other **suitably qualified person (Heritage)** on the suitability of the rock art monitoring proposed under condition 10(c).

iv. Undertake the condition 10(c) rock art monitoring at least once annually, where the first rock art monitoring event must be undertaken within 16 months of the commencement of **construction**, for a period of not less than two (2) years.

v. At least once annually, engage with the Murujuga Aboriginal Corporation in the planning and reporting associated with the annual survey of **rock art sites** required under condition 10(c).

d) Note: Condition 10d) was revoked. Publishing of baseline rock art monitoring is now in condition 14.

On-going Rock Art Monitoring

10A. To protect the values of the **Dampier Archipelago (including Burrup Peninsula)**

National Heritage Place, particularly the **rock art sites**, the person taking the action



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must ensure that on-going rock art monitoring is undertaken to identify any changes to the appearance, or cultural value, of **rock art sites**, as per the requirements below:

- a) On-going rock art monitoring must be undertaken at the same 6 sites as monitored under condition 10 (or other sites if agreed to in writing by the **Minister**).
- b) The first on-going rock art monitoring event must be complete by no later than 31 December 2017. Subsequent rock art monitoring must be undertaken annually (undertaken between 15 July and 15 September) for the life of the approval.
- c) On-going rock art monitoring must be undertaken by a **suitably qualified person (Heritage)**.
- d) On-going rock art monitoring must be undertaken either:
 - i. by the person taking the action, using a methodology approved by the **Minister** in writing; or
 - ii. through provision of an annual **pro-rata amount** for the **Burrup Rock Art Monitoring Program** or another program administered by the Western Australian Government Department of Water and Environmental Regulation.
- e) At least once annually, the person taking the action must engage with the Murujuga Aboriginal Corporation in the planning and reporting associated with the on-going annual rock art monitoring.

Outcomes Relating to Impacts on Rock Art

11. To protect the **Dampier Archipelago (including Burrup Peninsula) National Heritage Place** the person taking the action must ensure that there is no measurable impact from air pollutants to any **rock art sites** within 2km of the boundary of the action, at any time during the life of the approval. This includes measurable changes in patination, including but not limited to: discolouration of the surface of the rock art motif or the surrounding rock surface including patina; or changes that make the **rock art site** more difficult to interpret (for example a decrease in definition).

11A. If the **Minister** is not satisfied that the outcome described in condition 11 is being met, the **Minister** may request (in writing) that the person taking the action submit a Rock Art Impact Mitigation Review (RAIMR) to the **Department** for approval by the **Minister**.

- a) The RAIMR must:
 - i. Be prepared by a **suitably qualified person (Heritage)** in consultation with a **suitably qualified Person (Air Quality)**;
 - ii. Be submitted within a timeframe specified by the **Minister**.
 - iii. Include an analysis of the cause or causes of the detected change in the rock art surface;
 - iv. Include a review of **operations**, including changes to **operations** to reduce the impact of air emissions on rock art; and
 - v. Include mitigation and management measures to protect **rock art sites** within 2km of the boundary of the action from further impacts, to meet the requirements of condition 11.
- b) If the **Minister** approves the RAIMR required under this condition, then the approved RAIMR must be implemented.

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11B. If the **Minister** is not satisfied that the outcome described in condition 11 is being met, or the person taking the action has not submitted a Rock Art Impact Mitigation Review to the satisfaction of the **Minister** within 6 months of condition 11A coming into force: then the **Minister** may order (in writing) the person taking the action to reduce air emissions from **operations** to a level specified by **Minister**, for a period of time specified by the **Minister**. The person taking the action must implement any such order.

Other administrative conditions

- 12.** If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plans specified in conditions 7 and 11A, the person taking the action must submit to the **Department** for the **Ministers** written approval a revised version of that management plan. The varied activity shall not commence until the **Minister** has approved the varied management plan in writing. The **Minister** will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the revised management plan that management plan must be implemented in place of the management plan originally approved.
- 13.** If the **Minister** believes that it is necessary or convenient for the better protection of the **Dampier Archipelago (including Burrup Peninsula) National Heritage Place**, listed threatened species and communities and listed migratory species to do so, the **Minister** may request that the person taking the action make specified revisions to the management plans specified in conditions 7 and 11A and submit the revised management plan for the **Ministers** written approval. The person taking the action must comply with any such request. The revised approved management plan must be implemented. Unless the **Minister** has approved the revised management plan, then the person taking the action must continue to implement the management plan originally approved, as specified in the conditions.
- 14.** Unless otherwise agreed to in writing by the **Minister**, the person taking the action must publish on their website, for the life of the approval:
- Management plans required under conditions 7 and 11A, within 1 month of being approved.
 - A revised version of any management plans required under conditions 7 and 11A, within 1 month of being approved under condition 12 or 13.
 - All baseline air quality data collected under condition 9, by 31 October 2017.
 - All ongoing air quality monitoring data required under condition 9A, within 3 months of collection of each datum.
 - All baseline rock art data or reports relating to condition 10, within 30 days of any data or reports on being provided to the person taking the action.
 - All rock art monitoring data or reports relating to on-going rock art monitoring required under condition 10A, within 30 days of the data or reports being provided to the person taking the action.
- 15.** If, at any time after 2 years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the **Minister**.



Yara Pilbara Nitrates Operational Environmental Management Plan EPBC 2008/4546 Technical Ammonium Nitrate Plant

Process Domain: Environment

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Definitions:

Adulticide is any chemical or combination of chemicals designed to prevent the breeding of adult mosquitoes.

Commissioning means the process by which the operational elements of the facility are tested for example, trailing machines that will be used in **operations**.

Approved Class 11 Insecticide is a Microbial disrupter of insect midgut membranes (as identified by CropLife Australia), that has been registered for use in Australia under the *Agricultural and Veterinary Chemicals Code Regulations 1995*.

Dampier Archipelago (including Burrup Peninsula) National Heritage Place is a national heritage listed area in the Dampier Archipelago whose location has been defined and values described in the Commonwealth Governments special gazette (No.S.127) dated 3 July 2007.

Department is the Australian Government Department administrating the *Environment Protection and Biodiversity Conservation Act 1999*.

Burrup Rock Art Monitoring Program is the existing Burrup Rock Art Monitoring Program which is administered by the Western Australian Government and financially supported by various Burrup Peninsula industries.

Larvicide is any chemical or combination of chemicals designed to prevent the hatching or development of larval mosquitoes.

Minister is the Minister responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.

National Heritage management principles are set out in Schedule 5B of the *Environment Protection and Biodiversity Conservation Regulation 2000* and in an Australian Government publication entitled *Australia's National Heritage applying the principles* dated June 2008, and published on the **Department's** website at:
<https://environment.gov.au/system/files/resources/1e3ca0e7-f855-4502-9243-fe11f60e3656/files/working-together-principles.pdf>

Operations means the normal functioning of the facility, following **commissioning**, and includes any action that results in production of a saleable volume of product.

Pro-rata amount is:

[for the baseline data under condition 10] defined as the person taking the action contributing 1/6th of the funds for the **Burrup Rock Art Monitoring Program**, with Woodside (2/6th), Rio Tinto (2/6th) and BFPL (1/6th) the other current contributors. As additional industries come on board in the area, the pro-rata amount may change at the discretion of the Western Australian Government and in discussion with all relevant contributing parties.

[for the on-going monitoring under condition 10A] defined as an amount that has been determined by the Western Australian Government (Department of Water and Environmental Regulation).

**Yara Pilbara Nitrates Operational Environmental Management Plan
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Rock art sites means manmade structures in the **Dampier Archipelago (including Burrup Peninsula) National Heritage Place**, of a type mentioned in the National Heritage Place Gazette notice S127 including engravings, etchings, peckings and/or standing stones.

Statement 594 is the Statement to amend conditions applying to a proposal (pursuant to the provisions of Section 46 of the *Environmental Protection Act 1986*) (Western Australia), Desalination Water and Seawater Supplies Project, Burrup Peninsula, Shire of Roeburne, Water Corporation, issued 5 June 2002 by the Western Australian Environmental Protection Authority to the Western Australian Minister for the Environment and Heritage.

Statement 870 is a statement that a proposal may be implemented (pursuant to the provisions of the *Environmental Protection Act 1986*).

Suitably qualified person (Air Quality) is a person with at least five (5) years experience in air quality monitoring, including taking air samples and testing those samples to obtain results.

Suitably qualified person (Heritage) is a person with at least a bachelors degree with Honours in archaeology or five (5) years experience in Indigenous heritage or archaeology recognised by a relevant body such as the Australian Association of Consulting Archaeologists.

Unauthorised access is access by personnel or contractors without written agreement of the manager (of the person taking the action) who is responsible for heritage management.



Yara Pilbara Nitrates Operational Environmental Management Plan EPBC 2008/4546 Technical Ammonium Nitrate Plant

Process Domain: Environment

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Attachment 1





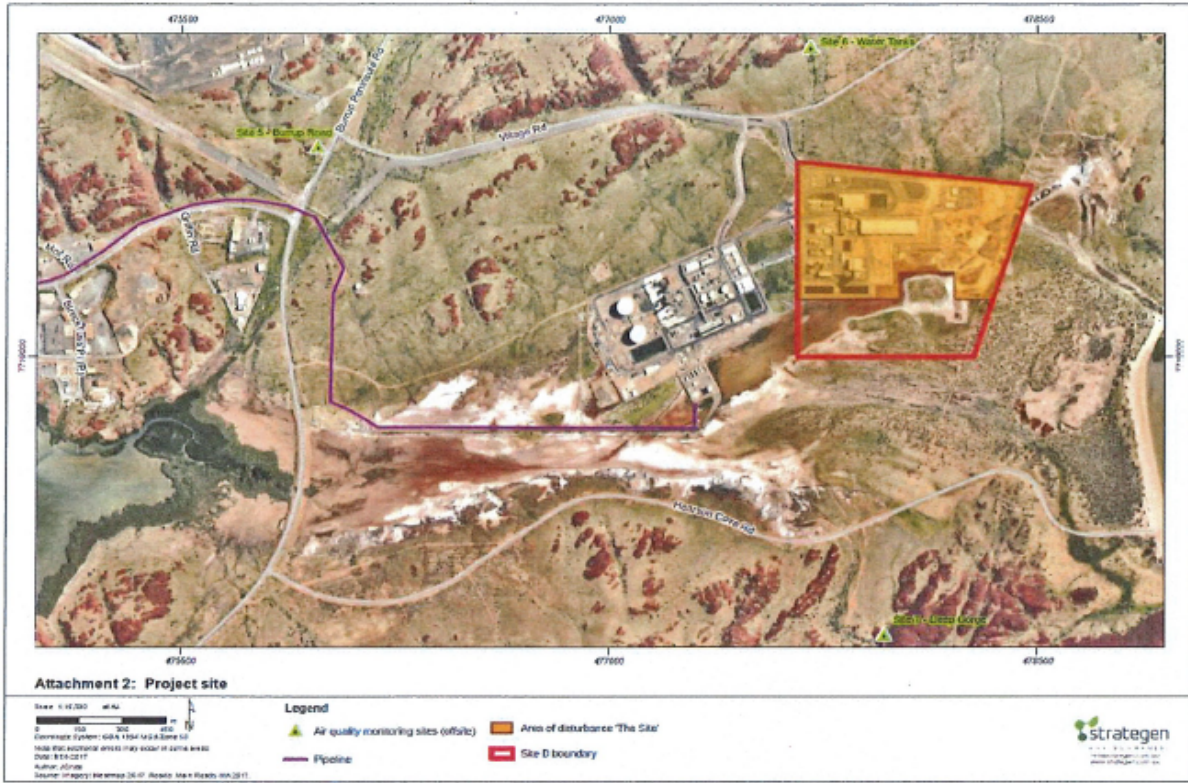
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Process Domain: Environment

HESQ-YPN-PLN-035-04

Attachment 2





Yara Pilbara Nitrates Operational Environmental Management Plan EPBC 2008/4546 Technical Ammonium Nitrate Plant

Process Domain: Management System

Knowledge grows

22. Appendix 2: Risk Assessment Outcomes

Topic	Management objective/desired outcome	Event or circumstance (issues)	Relevant management actions/measures (controls)	Residual Risk			Threshold detection and monitoring activity/ies	Feasible/effective corrective actions (contingency)
				Likelihood	Consequence	Residual level		
Groundwater	To maintain to the extent practicable the quality of groundwater to minimise environmental impacts on the surrounding environment as a result of operations.	Non-compliance with groundwater quality performance targets in DWER licence.	Groundwater monitoring	Possible	Minor	Low	Negative trend in water quality in monitoring bores downstream of the TAN Plant as compared with background (upstream) water quality,	<ol style="list-style-type: none"> 1. Review historical monitoring data as available. 2. Investigation/assessment as to whether reduced water quality is likely to be attributed to the operation of the TAN Plant. 3. In the event that the reduced water quality is attributed to the operation of the TAN Plant, develop management and/or contingency actions. 4. Implement specific management actions/ contingency measures. 5. Reporting on the outcomes of the investigation/assessment to DWER.
	To ensure changes to groundwater quality, as a result of the operation of the TAN Plant, does not adversely impact on the surrounding vegetation.	Impact to surrounding vegetation as a result of changes to groundwater quality caused by operations.		Possible	Minor	Low		
	To maintain to the extent practicable the quality of groundwater to minimise environmental impacts on the surrounding environment as a result of operations.	Non-compliance with groundwater quality performance targets in DWER licence.	<p>Any Yara Pilbara employee or contractor (working at the Yara TAN plant) proposing to import a new hazardous material to the YPN TAN plant must complete a Hazardous Material Approval Form (HMAF). A Safety Data Sheet (SDS) must accompany the HMAF.</p> <p>Maintain purchase and inventory records of hazardous materials on-site in the Hazardous Materials Register.</p> <p>Provide secondary containment for stored hazardous materials in accordance with AS 1940-1993: The Storage and Handling of Flammable and Combustible Liquids.</p> <p>Ensure hazardous materials are clearly labelled and placarded (DG Regs).</p> <p>Ensure that SDS are available and used to direct all storage and handling of hazardous materials including:</p> <ul style="list-style-type: none"> • transport requirements • use of Personal Protective Equipment • storage requirements • clean-up procedures. <p>An item received into the warehouse shall not be allocated a bin location until check is carried out to see if the Hazardous Material is registered on the Yara Pilbara system. The item will be temporarily stored in a designated area until advice has been obtained from the Environmental Officer.</p> <p>The storage of all flammable and combustible liquids is to be in accordance with AS 1940-1993: The Storage and Handling of Flammable and Combustible Liquids.</p> <p>Provide appropriate containment (e.g. drip trays) for all works in unbunded areas. The storage of gases is to be in accordance with the provision of AS 1596: LP Gas - Storage and handling and AS 2030: SAA Gas Cylinder Code.</p> <p>Whenever disposing of hazardous chemicals or empty containers that contained hazardous chemicals correct disposal methods need to be followed. Refer to SDS for correct disposal options, or consult Environmental Officer.</p> <p>Record all spillages (both inside and outside banded areas) in Synergi and report</p>	Possible	Minor	Low	Spill or loss of containment of hazardous material	



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			to EO as soon as practicable in accordance with the YPN Incident Reporting Procedure.					
Surface and Storm water monitoring	Maintain the quality of surface water within and surrounding the site.	Contamination of surface water outside the TAN plant boundary as a result of site operations.	Water storage ponds to have freeboard maintained (so that ponds do not overtop during rainfall events)	Possible	Minor	Low	Overtopping of water storage pond	<ol style="list-style-type: none"> 1. Report the exceedance to the Environmental Superintendent. 2. Pump excess water to another pond or temporary storage facility. 3. Transport off-site or to pump to the MUBRL (compliant with approved discharge requirements within MS 594)
	Maintain the quality of water discharges to minimise potential for offsite contamination.	Discharge of process water to the MUBRL from the TAN Plant exceeding targets/limits outlined in MS 594.	Manage process water streams within the plant so that wastewater discharged to MUBRL is within discharge criteria specified in MS 594.	Possible	Minor	Low	Exceedance of process wastewater discharge criteria to MUBRL	<ol style="list-style-type: none"> 1. Report the exceedance to the Environmental Superintendent. 2. Fix the source of the problem if possible. 3. Environmental Superintendent to report to management via monthly reports. 4. Resume operations and continue monitoring. 5. Report annually to DEE.
	To minimise erosion and environmental damage due to storm water diversion within the lease area.	Degradation of downstream water quality due to stormwater diversion.	Maintain surface drains in an open free-flowing condition such that flows can occur as design intended.	Unlikely	Minor	Low	Sedimentation of downstream waterways	<ol style="list-style-type: none"> 1. Investigate the cause. 2. Determine source of sediment. 3. Remove sediment. If quantities are large enough, sediment can be used in repairing erosion if practicable. 4. Rehabilitate area as soon as practicable if required.
	Minimise the loss of listed threatened species and listed migratory species as a result of the operations	Loss of listed threatened species and listed migratory species as a result of the operations	<p>Only apply larvicide or adulticide within or outside the project area (as shown in Attachment 1 of EPBC 2008/4546) that is an Approved Class 11 insecticide.</p> <p>Employ structures and apparatus as n necessary and agreed by the Western Australian Government to deter birds from entering the contaminated water pond, clean water pond, and sewage wastewater treatment station evaporation pond</p>	Unlikely	Minor	Low	<p>Identification of gully, sheet or rill erosion</p> <p>Structures and apparatus to deter birds from the water ponds compromised</p>	<ol style="list-style-type: none"> 1. Determine an appropriate repair method with low environmental risk. 2. Fill and level surface using rock or other appropriate material. 3. Reshape surface to blend with surrounding relief. 4. Stabilise surface using matting, hydromulch or equivalent. 5. Rehabilitate area as soon as practicable if required. 6. The effectiveness of the preventative action will be monitored and additional measures implemented if required. <ol style="list-style-type: none"> 1. Report the event to the Environmental Superintendent. 2. Repair or modify affected structures and apparatus as soon as practicable.
Waste Management	To identify, avoid, manage and monitor waste streams to minimise impact to the environment as a result of operations..	Inappropriate disposal /segregation of waste	<p>Manage materials that come to site to reduce potential for waste.</p> <p>Segregate waste using different storage vessels into different categories as far as practicable.</p> <p>Contain all waste, taking into consideration:</p> <ul style="list-style-type: none"> • fire safety; • pest control; • odour control; and • protection of water and soil resources. <p>Clearly mark waste bins and provide at convenient locations. Provide a laydown area where materials can be re-usable or recyclable where practicable.</p> <p>Recover spent catalyst wherever possible.</p>	Unlikely	Minor	Low	Incident involving waste (storage, segregation or disposal)	Investigate the incident in consultation with the Environmental Superintendent. The agreed corrective actions will be captured in line with YPN's Incident Investigation and Reporting Procedure.
		Inappropriate waste disposal/removal from Site and potentially not in accordance with the Environmental Protection (Controlled Waste) Regulations 2004	<p>No burning of waste material.</p> <p>Provide litter and general waste vessels around site to ensure waste is disposed appropriately</p> <p>Prior to the removal of waste from the Site, the EO ensures that:</p> <ul style="list-style-type: none"> • sufficient information is provided to the contractor to categorise the waste and select a disposal site; • the waste is stored appropriately for transportation; 	Unlikely	Minor	Low	Significant waste spill on site or on transport route	<ol style="list-style-type: none"> 1. Refer to the Environmental Spill Procedure. 2. Undertake immediate inspection, temporary control and report as an environmental incident (in Synergi). 3. Contain spill (eg by removal, or bunding). 4. Using a risk-based approach, determine severity of incident and priority, taking into account the nature and extent of the environmental impact. 5. Identify and implement corrective actions to be undertaken or planned to mitigate adverse environmental consequences. 6. Follow up on recommendations to ensure corrective actions are completed. 7. Identify changes to work practices or operations that are required to ensure that the

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			<ul style="list-style-type: none"> the contractor has a valid Controlled Waste approval if required; and the quantity and type of waste is recorded in Waste Register. 					<p>incident will not re-occur together with a timetable for implementation of those changes.</p> <p>8. Advise relevant authorities of final outcome of incident management (as necessary) or any long term initiatives proposed to manage residual impacts from the incident.</p>
				Unlikely	Minor	Low	Minor waste spills	<ol style="list-style-type: none"> Clean up spill. Take preventative action against potential for future spills as appropriate.
Air Emissions	To minimise the impacts of the TAN plant's atmospheric emissions	Damage to Aboriginal Heritage sites, including rock art, as a result of air emissions from the TAN Plant operations. Exceedances of limits and targets as defined in OEMP.	Scrubbers and demisters shall be utilised on Nitric Acid Plant stack and on the Ammonium Nitrate Plant common stack and shall be maintained in effective operational condition. Vent scrubbers on Nitric Acid tanks shall be kept in effective operational condition.	Rare	Major	Medium	Stack emissions monitoring identifies exceedance of DWER licence limits	<ol style="list-style-type: none"> Investigate cause(s), including stack emissions performance, scrubber efficiency, maintenance records and TAN plant operating parameters If a significant exceedance is observed, then conduct air dispersion modelling to predict ambient air concentrations at sensitive receptors If necessary, make any repairs or carry any maintenance to restore scrubber efficiency Re-test stack emissions to confirm effectiveness of actions
							Monitoring identifies exceedance of ambient air quality criteria	<ol style="list-style-type: none"> Investigate cause(s), including stack emissions performance, scrubber efficiency and maintenance records. Identify potential contributions of airborne pollutants from other sources in the air shed using meteorological data. Estimate contributions from YPN and/or YPF operations using dispersion modelling of stack emissions If necessary, make any repairs or carry any maintenance to restore scrubber efficiency and minimise stack emissions Test stack emissions to confirm effectiveness of actions
Heritage	To protect the values of the Dampier Archipelago (including Burrup Peninsula) National Heritage Place, particularly the rock art sites.	Unauthorised access outside the approved 35 ha disturbance area	<p>Restrict access outside approved disturbance boundary through the installation of appropriate fencing, barriers or signage.</p> <p>Induct all personnel accessing site to ensure awareness of:</p> <ul style="list-style-type: none"> the significance of rock art and its conservation and protection; the location of the site boundary, including an explanation of the importance to keep all activities within this boundary. 	Unlikely	Moderate	Low	Unauthorised access identified	<ol style="list-style-type: none"> Notify Environmental Superintendent. Enter the incident into Synergi (refer to incident reporting procedure). Determine how access was gained and, if possible, the likely time of access. Implement remedy, which could include: <ul style="list-style-type: none"> repair fence/s erect signs to highlight prohibited access review education measures (e.g. inductions, toolbox/site meetings and communications) re-induct contractors including revision of induction as required reiterate to contractors the importance of not accessing areas outside the approved disturbance boundary unless authorised, through toolbox meetings, training sessions etc. Monitor success of control.
		Measurable impact from air pollutants to any rock art sites within 2 km of the boundary.	<p>Ensure process exhaust gas streams meet emissions performance criteria</p> <p>Comply with Condition 10 of EPBC 2008/4546 in relation to colour and spectral analysis monitoring</p> <p>Undertake visual inspection of the rock art sites for any discolouration of the surface of the rock art motif or the surrounding rock surface including patina; or any changes that make the rock art difficult to interpret.</p>	Unlikely	Moderate	Low	Rock art monitoring identifies changes in patination, including but not limited to, discolouration of the surface of the rock art motif or the surrounding rock surface, including patina; or changes or make the rock art site more difficult to interpret within 2 km of the TAN plant	<ol style="list-style-type: none"> Report the event to the Environmental Superintendent. Investigation/assessment as to whether the measurable changes detected is likely to be attributed to the operation of the TAN Plant In the event that the reduced water quality is attributed to the operation of the TAN Plant, report the event to the DEE. If directed by the Minister, engage a suitably qualified person (heritage) in consultation with suitably qualified person (air quality) to prepare the RAIMR as outlined in Condition 11A of EPBC 2008/4546 for approval by the Minister. Once approved, implement the mitigation and management measures in the RAIMR.
Flora and vegetation	To minimise adverse impacts on the abundance, species diversity, geographic distribution and productivity of vegetation communities	Native vegetation clearing or disturbance outside of authorised disturbance boundary	<p>Restrict access outside approved disturbance boundary through the installation of appropriate fencing, barriers or signage.</p> <p>Induct all personnel accessing site to ensure awareness of:</p> <ul style="list-style-type: none"> the significance of flora on the site and its conservation and protection; the onsite occurrence of weeds and how to prevent the spread of same by the prohibition of vehicular or pedestrian activity in specified areas; the prohibition of clearing outside the approved disturbance boundary; and the location of the site boundary, including an explanation of the importance to keep all activities within this boundary. 	Unlikely	Moderate	Low	Unauthorised access identified	<ol style="list-style-type: none"> Notify Environmental Superintendent. Enter the incident into Synergi (refer to incident reporting procedure). Determine how access was gained and, if possible, the likely time of access. Implement remedy, which could include: <ul style="list-style-type: none"> repair fence/s erect signs to highlight prohibited access review education measures (e.g. inductions, toolbox/site meetings and communications) re-induct contractors including revision of induction as required reiterate to contractors the importance of not access areas outside the approved



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Knowledge grows

								disturbance boundary unless authorised, through toolbox meetings, training sessions etc. 5. Monitor success of control.
			Restrict access outside approved disturbance boundary. Prohibit clearing outside approved disturbance boundary. Clearing outside the disturbance boundary is by written authorisation only from the YPN's HESQ Department and recorded on file.	Unlikely	Moderate	Low	Unauthorised clearing /disturbance of native vegetation identified	1. Notify Environmental Superintendent. 2. Enter the incident into Synergi (refer to incident reporting procedure). 3. Determine extent of additional clearing. Report additional clearing DEE. 1. Implement remedy, which could include: • erect and/or repair fence/s • erect signs to highlight prohibited access • review education measures (e.g. inductions, toolbox/site meetings and communications) • re-induct contractors including revision of induction as required • reiterate to contractors the importance of not access areas outside the approved disturbance boundary unless authorised, through toolbox meetings, training sessions etc. • rehabilitate disturbed area(s). 4. Monitor success of control.
		Introduction of new weed species or pathogens and spreading of existing weed species and/or pathogens as a result of operations.	Undertake weed control actions whenever the spread of weed species are observed.	Unlikely	Moderate	Low	Increased presence of weed/pest species due to operations	1. Spray/remove plants as appropriate. 2. Review relevant procedures (e.g. weed control program) and modify as required.
Fauna	To avoid disturbance to and mortality of protected or listed fauna as a result of operations.	Operations contribute to mortality of listed fauna of conservation significance.	Bird deterrent system installed on water ponds designed to deter birds from entering the contaminated water pond, clean water pond and sewerage wastewater treatment evaporation pond. Fence the operational boundary to prevent larger fauna from accessing storage ponds. Allow native animals encountered on site the opportunity to move on if there is no threat to personnel safety in doing so. Contact DBCA for advice if conservation significant native fauna encountered on site is likely to be directly affected by activities. Undertake relocation of native fauna, if required, will be undertaken by personnel licensed under the <i>Wildlife Conservation Act 1950</i> . Install traffic speed limit signs around site of 20 km/hr.	Rare	Minor	Low	Fauna mortality	1. Record fauna sightings in the Yara Pilbara Fauna Sightings database and contact EO. 2. EO to determine species, and presence of young, if required. 3. EO to arrange removal of animal carcass. 4. Report as an environmental incident in Synergi 5. If required, report to DPaW and DEE
	To minimise the impact of ongoing site activities on existing fauna and fauna habitat surrounding the TAN plant.	Operations contribute to loss of habitat for conservation listed fauna outside TAN plant boundary.	Prohibit clearing outside approved disturbance boundary with fencing and signage. Clearing outside the disturbance boundary is by written authorisation only from the YPN's HESQ Department and recorded on file.	Rare	Moderate	Low	Sick or injured animals found	1. Record fauna in the Yara Pilbara Fauna Sightings database and contact EO. 2. EO to seek advice via the DBCA Helpline. 3. EO to arrange care for sick or injured animal or transporting to a wildlife rehabilitation centre. 4. Critically injured wildlife will be euthanized in accordance with DBCA Minimum Standards for Wildlife Rehabilitation in Western Australia (DEC 2008) by appropriately qualified fauna rescue personnel.
							Loss or disturbance to critical habitat for listed fauna outside approved disturbance footprint	1. Notify Environmental Superintendent. 2. Enter the incident into Synergi (refer to incident reporting procedure). 3. Determine extent of additional clearing of critical habitat for listed fauna 4. Report additional clearing of critical habitat for listed fauna to DEE. 5. Implement remedial actions as required by DEE.
							Increase in abundance and/or distribution of feral animals	1. Record feral animals in the Yara Pilbara Fauna Sightings database and contact EO. 2. EO to coordinate eradication program.

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23. Appendix 3: EPA letter confirming the AQMP meets the requirements of Conditions 5-2 and 5-3 of Ministerial Statement 1121Government of Western Australia
Department of Water and Environmental RegulationYour Ref: 650-200-PLN-YPN-0002 Rev D
Our ref: DWERT6085
Enquiries: John Guld, Ph 6364 6457
Email: john.guld@dwer.wa.gov.auDr Ty Hibberd
Environment & Quality Manager
YAA – Africa & Asia Region
Yara Pilbara Nitrates Pty Ltd
Level 10, 233 Adelaide Terrace
PERTH WA 6000Via email: ty.hibberd@yara.com

Dear Dr Hibberd

**Technical Ammonium Nitrate Production Facility, Burrup Peninsula – Ministerial
Statement 1121 – Air Quality Management Plan – Approved**

Thank you for your letter of 29 November 2022 submitting the Yara Pilbara Nitrates Air Quality Management Plan Technical Ammonium Nitrate Plant (Rev D, 29 November 2022) (the Plan) to the Department of Water and Environmental Regulation (DWER) for review.

I note that the Plan has been prepared to satisfy Conditions 5-2 and 5-3 of Ministerial Statement 1121 which state:

- 5-2 *Within twelve (12) months of the date of this Statement, unless otherwise agreed by the CEO, the proponent shall prepare and submit to the CEO a revised Air Quality Management Plan that describes how the proponent will meet the following objectives:*
- (1) *minimise air emissions from the proposal to assist in the maintenance of regional air quality in accordance with applicable air quality standards including, but not limited to, the NEPM so that the environmental values of human health and amenity are protected; and*
 - (2) *minimise air emissions from the proposal as far as practicable to assist in minimising the risk of adverse impacts to rock art on Murujuga.*
- 5-3 *The revised Air Quality Management Plan must:*
- (1) *specify the expected air emissions for the proposal based on the current air pollution control technology selection and plant design for the proposal;*
 - (2) *include a comparison of the expected air emissions for the proposal against international industry best practice for technical ammonium nitrate production facilities;*

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Ty Hibberd

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- (3) *include a comparison of the current air pollution control technology selection and plant design for the proposal against international industry best practice for technical ammonium nitrate production facilities;*
- (4) *include provisions for monitoring of on-site meteorological conditions including wind speed / direction, temperature, and rainfall rate to enable the data that are collected to be available for use in the forthcoming investigations associated with the Murujuga Rock Art Monitoring Program, with annual reporting to the CEO; and*
- (5) *identify and describe the measures that the proponent will implement to minimise air emissions, including the adoption of advances in air pollution control technology and process management, and specify:*
 - (a) *the timeframe within which each measure will be implemented; and*
 - (b) *the means to determine the effectiveness of each measure in minimising air emissions.*

I am satisfied that the Yara Pilbara Nitrates Air Quality Management Plan Technical Ammonium Nitrate Plant (Rev D, 29 November 2022), meets the requirements of Conditions 5-2 and 5-3 of Ministerial Statement 1121, and that the proponent must now implement the provisions of the Management Plan as required by Conditions 5-2 and 5-3.

Yours sincerely

Dr Tania Liaghati
Manager – EIA North Branch
EPA Services
for the Chief Executive Officer under Notice of Delegation dated 24 October 2022

12 December 2022

**Yara Pilbara Nitrates Operational Environmental Management Plan
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Knowledge grows

Process Domain: Management System

24. Appendix 4: Correspondence between YPN and DCCEEW on rock art monitoring program

Australian Government

Department of Climate Change, Energy,
the Environment and WaterOur reference: EPBC 2008/4546
Email: epbcmonitoring@environment.gov.auDr Ty Hibberd
Health, Environment, Safety & Quality Manager
Yara Pilbara Nitrates
Locked Bag 5009
KARRATHA WA 6714

Dear Dr Hibberd,

***Environment Protection and Biodiversity Conservation Act 1999 – Yara Pilbara Nitrates
Ammonium Nitrate Production Facility - EPBC 2008/4546***

I refer to your letter dated 6 September 2022 regarding the conditions attached to the EPBC 2008/4546 approval. I note Yara Pilbara Nitrates' confirmation that ongoing rock art monitoring will not be undertaken.

I confirm that annual financial contributions made to the Western Australian Department of Water and Environmental Regulation led Murujuga Rock Art Monitoring Program would meet the requirements of condition 10A(d).

As previously discussed, and identified in your letter, the department agrees that a variation to the conditions of approval to reflect the relevant number of monitoring sites is an appropriate course of action. A variation will assist you to comply with the conditions of approval.

Please ensure that you continue to maintain accurate records of all activities associated with, or relevant to, the conditions of the approval. Such documents and records may be used in the future to verify compliance with the conditions of the EPBC 2008/4546 approval.

Should you have any questions regarding this matter please contact Karen Khoo on 0499 791 136 or at epbcmonitoring@environment.gov.au.

Yours sincerely,

Thomas Long
Assistant Director
Environmental Audit Section

07 November 2022

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GPO Box 3090 Canberra ACT 2601 ABN: 63 573 932 849

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Ty Hibberd