Yara Pilbara Nitrates

Operational Environmental Management Plan

EPBC 2008/4546

Technical Ammonium Nitrate Plant

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Document Approval

Rev	Custodian	Approver	Signature	Date
0	Susan Giles **Environmental Superintendent**	Brian Howarth **HESQ Manager**	BH	01-12-2016
1	Susan Giles **Environmental Superintendent**	Brian Howarth **HESQ Manager**	BH	16-06-2017
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Revision History

Rev	Date	Description	Author
A	-	Developed to comply with Federal EPBC 2008/4546 Approval	Strategen Consultants
0	01-12-2016	Finalised for submission to the Department of Environment & Energy	Peter French
1	29-05-2017	Revised following feedback from the Department of the Environment & Energy, for re-submission	Susan Giles
2	14-08-2017	Revised following feedback from the Department of the Environment & Energy, for re-submission and Consolidated Approval Notice provided on 10-08-2017	Susan Giles
3	13-09-2017	Revised following feedback from the Department of the Environment & Energy, for re-submission and varied Approval Notice issued on 12-09-2017	Strategen

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.

Signed _____

Full name (please print)
MATTHEW CALLANAN

Organisation (please print)
YARA PILBARA NITRATES

Date 14/9/2017

Executive Summary

Yara Pilbara Nitrates Pty Ltd (YPN) intends to operate a technical ammonium nitrate production facility (TAN plant) on the Burrup Peninsula, within the Burrup Industrial Estate located near Karratha, in Western Australia.

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

The purpose of this Operational Environmental Management Plan (OEMP) is to address the environmental management requirements of Condition 7(b) of EPBC 2008/4546 approval decision (as varied).

This OEMP provides direction on the implementation of environmental control and monitoring techniques during the operational life of the TAN plant and reflects YPN's commitment to a high standard of environmental performance. As such, the OEMP addresses factors that are additional to the requirements of Condition 7(b).

The TAN plant will operate in accordance with an Operating Licence granted under Part V of the *Environmental Protection Act 1986,* following completion of commissioning under Works Approval W4701/2010/1.

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

Objectives, targets and performance indicators for key aspects have been developed for plant operation. Environmental impact avoidance and mitigation measures will be implemented for the following environmental management issues:

- Erosion Control and Storm Water
- Water Quality
- Air quality and Dust (including dust caused by vehicle traffic)
- Waste
- Blasting (if required).

YPN has also addressed the following additional factors, not required by Condition 7(b) of EPBC 2008/4546, in this OEMP:

- Heritage
- Flora and vegetation
- Fauna
- Hazardous materials.

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.

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1 Introduction

1.1 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 situated on the Burrup Peninsula near Dampier, in the Pilbara region of Western Australia (the Site) adjacent to Yara Pilbara Fertilisers Pty Ltd (YPF) ammonia plant (Figure 1).

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

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

Additional supporting facilities include:

- liquid ammonia pipeline and utility services between YPF and the TAN plant;
- bulk loading system including bagging unit and truck loading facility;
- storage buildings for bulked and bagged TAN.

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

1.2 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 operation phase of the TAN plant.

This OEMP has been prepared in accordance with the overall requirements of Yara's Health, Environment, Safety and Quality Management System (HESQMS) and to specifically meet the requirements of Condition 7(b) of the EPBC 2008/4546 approval decision (as varied).

Matters of National Environmental Significance (MNES) protected under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) to be addressed through this OEMP 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 (rock art) are shown in Figure 2.

1.3 Implementation

The approved OEMP will be implemented during operation of the TAN plant.

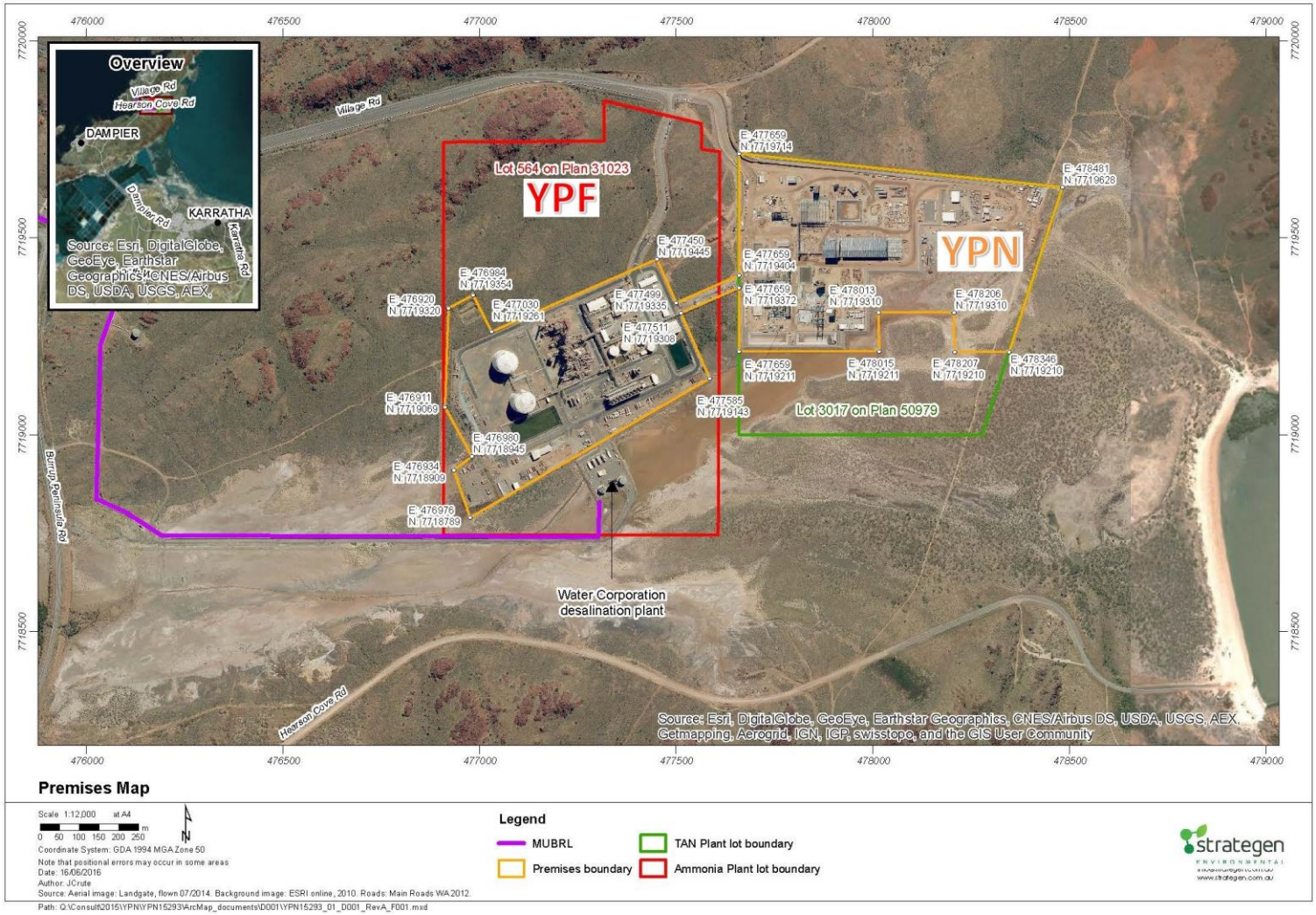


Figure 1: Location

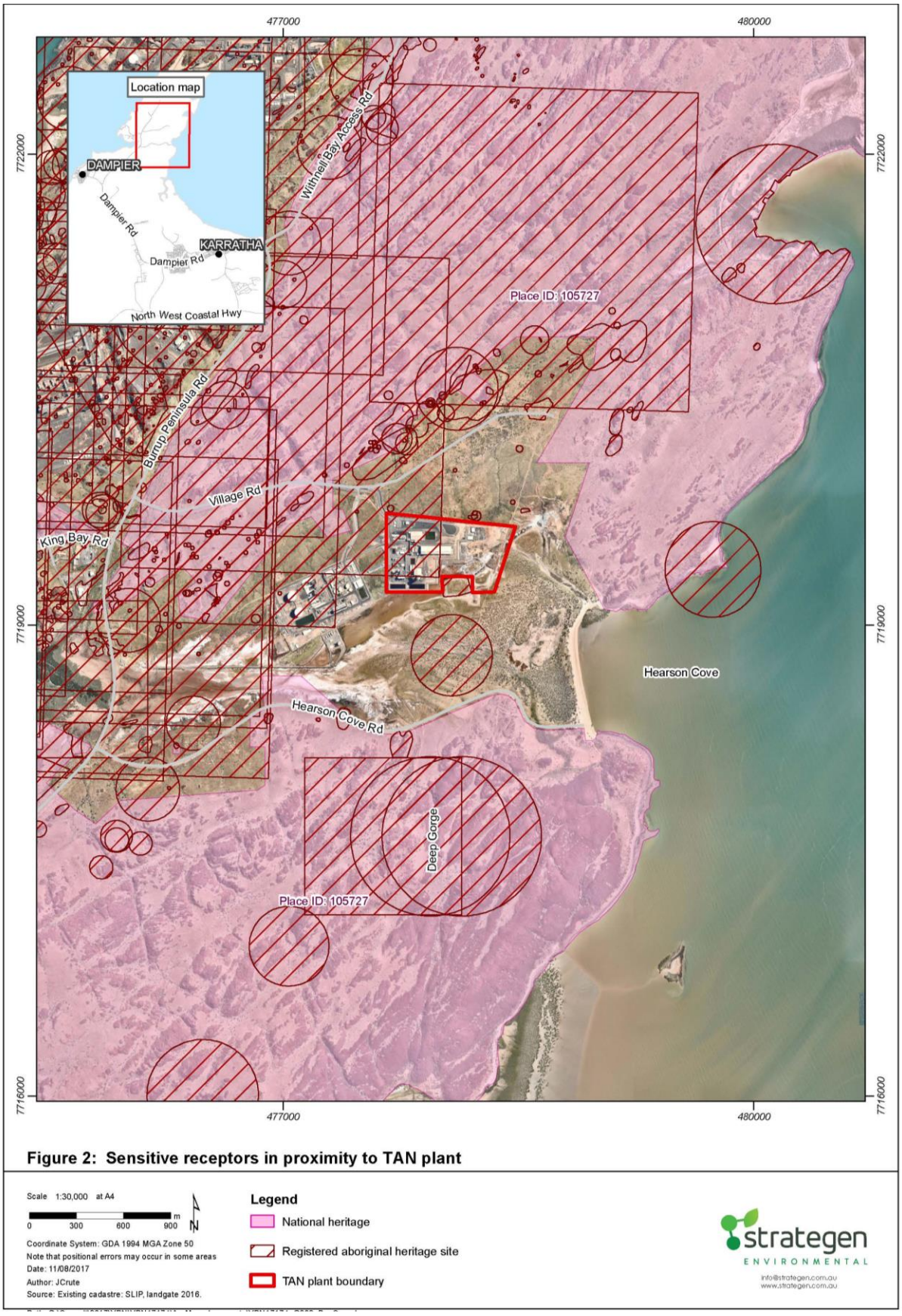


Figure 2: Sensitive receptors in proximity to TAN plant

1.4 Scope

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

This OEMP has been prepared to meet the requirements of Condition 7(b) of the EPBC Act approval (EPBC 2008/4546) (as varied). 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 the Ministerial Statement 870 (MS 870) granted under Part IV of the Western Australian *Environmental Protection Act 1986* (EP Act) and the Works Approval W4701/2010/1 granted under Part V of the EP Act administered by the Department of Water & Environmental Regulation (DWER).

The TAN plant will also operate in accordance with an Operating Licence to be granted under Part V of the EP Act following completion of commissioning under Works Approval (W4701/2010/1).

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 Act approval (EPBC 2008/4546) (as varied) is included as Appendix 1.

Table 1 EPBC 2008/4546 conditions of approval requirements for this OEMP

Condition number	Requirement	OEMP Section
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).	Section 13.2

<table>
<tr><th>Condition number</th><th>Requirement</th><th>OEMP Section</th></tr>
<tr><td>7</td><td>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.</td><td>b) Sections 13 and 14.
c) Section 1.3
d) Section 10, Section 14
e) Section 14

Note: Blasting is not required during operation</td></tr>
<tr><td>9A</td><td>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 (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 (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).
d) The air quality monitoring parameters in the table below must be monitored at the frequencies indicated in the table below.
<table>
<tr><th>Element of air quality to be monitored</th><th>Specific air quality parameter to be sampled</th><th>Minimum frequency of monitoring</th></tr>
<tr><td rowspan="3">Ambient air concentration of gases</td><td>NH3 (ammonia)</td><td rowspan="3">Continuous monitoring for at least 14 consecutive days, every month</td></tr>
<tr><td>NO_2 (nitrogen oxide)</td></tr>
<tr><td>SO_2 (sulfur oxide)</td></tr>
<tr><td>Airborne particulate concentration</td><td>Total suspended particulates up to 50 µm (TSP)</td><td>Every 6 days</td></tr>
</table></td><td>Section 13.4</td></tr>
</table>

Condition number	Requirement	OEMP Section
	Deposited dust | Total dust deposition per month (Insoluble Fraction) | Quarterly Deposited dust | Total dust deposition per month (Soluble Fraction) | Quarterly	
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 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 14.1
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).	Section 14.1
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.	Section 14.1

Condition number	Requirement	OEMP Section
	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.	
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.	Section 14.1

1.5 Structure of the OEMP

This OEMP is structured as follows:

- Sections 1 to 4 present an introduction and general background information to the Project, the requirements and purpose of the OEMP.
- Sections 5 to 12 outline the implementation of the OEMP. These sections include an explanation of the management protocols and procedures that support the management plans, and how the framework integrates, including:
    - responsibility and accountability;
    - induction and training;
    - communication and stakeholder consultation;
    - incident management and corrective actions;
    - emergency response;
    - performance review and continuous improvement, which is further divided into:
        - monitoring and auditing; and
        - reporting, review and revision.
- Section 13 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 14 describes the additional environmental management activities (not required under Condition 7(b)) Yara will implement to ensure its obligations under EPBC 2008/4546 are achieved.

1.6 Public Availability

In accordance with Condition 14(a) of the EPBC 2008/4546 approval decision (as varied), this OEMP will be made publicly available at the yara.com.au website, or an equivalent website, for the life of the Project. At the time of publication of this OEMP it is publicly available at:

http://yara.com.au/about-yara/about-yara-local/yara-pilbara/nitrates/

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

1.7 Relationship to other management plans

This OEMP has been prepared in accordance with the overall requirements of Yara's Health Environment Safety and Quality Management System (HESQMS).

2 Yara's Environmental Safety and Quality Management System

2.1 Mission, Vision and Values

This section outlines Yara's mission, vision and values. YPN's mission, vision and values are a direct reflection of their owner, Yara. Therefore, in this section, where Yara is mentioned it can be assumed to mean both the global company, Yara and the subsidiary, 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.

2.1.1 Our Mission

Responsibly feed the world and protect the planet.

2.1.2 Our Vision

A collaborative society; a world without hunger; a planet respected.

2.1.3 Values

Yara's values are:

1. Ambition;
2. Curiosity;
3. Collaboration; and
4. Accountability.

2.2 Yara HESQ Policy

Yara maintains a Health Environment Safety and Quality (HESQ) Policy which is regularly reviewed and updated. The existing policy was endorsed by Yara's Chief Executive Officer and Head HESQ in February 2017.

Yara's mission is to responsibly feed the world and protect the planet. Through this policy, we commit to excellence in our Health Environment Safety and Quality (HESQ) performance, which is also critical to the success of our business.

2.2.1 Our HESQ vision

- Zero injuries
- A safe and healthy work environment for all employees
- Environmentally responsible and safe products and services that exceed customer expectations

2.2.2 Our HESQ principles

- Health and safety: All accidents are preventable. Safety is always a top priority.
- Environment: Yara uses a precautionary approach to identify risks and take preventive measures to mitigate the potential harm to people or the environment.
- Resources: We see waste as a misplaced resource, and will always search for resource optimization opportunities. Energy efficient operations is a priority.
- Security: We will protect our organization, employees and assets from intended harm.
- 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 actively and in a timely way to global and local challenges and opportunities.
- Transparency: We will monitor, report and verify the company performance. We will have open stakeholder dialogues to learn how we can improve.

2.2.3 Our HESQ commitment

- Where public regulations do not provide adequate controls, we will work with governments, society and businesses to shape regulations and practices that work to this commitment.
- Alongside Yara's commitment to the UN Global Compact, our company values and the Code of Conduct, the HESQ policy is part of a consistent framework defining how Yara will responsibly govern its growth and operations.
- Compliance with this policy is mandatory for everybody who works for Yara. This policy has been adopted by the Board of Directors and applies to all employees and all activities.

3 Definitions and Acronyms

Table 2 Definitions

Term	Definition
Ministerial Statement 870	A statement from the 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.
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.
The TAN plant	When specifying the facility
YPN personnel	Includes employees and contractors engaged on the Site

Table 3 Acronyms

Acronyms	Definition
AN	Ammonium nitrate
BoD	Board of Directors
CEMP	Construction Environmental Management Plan
DWER	Department of Water and Environmental Regulation – WA (previously Department of Environment Regulation and Department of Water)
DBCA	Department of Biodiversity Conservation and Attractions – WA
DEE	Commonwealth of Australia's Department of the Environment and Energy
DMIRS	Department of Mines, Industry Regulation and Safety
EMP	Emergency Management Plan
EP Act	*Environmental Protection Act 1986* administered by Western Australia's Department of Environment Regulation
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* administered by Commonwealth of Australia's Department of the Environment

Acronyms	Definition
HESQ	Health Environment Safety and Quality
HESQMS	Health Environment Safety and Management System
MHF	Major hazard facility
MS 594	Ministerial Statement 594 – Desalinated Water and Seawater Supplies Project Burrup Peninsula, Shire of Roebourne
MS 870	Ministerial Statement 870
mtpa	Metric tonnes per annum
NA	Nitric Acid
OEMP	Operational Environmental Management Plan
Suitably qualified person	A person who has appropriate technical and/or academic qualifications, training and a history of demonstrated acceptable performance for conducting tasks identified in this OEMP.
TAN	Technical ammonium nitrate
tpd	Metric tonnes per day
Yara	Yara International ASA
Yara Pilbara	Management structure for both the YPN and YPF business units
YPF	Yara Pilbara Fertilisers Proprietary Limited
YPN	Yara Pilbara Nitrates Proprietary Limited

4 Legal and Other Requirements

4.1 Legal Obligations

This OEMP incorporates the implementation actions required by Condition 7(b) of the approval granted under the EPBC Act (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.

In addition to EPBC Act considerations, this OEMP has been prepared with due consideration to the requirements of a number 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 4 lists the Commonwealth and Western Australian environmental legislation relevant to the TAN plant.

Table 4 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.	DEE
State legislation		
Aboriginal Heritage Act 1972	Protection of sites of Aboriginal heritage significance, both known and as yet unknown.	Department of Aboriginal Affairs
Agriculture and Related Resources Protection Act 1976	Obligations for control, destruction and notification of gazetted noxious plants and animals.	Department of Agriculture and Food (DAF)
Biodiversity Conservation Act (2016)	Conservation and protection of biodiversity and biodiversity components and the ecological sustainable use of biodiversity components in Western Australia.	Department Biodiversity Conservation and Attractions DBCA
Bush Fires Act 1954	Minimising dangers resulting from bush fires, and the prevention, control and extinguishment of bush fires.	Department of Fire and Emergency Services
Conservation and Land Management Act 1984	Preservation and conservation of flora and fauna.	DBCA

Legislation	Relevance	Regulatory Authority
Contaminated Sites Act 2003	Regulation of matters relating to the identification, assessment, recording, management and clean-up of contaminated land.	DWER
Dangerous Goods and Safety Act 2004	Safe storage, handling and transport of dangerous goods.	Department of Mines, Industry Regulation and Safety (DMIRS)
Dangerous Goods and Safety (Storage and handling of non-explosives) Regulations 2007	Safe storage and handling of non-explosive materials.	DMIRS
Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007	Safe design, construction and operation of major hazard facilities.	DMIRS
Environmental Protection Act 1986 (general provisions)	Prevention, control and abatement of pollution. Conservation, protection and enhancement of environment.	DWER EPA
Environmental Protection Regulations 1987	Prevention, control and abatement of pollution. Conservation, protection and enhancement of environment.	DWER
Environmental Protection (Clearing of Native Vegetation) Regulations 2004	Control of the removal of native vegetation and the 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 (Unauthorized Discharges) Regulations 2004	Prevention and control of pollution.	DWER
Land Administration Act 1997	Consolidates and reforms the law about Crown land and the compulsory acquisition of land generally, to repeal the Land Act 1933.	Department of Planning, Lands and Heritage (DPLH) Western Australia
Local Government Act 1995	Provides for a system of local government in Western Australia, amended the Local Government Act 1960.	City of Karratha (formerly Shire of Roebourne)

Legislation	Relevance	Regulatory Authority
Planning and Development Act 2005	Provides for a system of land use planning and development in the State	DPLH
Rights in Water and Irrigation Act 1914 and Regulations 2001	Protection and licensing of water resources.	DWER
Soil and Land Conservation Act 1988	Conservation of soil and land resources and mitigation of the effects of erosion.	Department of Primary Industries and Regional Development
Waterways Conservation Act 1976	Conservation and management of waterways and their associated environment.	DWER

5 Responsibilities

5.1 Operations Management Structure

Yara Pilbara operates as a management structure for both the YPN and YPF business units. The organisation structure is illustrated in Figure 3. The Plant Manager reports to the YPN Board of Directors (BoD). Environmental responsibilities for key positions are described in Table 5.

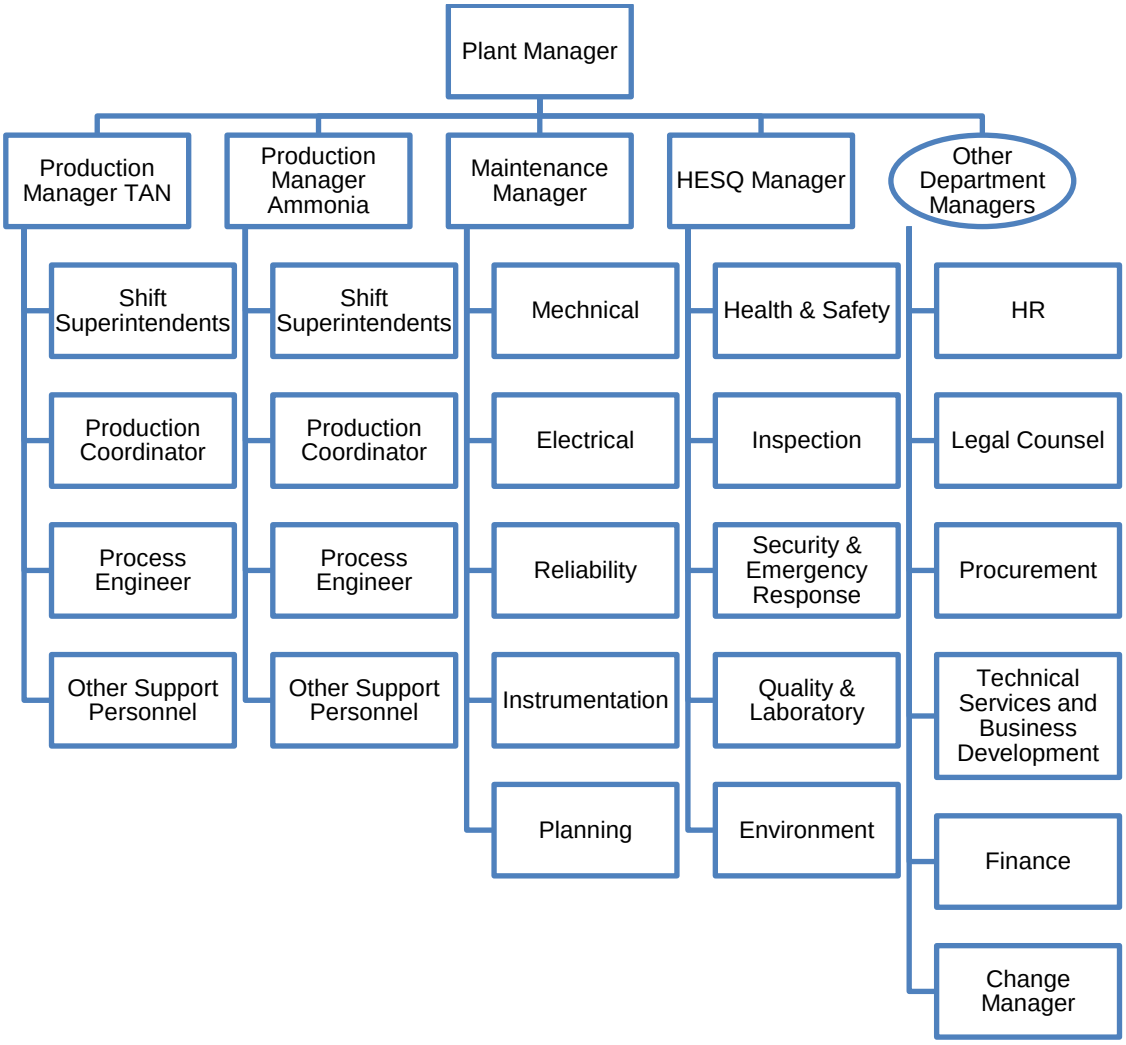


Figure 3 Yara Pilbara operational organisational structure

Table 5 Environmental management responsibilities for key positions

Role	Responsibility
Board of Directors	• 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	• 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 Project
HESQ Manager	• Implementation of the HESQMS and OEMP to ensure the Yara HESQ policy is achieved and all statutory obligations are met at the location for which he or she is responsible. • Informing the Plant Manager of any non-compliance with the HESQMS and statutory obligations at the location for which they are responsible that may expose YPN to significant risk.
Department Managers and Shift Superintendents	• Ensuring all activities and functions carried out, either by employees, contractors or others within their area of responsibilities, adheres to the HESQMS 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	• Content of the Environmental Induction Programme. • 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 (DWER, DEE, DWER and DMIRS)

Role	Responsibility
	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 HESQ Manager and Plant Manager. • Ensuring any environmental-related complaints received from the public or government agencies are investigated and reported as required. • Ensuring the HESQMS and OEMP and its supporting procedures are consistent with and ensure compliance with the regulatory approval conditions, including those of EPBC 2008/4546 approval decision.
Environmental Officer (EO)	• Upon occurrence of an environmental incident (including non-compliance), internally report and immediately inform the Environmental Superintendent 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 in consultation with Environmental Superintendent. • 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. • Assisting the Environmental Superintendent as required,
All Personnel	• Comply with relevant environmental Acts, Regulations, codes of practice and standards. • Comply with Yara's Environmental Policy, procedures, HESQMS and OEMP. • 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.

6 Risk Assessment

A qualitative risk assessment has been undertaken using the methods, definitions and matrix described in the *Environmental Management Plan Guidelines* (Department of Environment and Energy 2014). The risk framework is presented in Table 6 and the definitions for the qualitative measure of likelihood and consequence are presented in Table 7. The risk matrix is presented in Appendix 2.

Table 6: Risk framework

		Consequence				
		Minor	**Moderate**	**High**	**Major**	**Critical**
Likelihood	**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 7: 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 based on 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 (Table 6). Potential risks were ranked prior to identification of mitigation/management measures. Although most risks were ranked as having a low residual risk, mitigation measures have been identified for each key impact/risk identified (detailed further in Section 13). The outcomes of the risk assessment are presented in Appendix 2 including the key management measures that have been discussed further in Section 13.

7 Induction and Training

7.1 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.

7.2 Environmental Awareness Training

Where a training need is identified, arrangements will be made for such appropriate training to be facilitated. Raising environmental awareness through training of relevant staff will be conducted with focus on the following aspects as relevant to the role:

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 management.
8. Complaints response procedures.
9. Spill response and incident management and reporting.

8 Communications

8.1 Internal Communications

Internal communication methods will include but not be limited to the following as applicable:

1. Formal and informal meetings.
2. Emails and environmental notices.
3. YPN BoD reports.
4. Notice boards.
5. On-site personnel inductions, training and toolbox sessions (as required).

These mechanisms will be used to address concerns and questions raised by YPN personnel and any incidents (environmental and general) that have occurred. In addition, these mechanisms will be used to communicate any new environmental management procedures or information to ensure effective implementation.

8.2 External Communications

External communications will include the following, as applicable:

1. Meetings, correspondence and reporting with appropriate regulatory authorities, stakeholders and industry groups.
2. Discussions and consultation with adjoining land managers.
3. Consultation with representatives of local Aboriginal groups and Native Title claimants.
4. Handling of, and responding to, stakeholder complaints or requests.
5. Annual reporting (e.g. Annual Compliance Report).

8.3 Community Complaints

All external complaints are recorded and reported to the EO for investigation, as per the Yara Pilbara Complaints Procedure. An investigation will be terminated if the complaint is found to be unsubstantiated and records updated accordingly.

Where an incident following review and initial investigation is confirmed as being related to the Project, that incident will be recorded in Yara Pilbara's Incident Reporting and Investigation System.

9 Incidents and Corrective Actions

YPN is committed to preventing incidents through the reporting of incidents and hazards in order to eliminate or mitigate against those hazards or events. By investigating all incidents and implementing corrective actions specifically designed to eliminate underlying root causes, repeat incidents may be prevented. Agreed corrective actions will be captured in Synergi in line with YPN's Incident Investigation and Reporting Procedure.

9.1 Environmental Incidents

The procedure for reporting environmental incidents is in accordance with the YPN's Incident Investigation and Reporting Procedure.

Based on the significance of the incident a root-cause analysis will be undertaken in consultation with the HESQ Manager, Environmental Superintendent and relevant Department Manager.

The HESQ Manager or delegate communicates to the regulatory agency, if required, following consultation within the appropriate time frame.

In accordance with Condition 3A of EPBC 2008/4546, YPN shall notify DEE of a potential non-compliance in writing within 7 days of becoming aware of the potential non-compliance.

In accordance with Condition 9B of EPBC 2008/4546, 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 EP Act the person taking the action must also report to DEE in writing within the same timeframe as reporting is required to be provided to the Western Australian Government.

10 Emergency Response

The Emergency Management Plan (EMP) (250-500-PLN-000-0003) has been prepared 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 (MHF) under the *Dangerous Goods Safety (MHF) 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.

11 Data Handling

11.1 Data management

YPN will maintain accurate records substantiating all activities associated with or relevant to the conditions of approval outlined in EPBC 2008/4546. This includes measures to implement the plan(s) required by EPBC 2008/4546.

Data collected by Yara, contractors and/or any other specialists during monitoring activities will be provided to the Environmental Superintendent who will ensure all data and records are stored and maintained to inform reporting, review and compliance assessments. Numerical data will be stored using Microsoft Excel or other 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.

11.2 Quality Assurance

This OEMP describes methods and protocols for monitoring of various environmental parameters including air emissions and air quality, 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 quality assurance requirements. Traceability of information must be maintained throughout the monitoring process. All sampling activities will be documented using field data sheets, samples submitted for analyses at the Yara site laboratory or external laboratories must be accompanied by Chain of Custody documentation. Quality control (QC) measurements must be carried out as per the methods and protocols, and QC data must be reviewed before measurement data can be approved for use. Data which is not supported by acceptable QC results or where QC results are not available must be quarantined and advice sought from the Environment Superintendent regarding the use and interpretation of those data.

All documentation and records from these activities are to be captured in the Yara document control system and QC results stored in electronic databases along with the measurement data.

12 Review and Audit

12.1 Auditing

Monitoring of implementation performance of this OEMP is undertaken by auditing. Auditing forms an important part of OEMP implementation to ensure that specified objectives and performance criteria are met. YPN and regulatory agencies may undertake audits at YPN operations, as described below.

12.1.1 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 DEE through the annual compliance report against EPBC 2008/4546.

YPN will initiate independent audits of its operations every two (2) years.

12.1.2 External

Regulators undertake regular compliance audits and provide written reports to YPN. Any non-conformance will be tracked for corrective actions. The responsible regulatory agency will be provided with the completion of corrective actions.

Summaries of audits will be posted on the DEE website. The results of audits may also be publicised through the general media.

12.2 Review and Reporting of Environmental Performance

12.2.1 OEMP Technical Review and Adaptive Management

This OEMP is to be reviewed and updated in keeping with YPN's commitment to continuous improvement. The OEMP review shall be initiated:

- following significant incidents
- where monitoring indicates that performance is not being achieved
- periodically every 12 months.

Technical review of and evaluation of the monitoring programs outlined in the OEMP will be undertaken annually 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 and incorporated into revisions of the OEMP:

- new and relevant data/information gained as a result of implementing the plan or from external sources (e.g. modelling, monitoring outcomes, academic literature, EPBC Act policy statements)
- effectiveness of OEMP coordination, 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
- consequences of significant environmental incidents.

In accordance with Condition 12 of EPBC 2008/4546, if YPN wishes to carry out any activity outside the requirements of this OEMP (including the Rock Art Impact Mitigation Review [RAIMR] required under Condition 11A of EPBC 2008/4546), YPN must submit to DEE (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 and available as per YPN's Document Control system and made publicly available as described in Section 1.6.

12.2.2 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.

The annual report will be informed by monitoring data and reports as generated in implementing the plan. The report will address the following:

- exceedance of thresholds (if any)
- risk management
- management actions
- monitoring
- continuous improvement outcomes.

13 Environmental Management

13.1 Groundwater Management

13.1.1 Overview

This section details how groundwater is managed to ensure compliance with the YPN objective and Project approval requirements. Management of surface water and discharges associated with the operation of the TAN Plant is outlined in Section 13.2.

Five (5) groundwater wells (Figure 4) were developed (MW1, MW2, MW3, MW4 and MW5) during the hydrogeological and hydrological investigation undertaken by ERM (2012). Baseline groundwater monitoring has been conducted and specific thresholds calculated. Wells MW1 and MW4 were relocated (i.e. initial wells decommissioned and wells developed at new locations) in 2013.

13.1.2 Environmental Risks to be managed

The following environmental activities or aspects of the TAN plant operation will be managed to ensure plant operations do not result in groundwater contamination within and surrounding the plant:

- storage, handling and disposal of hydrocarbons and chemicals which can lead to groundwater contamination; and
- production, storage and handling of nitrogen compounds, including nitric acid, ammonium nitrate solution and ammonium nitrate prill which can lead to groundwater contamination.

13.1.3 Environmental Objectives and Performance Targets

The YPN objectives and targets for groundwater are detailed in Table 8.

Table 8 Objectives and Performance Targets – Groundwater

Objective	Performance Target
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 targets in DWER licence.
To ensure changes to groundwater quality, as a result of the operation of the TAN Plant, does not adversely impact on the surrounding vegetation.	No impact to surrounding vegetation as a result of changes to groundwater quality caused by operations.

13.1.4 Management

The materials present on site that present a risk to groundwater quality are hazardous materials. Management measures to achieve the groundwater management objectives are described in Table 9.

Table 9 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 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.	At all times	Hazardous materials inspection
	Maintain purchase and inventory records of hazardous materials on-site in the Hazardous Materials Register.	Ongoing	Hazardous Materials Register
	Provide secondary containment for stored hazardous materials in accordance with AS 1940-1993: The Storage and Handling of Flammable and Combustible Liquids.	Ongoing	Not applicable
	Ensure hazardous materials are clearly labelled and placarded (DG Regs).	Ongoing	Visual inspection
	Ensure that SDS are available and used to direct all storage and handling of hazardous materials including: • transport requirements • use of Personal Protective Equipment • storage requirements • clean-up procedures.	Ongoing	Visual inspection
	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.	At all times	Materials manifest
	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.	At all times	Visual inspection
	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	At all times	Visual

Performance indicator	Management Actions	Timing	Related Monitoring
	with the provision of AS 1596: LP Gas - Storage and handling and AS 2030: SAA Gas Cylinder Code.		inspection
	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.	Prior to disposing any Hazardous Material	Visual inspection
	Record all spillages (outside bunded areas) in Synergi and report to EO as soon as practicable in accordance with the YPN Incident Reporting Procedure.	Ongoing	Synergi – Incident reporting

13.1.5 Monitoring

Monitoring actions to evaluate the effectiveness of the groundwater management measures are described in Table 10. All sampling will be conducted by a member of the Yara Pilbara's Environment team 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 10 Groundwater Monitoring Program

Monitoring Activity	Objective	Parameters measured	Methodology	Frequency	Location
Importation of hazardous materials	To maintain purchasing and inventory records for all hazardous materials on-site.	n/a	Materials manifest records	Ongoing	Hazardous Materials Register
Storage of hazardous materials	To confirm storage of hazardous materials is in accordance with AS 1940-1993: The Storage and Handling of Flammable and Combustible Liquids and DWER licence requirements.	n/a	Warehouse and storage areas	Monthly	TAN plant
Groundwater	To detect changes in groundwater	cations and anions	Ion chromatography	Six	MW1

Monitoring Activity	Objective	Parameters measured	Methodology	Frequency	Location
monitoring	quality attributable to operations	(calcium, magnesium, ammonium, chloride, nitrate) and total nitrogen	analysis based on APHA 4500 methods (cations and anions)	monthly	MW2 MW3 MW4 MW5
		total dissolved solids, total suspended solids and total alkalinity	APHA 2540 methods (TDS, TSS, alkalinity)		
		metals (aluminium, arsenic, cadmium, chromium (III), chromium (VI), copper, iron, lead, manganese, mercury, nickel and zinc)	ICPAES and ICPMS analyses based on APHA 3120 and 3125 methods (metals)		
		oil and grease	GC-FID analysis based on USEPA methods (oil and grease)		
		pH.	pH meter		

13.1.6 Contingency Actions

In the event that the objectives for groundwater management are not being met the contingency actions described in Table 11 will be initiated.

Table 11 Contingency Actions – Groundwater

Threshold	Contingency Actions
Spill or loss of containment of hazardous material	1. Undertake immediate inspection, temporary control and report as an environmental incident (refer to Section 9.1). 2. Contain spill (e.g. by removal, or bunding). 3. Using a risk-based approach, determine severity of incident and priority, taking into account the nature and extent of the environmental impact. 4. Identify and implement corrective actions to be undertaken or planned to mitigate adverse environmental consequences. 5. Follow up on recommendations to ensure corrective actions are completed. 6. Identify changes to work practices or operations that are required to ensure that the incident will not re-occur together with a timetable for implementation of those changes. 7. Advise relevant authorities of final outcome of incident management (as necessary) or any long-term initiatives proposed to manage residual impacts from the incident.
Exceedance of groundwater quality parameter limits in the DWER licence.	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.

Figure 4: Monitoring locations

Figure 4 Monitoring locations

13.2 Surface and Storm Water

13.2.1 Overview

This section details how surface and storm water (including discharges) is managed to ensure compliance with the YPN objectives and Project approval requirements.

Upstream surface water run-off is diverted around the site and discharged downstream.

The drainage system within the site segregates potentially contaminated storm water, including any pollution from possible spillages, ruptures or overflows, from the clean storm water. Segregated storm water is collected in two (2) evaporation ponds. Design and management within the Site ensures that all storm water is retained on site.

Process water is treated via the effluent treatment system prior to discharge into the Water Corporation's Multi User Brine Return Line (MUBRL) pipeline. Discharges to the MUBRL are managed via an agreement between YPF and Water Corporation in compliance with Water Corporation's Ministerial Statement 594 (MS 594).

Septic waste is collected and diverted to package wastewater treatment plants prior to discharge to and retention within a pond onsite.

No permanent surface water bodies or streams are found within the lease. However, there are a number of minor ephemeral drainage lines within the lease but outside the operational boundary which discharge during rainfall events.

13.2.2 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 to mitigate erosion (loss of soil and landform) and contamination of watercourses;
- high sediment loads leading to deposition of sediments and silting-up of drainage channels; and
- contamination of receiving waters (marine/terrestrial) from the discharge of potentially contaminated water.

13.2.3 Environmental Objectives and Performance Targets

The YPN objectives and targets for surface and storm water are detailed in Table 12.

Table 12 Objectives and Performance Targets – Water

Objective	Performance Target
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.
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.
To minimise erosion and environmental damage due to storm water diversion within the lease area.	No degradation of downstream water quality due to stormwater diversion.

13.2.4 Management

Management measures to achieve the surface and storm water management objectives are described in Table 13.

Table 13 Management Actions – Water

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 meets targets/limits	Manage process water streams within the plant so that wastewater discharged to MUBRL is within discharge criteria specified in MS 594.	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 design intended.	Ongoing	Visual inspection
No loss of listed threatened species and listed migratory species	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

Performance indicator	Management actions	Timing	Related monitoring
as a result of the operations	Employ structures and apparatus as 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	Prior to commissioning	Visual inspection

13.2.5 Monitoring

Monitoring actions to evaluate the effectiveness of the surface and storm water management measures are described in Table 14. Unless indicated otherwise, all monitoring will be conducted by a member of the Yara Pilbara's Environment team or suitably qualified person.

Table 14 Monitoring Program

Monitoring activity	Objective	Parameters measured	Methodology	Frequency	Location
Visual inspection	To ensure no overtopping of water storage ponds	Freeboard	Not applicable	Weekly	Water storage ponds (contaminated water ponds, clean water ponds and sewerage wastewater treatment evaporation pond).
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	Weekly	Water storage ponds (contaminated water ponds, clean water ponds and sewerage wastewater treatment evaporation pond).
Water quality monitoring	To ensure water discharged to MUBRL does not exceed criteria.	Ammoniacal Nitrogen Total Phosphorous Total Nitrogen Methanol	Flow injection analysis based on APHA 4500 methods (NH_3, P, total N) GC/FID or GC/MS	Weekly composite	Combined wastewater streams from the TAN plant monitoring point (W4).

Monitoring activity	Objective	Parameters measured	Methodology	Frequency	Location
		Dissolved Oxygen pH Enterococci Thermotolerant Coliforms Cadmium Copper Iron Lead Mercury Nickel Zinc Total Recoverable Hydrocarbons	analysis (methanol) DO analyser pH meter Membrane filter method (micro-organisms) ICPAES and ICPMS analyses based on APHA 3120 and 3125 methods (metals) CV-AAS analysis based on APHA 3112B (for mercury) GC-FID analysis based on USEPA methods (TRH)		
Erosion detection	Detect evidence of erosion	Erosion	Visual inspection	Following a cyclonic rainfall event (>100 mm)	Lease boundary
			Visual inspection	Quarterly	Drainage system

13.2.6 Contingency Actions

In the event that the objectives for water management are not being met the contingency actions described in Table 15 will be initiated.

Table 15 Contingency Actions - Water

Threshold	Contingency Action(s)
Overtopping of water storage pond	1. Report the event 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)
Integrity and function of structures and apparatus to deter birds from the water ponds compromised	1. Report the event to the Environmental Superintendent. 2. Repair or modify affected structures and apparatus as soon as practicable.
Exceedance of process wastewater discharge criteria to MUBRL	1. Report the event to the Environmental Superintendent. 2. Identify and mitigate 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.
Degradation of downstream water quality due to sedimentation	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.
Identification of gully, sheet or rill erosion	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.

13.3 Waste Management

13.3.1 Overview

This section details how waste is managed to ensure compliance with the YPN objectives and Project approval requirements.

Solid waste streams from the operation of the TAN plant will include:

- domestic putrescible waste from administration buildings;
- recyclables (paper, cardboard, scrap metal, plastics);
- oily rags;
- empty chemical and hydrocarbon containers;
- sludge from cleaned heat exchangers and storage tanks;
- spent catalyst; and
- organic waste from off-spec prills that cannot be recycled through the plant.

13.3.2 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, inland waters and terrestrial environment within and surrounding the plant.

13.3.3 Environmental Objectives and Performance Targets

The YPN objectives and targets for waste are detailed in Table 16.

Table 16 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

13.3.4 Management

Management measures to achieve the waste management objectives are described in Table 17.

Table 17 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: • 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 EO ensures that: • 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.	Prior to contractor pick-up	Waste disposal receipts in the waste register

13.3.5 Monitoring

Monitoring and measurement actions to evaluate the effectiveness of the waste management measures are described in Table 18. Unless indicated otherwise, all monitoring will be conducted by a member of the Yara Pilbara's Environment team or suitably qualified person.

Table 18 Waste Monitoring Program

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	Waste vessels on 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	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

13.3.6 Contingency Actions

In the event that the objectives for waste management are not being met the contingency actions described in Table 19 will be initiated.

Table 19 Contingency Actions – Waste

Threshold	Contingency actions
Incident involving waste (storage, segregation or disposal)	The incident will be investigated in consultation with the Environmental Superintendent. The agreed corrective actions will be captured in line with YPN's Incident Investigation and Reporting Procedure.
Significant waste spills (spills that have caused or have the potential to cause a significant environmental impact)	1. Refer to the Environmental Spill Procedure. 2. Undertake immediate inspection, temporary control and report as an environmental incident (in Synergi). 3. Contain spill (e.g. 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 incident will not re-occur together with a timetable for implementation of those changes. 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.
Minor waste spills	1. Clean up spill. 2. Take preventative action against potential for future spills as appropriate.

13.4 Air Quality Management

13.4.1 Overview

Atmospheric emissions are managed to protect human health, environment, Aboriginal Heritage values, amenity of the surrounding land use and ensure compliance with YPN objectives and Project approval requirements. This section of the OEMP supersedes and replaces the *Burrup Technical Ammonium Nitrate Production Facility Air Quality Management Plan*, published February 2013 (ERM, 2013).

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 most significant sources of air emissions during operations include:

- Ammonium nitrate plant;
- Nitric acid plant; and
- Nitric acid tanks.

The primary air emissions from the TAN plant are:

- Oxides of nitrogen (NOx) consisting of nitrous oxide (N_2O), nitric oxide (NO) and nitrogen dioxide (NO_2);
- Sulfur dioxide (SO_2);
- Ammonia (NH_3);
- Ammonium nitrate (NH_4NO_3);
- Total suspended particulates (TSP);
- Particulate matter of less than 10 µm in aerodynamic diameter (PM_{10}); and
- Particulate matter of less than 2.5 µm in aerodynamic diameter ($PM_{2.5}$).

During operation, the majority of emissions are discharged from tall stacks. 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 (ie earthworks) are occurring, therefore the risk of dust from the site during operations from traffic movement is considered insignificant.

YPN has identified areas where windblown and wheel generated dust may contribute to dust emissions. These areas will be classified according to their surface covering. This data will be used to quantify wind and vehicle generated dust emissions from the TAN plant, to demonstrate that windblown and wheel generated dust emissions are insignificant.

13.4.2 Air Emissions Impacts and Assessment

There are no residences located in proximity to the TAN plant to be considered in assessment of air emission impacts to health and amenity of residents. Key sensitive receptors to be protected are therefore:

- recreation areas; and
- rock art.

13.4.3 Recreational areas

Hearson Cove and Deep Gorge are considered 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 can be assessed from application of air quality standards for residential areas, i.e. the National Environment (Ambient Air Quality) Protection Measures (AAQ NEPM).

The AAQ NEPM is not intended as a regulatory tool to manage air emissions from individual facilities; rather the measures are intended to assess the air quality of a region for protection of human health and well-being. Other industries on the Burrup provide significantly greater contributions of NEPM parameters (namely NOx, SO_2 and particulates) to the air shed. The impacts of those emission sources are regulated under their respective 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 Figure 5. 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.

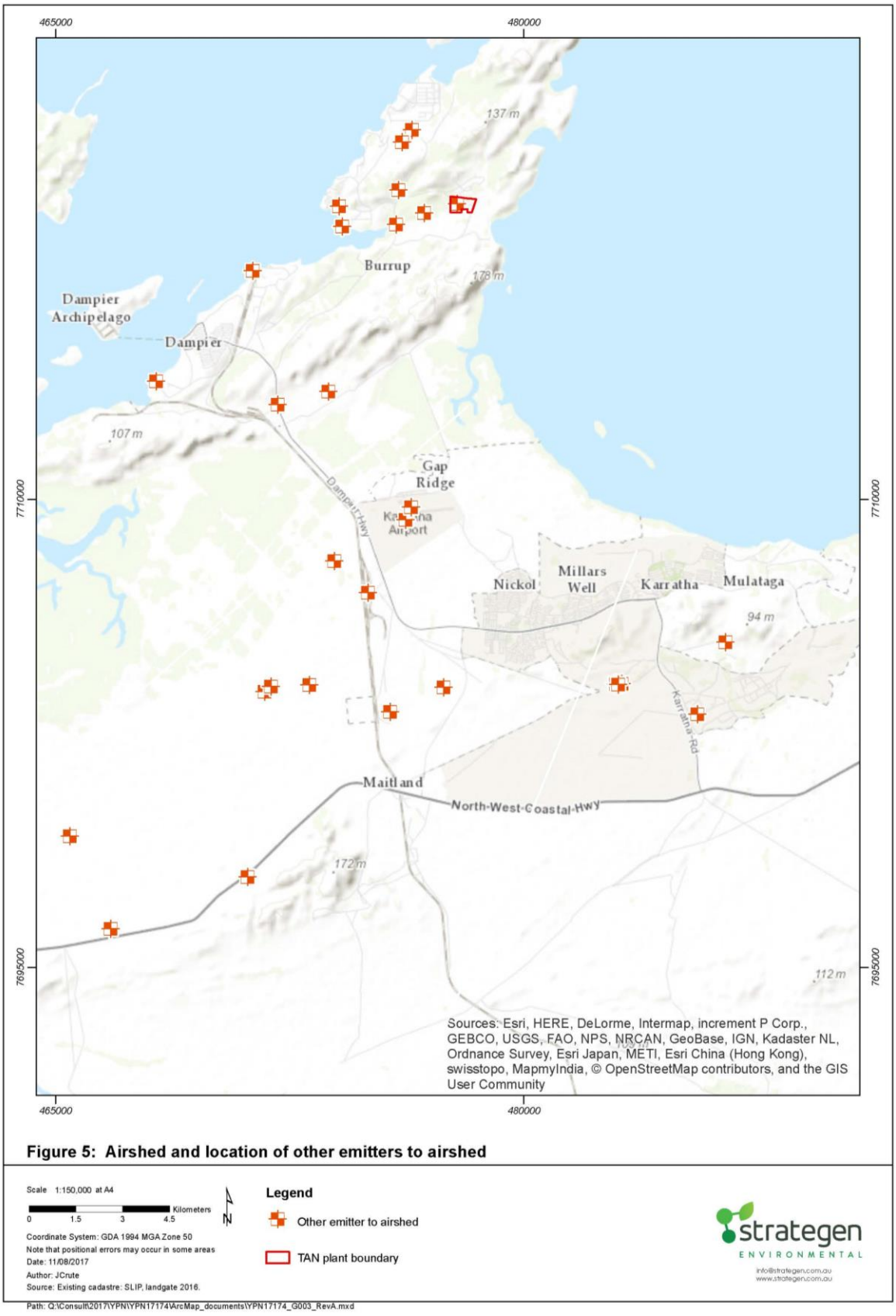


Figure 5: Airshed and location of other emitters to airshed

Air emissions limits for the TAN plant will be specified in the DWER licence to be issued at completion of commissioning. Condition 9B(a) of EPBC 2008/4546 specifies that emissions must not exceed the limits described in a DWER licence and Condition 9B(b) describes reporting requirements in the event that a reporting requirement is triggered under the DWER licence.

As such, this OEMP incorporates the DWER licence conditions pertaining to air emissions. The DWER licence also sets limits for ammonium nitrate and NOx emissions.

The assessment of air quality impacts on rock art is informed by monitoring of ambient air concentrations of NO_2, NH_3, HNO_3 and SO_2, 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. Details of the monitoring requirements are provided in Section 13.4.7.

Relevant ambient air quality criteria (standards) for assessment of ambient concentrations are detailed in Table 20.

Table 20 Adopted Air Quality Criteria

Location	Species	Averaging period	Air Quality Criteria
Offsite – Ambient air criteria – rock art			
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	Monthly deposition rates (meq/m^2/month) and rolling annual total (meq/m^2/y) calculated from fortnightly and/or monthly measurements	Values which exceed the upper control limit for monthly and rolling annual total deposition rates will trigger an investigation
	Dust Deposition (insoluble fraction - gravimetric)	Monthly	Values which exceed the upper control limit for monthly and rolling annual total deposition rates will trigger an investigation
	Dust Deposition (soluble fraction – speciated cations and anions)	Monthly deposition rates (meq/m^2/month) and rolling annual total (meq/m^2/y) calculated from fortnightly and/or monthly measurements	Values which exceed the upper control limit for monthly and rolling annual total deposition rates will trigger an investigation
	Rain water	Annual average	No criteria applicable

Air quality standards that specify a concentration limit or target are not available for assessment of risks to the rock art. YPN acknowledge studies conducted by CSIRO which suggested a critical acid load of 200 milliequivalents per square metre per year (meq/m^2/y) could be applied as a criterion (or standard) for assessment of risks to rock art. However, YPN has not adopted this criterion or any other critical load criterion at this time since the CSIRO critical load value has been challenged and

additional research appears necessary to either confirm the CSIRO value is protective of rock art or to identify an alternate value.

Until such time as an appropriate critical load criterion is identified, YPN will monitor the change in acid deposition as determined from airborne concentrations of NO_2, NH_3, HNO_3 and SO_2, and concentrations of cations and anions in rainwater and deposition samples collected at the monitoring stations. Note 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 (Figure 5).

In regards to the assessment of changes in dry deposition rates, YPN will calculate monthly deposition rates from the fortnightly and/or monthly monitoring for each of the four (4) gases (NO_2, SO_2, NH_3 and HNO_3) carried out at Sites 5, 6 and 7 in the baseline study. The monthly data will be used to calculate rolling annual total deposition rates. A statistical analysis will be carried out on the baseline monthly and rolling annual total deposition rates to determine the underlying variability and to set control limits for management. To this end YPN will, by 1 November 2017, advise the Department that the analysis has been completed and of the findings of that analysis including control limits. Increases in the deposition rates above the upper control limits will trigger an investigation to determine the cause(s) of the increases; in particular, whether increases in emissions from YPN operations have occurred.

A similar process is to be followed for assessment of dust deposition data, where a statistical analysis of the baseline deposition rates for the insoluble fraction will be used to inform control limits. The baseline monitoring program did not include a requirement to monitor deposition rates of cations and anions in the soluble fraction, which precludes calculation of control limits for those parameters. Monitoring of both the insoluble and soluble deposition fractions commenced in March 2017 and monthly insoluble deposition rates will be used to assess variability and establish monthly control limits that can be extrapolated and applied to the soluble fraction. An annual total deposition rate will be calculated and control limits will be established thereafter as monitoring continues. To this end YPN will, by 1 November 2017, advise the Department of the annual deposition rate and control limits set for the operation.

Note that an exceedance of an upper control limit will not indicate a significant or material change in risk to the rock art has occurred, rather such an event will provide a trigger for investigation as to the reason for the increase in deposition rates.

The highly variable nature of rainfall events precludes the calculation and use of rolling annual totals and control limits to assess significance of variability in wet deposition rates. Annual total wet deposition rates from the baseline study will be calculated and wet deposition rates from future rainfall events compared. Historically, wet deposition constitutes less than one third of the total deposition rate. Changes in that relative contribution will be monitored during the operational monitoring program.

13.4.4 Environmental Risks to be managed

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

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

13.4.5 Environmental Objectives and Performance Targets

The YPN objectives and targets for air quality are detailed in Table 21.

Table 21 Objectives and Performance Targets – Air Quality

Objective	Performance Target
To minimise the impacts of the TAN plant's atmospheric emissions	Emissions must not exceed limits described in the DWER licence.

13.4.6 Management

Management measures to achieve the air quality management objectives are described in Table 22.

Table 22 Management Actions – Air Quality

Performance indicator	Management Actions	Timing	Related monitoring
Meeting emission performance criteria for process exhaust gas streams	Scrubbers and demisters are installed on Nitric Acid Plant stack and on the Ammonium Nitrate Plant common stack Those equipment shall be maintained in effective operational condition	Ongoing	Stack emissions monitoring (CEMS and stationary source sampling) Service and maintenance records to be reviewed annually to ensure effective operational performance is maintained

13.4.7 Monitoring

Monitoring actions to evaluate the effectiveness of the air quality management measures are described in Table 23. Unless indicated otherwise, all ambient air monitoring will be managed and carried out by a member of the Yara Pilbara's Environment team or suitably qualified person. Continuous monitoring of stack emissions is provided by the installed Continuous Emissions Monitoring System (CEMS), operated and managed by the Yara Pilbara operations team. Stack emissions testing will be carried out by a NATA accredited stack emissions testing company.

Ongoing air quality monitoring will be undertaken within 30 days after Condition 9A of EPBC 2008/4546 comes into effect, and until expiry of the approval.

Table 23 Air Quality Monitoring Program

Monitoring activity	Objective	Parameter measured	Methodology	Frequency	Location
Stack	To quantify	Volumetric flow	CEMS operated as	Continuous	Nitric

Monitoring activity	Objective	Parameter measured	Methodology	Frequency	Location
emissions monitoring	atmospheric emissions from TAN plant	rate	per DWER CEMS Code Stack testing using USEPA methods	with annual verification[1]	Acid Plant stack
		Oxides of nitrogen			
		Ammonia			
		Nitrous oxide			
		Ammonia	Stack testing using USEPA methods	Annually[1]	AN common stack
		PM_{10}			
Weather monitoring	To assist with acid gas source apportionment calculations	Wind speed/direction	Anemometer (AS 2292 – 1987 and AS 3580.14 011)	Continuous	On site
		Temperature	Temperature sensor, (AS 2292 – 1987 and AS 3580.14 011)	Continuous	On site
		Rainfall rate	Tipping rain gauge, (AS 2292 – 1987 and AS 3580.14 011)	24 hour rainfall total	On site
Ambient air quality monitoring at rock art sites	Compliance with EPBC 2008/4546 Condition 9A and to assess risk to rock art from airborne pollutants	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
		Total dust deposition per month (Insoluble Fraction) and Total dust deposition per month (Soluble Fraction)	Dust deposition gauge (AS3580.10.1:2003) with speciation of cations and anions in soluble fraction	Monthly (EPBC 2008/4546 Condition 9A requires minimum 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 every 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
	For analysis of	Rain water	Automatic rain	Monthly or	Site 5

Monitoring activity	Objective	Parameter measured	Methodology	Frequency	Location
	cations and anions to calculate wet deposition rates		water sampler	as occurs	Site 6 Site 7
	Generate correlation factor for MicroVol TSP referenced to HVAS TSP 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

[1] Annual verification of stack emissions carried out by NATA accredited stack testing company using USEPA methods 7E (for NOx), CTM027 (for NH_3), CTM038 for N_2O, method 17 for particulates with PM_{10} fraction determined from particulate size distribution analysis

[2] Six daily sampling is carried out as per recommendation in AS*3580.9.9:2006*

13.4.8 Contingency Actions

In the event that the objectives for air quality management are not met the contingency actions described in Table 24 will be implemented.

Table 24 Contingency Actions – Air Quality

Threshold	Contingency Actions
Stack emissions monitoring identifies exceedance of DWER licence limits	1. Investigate cause(s), including stack emissions performance, scrubber efficiency, maintenance records and TAN plant operating parameters 2. If a significant exceedance is observed, then conduct air dispersion modelling to predict ambient air concentrations at sensitive receptors 3. If necessary, make any repairs or carry any maintenance to restore scrubber efficiency 4. Re-test stack emissions to confirm effectiveness of actions
Monitoring identifies exceedance of ambient air quality criteria at the rock art sites	1. Investigate cause(s), including stack emissions performance, scrubber efficiency and maintenance records. 2. Identify potential contributions of airborne pollutants from other sources in the air shed using meteorological data. 3. Estimate contributions from YPN and/or YPF operations using dispersion modelling of stack emissions 4. If necessary, make any repairs or carry any maintenance to restore scrubber efficiency and minimise stack emissions 5. Test stack emissions to confirm effectiveness of actions.

14 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 capture all approval obligations within EPBC 2008/4546 within a consolidated OEMP.

14.1 Heritage

14.1.1 Overview

There are two (2) sensitive receptors of relevance on the Burrup Peninsula - communities and indigenous rock carvings (or 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 increase the rate of corrosion. Major rock art locations are within 2 km of the TAN plant.

Six (6) representative rock art sites were selected as part of a monitoring program undertaken by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to assess the potential impacts of air pollutants on rock art, as follows:

- Yara North East
- Yara East
- Burrup Road (Site 5)
- Water Tanks (Site 6)
- Deep Gorge (Site 7)
- Yara West.

The location of these sites are shown in Figure 4.

14.1.2 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 ha disturbance area; and
- air emissions that may alter the appearance, or cultural value of rock art.

14.1.3 Environmental Objectives and Performance Targets

The YPN objectives and targets for heritage are detailed in Table 25.

Table 25 Objectives and Performance Targets – Heritage

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

14.1.4 Management

Management measures to achieve the heritage management objectives are described in Table 26.

Table 26 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: • 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 process exhaust gas streams meet emissions performance criteria Comply with Condition 10A of EPBC 2008/4546	Annually (undertaken between 15 July and 15 September)	Colour and spectral analysis monitoring must be undertaken at the 6 sites outlined in Section 14.1
	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.	Ongoing	Visual inspection to be undertaken at 6 sites outlined in Section 14.1

14.1.5 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 (should such a program be re-established) or for YPN to undertake such monitoring via engagement of a suitably qualified person (Heritage). The monitoring is to be conducted at the sites outlined in Figure 4.

An overview of the Burrup Rock Art Monitoring Program as conducted by CSIRO are provided below (Table 27) in the event that the WA Government does not commission the Burrup Rock Art Monitoring Program, YPN is required under Condition 10A of EPBC 2008/4546 to undertake the monitoring using a methodology approved by the Minister in writing.

Monitoring actions to evaluate the effectiveness of the heritage management measures are described in Table 27.

Table 27 Rock Art Monitoring Program

Monitoring activity	Objective	Parameter measured	Methodology	Frequency	Location
Visual inspection	To identify evidence of unauthorised clearing or disturbance	Loss or damage to vegetation due to operations	Not applicable	Quarterly	Outside operational areas
Induction register	To ensure all employees and contractors are inducted	Induction records	Not applicable	As required.	TAN plant site
Rock art	To identify 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.	Colour and colour contrast	Spectro-photometry	Annually	6 sites described in Figure 4
		Mineralogy	Reflectance spectroscopy (visible and NIR spectral analysis)	Annually	6 sites described in Figure 4

All heritage monitoring is carried out on the selected rock art specimens *in-situ*. The colour measurements involve use of a portable, hand-held spectrophotometer that

measures degree of lightness (L*), degree of red/green (a*) and degree of yellow/blue (b*) to provide a tristimulus value (3D L*a*b*) for each sample point on the specimens. Differences in the 3D values from year to year are numerically evaluated to identify potential change in the colours over time.

The rock art surface mineralogy is evaluated using reflectance spectroscopy, via a portable spectrometer operating over a 400 to 2500 nm wavelength range. An internal light source was used to irradiate the surface, with the reflected light detected by an array of photodiodes. A graph (spectrum) of reflectance vs wavelength is generated for each monitoring point on the surface of the rocks, which is compared with spectra generated from previous years for the same point on the same rock specimens. Changes in the spectra are an indicator of changes in the mineralogy of the rock surface, including points on the surfaces of the actual engravings.

These monitoring techniques require experienced and skilled scientists to generate reliable results. As such, YPN will engage suitably qualified and experienced scientists to conduct Heritage monitoring in the event that YPN is required under Condition 10A to undertake the monitoring.

YPN will engage with the Murujuga Aboriginal Corporation in the planning and reporting associated with the on-going rock art monitoring at least once annually.

14.1.6 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 26 will be implemented.

YPN recognise that the Minister can request a Rock Art Impact Mitigation Review (RAIMR) to be prepared and implemented if DEE are not satisfied with the outcomes of the rock art monitoring program. If the RAIMR is not submitted to the satisfaction of the Minister within 6 months of Condition 11A of EPBC 2008/4546 being triggered, YPN recognise that Condition 11B states air emissions from operations can be reduced to a level over a period specified by the Minister.

Table 28 Contingency Actions – Air Quality and Heritage

Threshold	Contingency Action(s)
Unauthorised access identified	1. Notify Environmental Superintendent. 2. Enter the incident into Synergi (refer to incident reporting procedure). 3. Determine how access was gained and, if possible, the likely time of access. 4. Implement remedy, which could include: • 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. 5. Monitor success of control.

Threshold	Contingency Action(s)
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	1. Report the event to the Environmental Superintendent. 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, report the event to the DEE. 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 Minster. 5. Once approved, implement the mitigation and management measures in the RAIMR.

14.2 Flora and Vegetation Management

14.2.1 Overview

Vegetation on the Burrup Peninsula and the surrounding islands is of significant conservation value. The Project 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 Project. 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.

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; and
- the relative absence of weed species in the lease area – currently only have two (2) out of the fourteen (14) environmental weeds species known to occur on the Burrup Peninsula.

14.2.2 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; and
- vehicular traffic introducing or promoting the spread of weed species and threatening vegetation communities.

14.2.3 Environmental Objectives and Performance Targets

The YPN objectives and targets for flora and vegetation are detailed in Table 29.

Table 29 Objectives and Performance Targets – Flora & Vegetation

Objective	Performance Targets
To minimise adverse impacts on the abundance, species diversity, geographic distribution and productivity of vegetation communities	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.

14.2.4 Management

Management measures to achieve the flora and vegetation management objectives are described in Table 30.

Table 30 Management Actions – Flora & Vegetation

Performance Indicator	Management Actions	Timing	Related Monitoring Activity
No clearing or disturbance outside approved disturbance boundary	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: • the significance of flora on the site	Ongoing	Induction register

Performance Indicator	Management Actions	Timing	Related Monitoring Activity
	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.		
	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.	Ongoing	Visual inspection
Control of weeds	Undertake weed control actions whenever the spread of weed species are observed.	As required	Visual inspection

14.2.5 Monitoring

Monitoring actions to evaluate the effectiveness of the flora and vegetation management measures are described in Table 31. All monitoring will be conducted by a member of the Yara Pilbara's Environment team or other suitably qualified person.

Table 31 Flora and Vegetation Monitoring Program

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

14.2.6 Contingency Actions

In the event that the objectives for flora and vegetation management are not being met the contingency actions described in Table 32 will be initiated.

Table 32 Contingency Actions – Flora and Vegetation

Threshold	Actions
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 to DEE. 4. 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). 5. Monitor success of control.
Unauthorised access identified	1. Notify Environmental Superintendent. 2. Enter the incident into Synergi (refer to incident reporting procedure). 3. Determine how access was gained and, if possible, the likely time of access. 4. Implement remedy, which could include: • 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. 5. Monitor success of control.
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.

14.3 Fauna Management

14.3.1 Overview

This section details how fauna is managed onsite to ensure compliance with the YPN fauna objective and Project 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.

Table 33 provides a list of the conservation significant fauna species that may be encountered during operation of the TAN Plant (derived from ERM 2010). Table 34 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 33 Conservation Significant Fauna that may be encountered at the TAN plant area.

Species name	Common name	Conservation status*	
		BC Act **	EPBC Act
Mammals			
Dasyurus hallucatus	Northern Quoll	EN	E
Macroderma gigas	Ghost Bat	VU	V
Mormopterus loriae cobourgiana	Little North western Mastiff Bat	P1	-
Pseudomys chapmani	Western Pebble mound Mouse, Ngadji	P4	-
Rhinonicteris aurantia (Pilbara)	Pilbara Leaf nosed Bat	VU	V
Birds			
Falco peregrinus	Peregrine Falcon	OS	-
Calidris canutus rogersi	Red knot	VU	E, M
Calidris ferruginea	Curlew sandpiper	VU, IA	CE, M
Calidris tenuirostris	Great knot	VU, IA	CE, M
Charadrius leschenaultii	Great sand plover	IA	V, M
Charadrius mongolus	Lesser sand plover	EN, IA	E, M
Macronectes giganteus	Southern Giant Petrel	IA	E, M
Numenius madagascariensis	Eastern curlew	VU, IA	CE, M
Migratory Species (see Table 34)		IA	M
Reptiles			

Species name	Common name	Conservation status*	
		BC Act **	EPBC Act
Liasis olivaceus barroni	Pilbara Olive Python	VU	V

* WC Act species are listed in the Wildlife Conservation (Specially Protected Fauna) Notice 2015, published 3 November 2015 and EPBC Act species from the Species Profile and Threats Database, Department of the Environment, available from: http://www.environment.gov.au/sprat, accessed 18 October 2016.

WC 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.

EPBC Act Codes: CE – Critically Endangered E – Endangered, M – Migratory, V – Vulnerable

** Biodiversity Conservation Act 2016

Table 34 EPBC Listed migratory species that may occur at the TAN plant area.

Matters of National Environmental Significance – Migratory Species		Potential to Occur on Site
Species name	Common Name	
Apus pacificus	Fork-tailed Swift	Site is potential habitat.
Arenaria interpres interpres	Ruddy turnstone	Occasional supratidal*
Calidris acuminata	Sharp-tailed sandpiper	Occasional supratidal*
Calidris alba	Sanderling	Occasional supratidal*
Calidris ruficollis	Red-necked stint	Occasional supratidal*
Calidris subminuta	Long-toed stint	Occasional supratidal*
Charadrius veredus	Oriental Plover, Oriental Dotterel	Occasional supratidal*
Cuculus optatus	Oriental cuckoo	Site is potential habitat.
Fregata ariel	Lesser frigatebird	Occasional supratidal*
Gallinago stenura	Pin-tailed snipe	Occasional supratidal*
Glareola maldivarum	Oriental Pratincole	Site is potential habitat.
Hirundo rustica	Barn Swallow	Site is potential habitat.
Limicola falcinellus	Broad-billed sandpiper	Occasional supratidal*
Limosa lapponica	Bar-tailed godwit	Occasional supratidal*
Numenius minutus	Little Curlew, Little Whimbrel	Occasional supratidal*
Numenius phaeopus variegatus	Whimbrel	Occasional supratidal*
Oceanites oceanicus	Wilson’s storm petrel	Occasional supratidal*
Phalaropus lobatus	Red-necked phalarope	Site is potential habitat.

Matters of National Environmental Significance – Migratory Species		Potential to Occur on Site
Species name	**Common Name**	
Pluvialis squatarola	Grey plover	Occasional supratidal*
Ardenna pacificus	Wedge-tailed shearwater	Occasional supratidal*
Onychoprion anaethetus	Bridled tern	Occasional supratidal*
Thalasseus bergii	Crested tern	Occasional supratidal*
Hydroprogne caspia	Caspian tern	Occasional supratidal*
Sterna hirundo	Common tern	Occasional supratidal*
Chlidonias leucopterus	White-winged black tern	Occasional supratidal*
Sula leucogaster plotus	Brown booby	Occasional supratidal*
Tringa brevipes	Grey-tailed tattler	Occasional supratidal*
Xenus cinereus	Terek sandpiper	Occasional supratidal*
Actitis hypoleucos	Common sandpiper	Recorded on site.
Tringa nebularia	Common greenshank	Recorded on site
Tringa stagnatilis	Marsh sandpiper	Occasional supratidal*

*Occasional supratidal: Supratidal flat is likely to provide an occasional foraging resource

14.3.2 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;
- vehicular traffic may result in increased number of road kills; and
- increased human activities and rubbish may encourage habitation of introduced species (and possibly pests).

14.3.3 Environmental Objectives and Performance Targets

The YPN objectives and targets for fauna are detailed in Table 35.

Table 35 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.

14.3.4 Management

Management measures to achieve the fauna management objectives are described in Table 36.

Table 36 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 installed on water ponds designed to deter birds from entering the contaminated water pond, clean water pond and sewerage wastewater treatment evaporation pond.	At all times	Visual inspection
	Induct all personnel to ensure awareness of: • The significance of fauna on the site and its conservation & protection; • fauna encounter procedures (including reporting) and operational observations; • prohibition of feeding native fauna; • prohibition of domestic pets; • speed limits; and • the location of the site boundary, including an explanation of the importance to keep all activities within this boundary.	Ongoing	Induction register
	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 personnel licensed under the *Biodiversity Conservation Act 2016*.	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 30).		

Additional measures are contained within the waste management section (Section 0) which contribute to reducing the likelihood of impacts to native fauna.

14.3.5 Monitoring

Monitoring actions to evaluate the effectiveness of the fauna management measures are described in Table 37. Unless indicated otherwise, all monitoring will be conducted by a member of the Yara Pilbara's Environment team or an appropriate delegate.

Table 37 Fauna Monitoring Program

Monitoring activity	Objective	Parameter measured	Methodology	Frequency	Location
Visual inspection of water ponds	To identify presence of fauna in ponds	Presence of fauna	Not applicable	Weekly	Water ponds (contaminated water ponds, clean water ponds and sewerage wastewater treatment evaporation pond).
Visual inspection of bird deterrent system	To enable assessment of effectiveness of bird deterrent system	Integrity of bird deterrent system	Not applicable	Weekly	
Visual inspection of site fencing	To ensure perimeter fence is intact	Integrity of fencing	Not applicable	Quarterly	Operational areas
Record interactions with fauna within the fenced Site area	To determine appropriateness and effectiveness of fauna management measures	Interactions with fauna	Not applicable	Ongoing	Operational areas
Feral fauna	To detect any 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 boundary as a result of operations	Refer to monitoring for clearing or disturbance outside approved disturbance boundary (Table 31).				

14.3.6 Contingency Actions

In the event that the objectives for fauna management are not being met the contingency actions described in Table 38 will be initiated.

Table 38 Contingency Actions – Fauna

Threshold	Contingency action(s)
Fauna mortality	1. Record in the Yara Pilbara Fauna Sightings database and contact EO. 2. EO to determine species, and presence of young. 3. EO to arrange removal of animal carcass. 4. Report as an environmental incident in Synergi 5. If required, report to DBCA and DEE.
Sick or injured animals found	1. Record 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 in the Yara Pilbara Fauna Sightings database and contact EO. 2. EO to coordinate eradication program.

14.4 Hazardous Materials Management

14.4.1 Overview

The TAN plant is classified as a Major Hazardous Facility (MHF) under Western Australia's *Dangerous Goods Safety Act 2004* and is required to operate in accordance with a Safety Report, which demonstrates the HESQ management of hazardous materials associated with the Project.

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.

14.4.2 Environmental Risks to be managed

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

14.4.3 Environmental Objectives and Performance Targets

The YPN objectives and targets for hazardous materials are detailed in Table 39.

Table 39 Objectives and Performance Targets – Hazardous Materials

Objective	Performance Target
To minimise impact to the environment through implementation of prescribed transportation, storage, management, handling, use and disposal of hazardous materials	No contamination of soil, surface water and/or groundwater

14.4.4 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 9, Table 10 and Table 11.

15 References

Author	Year	Document Title
ERM	2010	Public Environmental Review – Technical Ammonium Nitrate Production Facility, prepared for Burrup Nitrates Pty Ltd.
ERM	2013	Burrup Technical Ammonium Nitrate Production Facility, Air Quality Management Plan

Appendix 1: Consolidated Approval Notice ***(includes all variations to the project's EPBC conditions of approval since the 14th 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	12 / 9 / 2017

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

person to whom the approval is granted	Yarra Pilbara Nitrates Pty Ltd (previously named Burrup Nitrates Pty Ltd)
proponent's ACN	127 391 422
proposed action	The construction of an ammonium nitrate production facility within the King Bay/Hearson Cove Industrial Precinct, Burrup Peninsula, WA [see EPBC Act referral 2008/4546].

Approval

Controlling Provision	Decision
National Heritage places (sections 15B & 15C)	Approved
Listed threatened species and communities (sections 18 & 18A)	Approved
Listed migratory species (sections 20 & 20A)	Approved

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

name and position	Barbara Jones Assistant Secretary Environment Assessment Branch
signature	SIGNED
date of decision	14 September 2011

Conditions attached to the approval

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.

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:

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 $1m^2$ 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 (NOx);
- Sulphur Oxides (SOx); 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)**.

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 (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 (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.

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)	

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.

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

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.

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:

a) Management plans required under conditions 7 and 11A, within 1 month of being approved.

b) A revised version of any management plans required under conditions 7 and 11A, within 1 month of being approved under condition 12 or 13.

c) All baseline air quality data collected under condition 9, by 31 October 2017.

d) All ongoing air quality monitoring data required under condition 9A, within 3 months of collection of each datum.

e) 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.

f) 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**.

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).

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.

Attachment 1

Attachment 1: Location

Scale 1:30,000 at A4

0 300 600 900 m

N

Coordinate System: GDA 1994 MGA Zone 50
Note that positional errors may occur in some areas
Date: 8/06/2017
Author: JCoute
Source: Existing cadastre: SLIP, landgate 2016

Path: G:\Consult\2017\YPN\YPN17174\ArcMap documents\YPN17174_G002_RevB.mxd

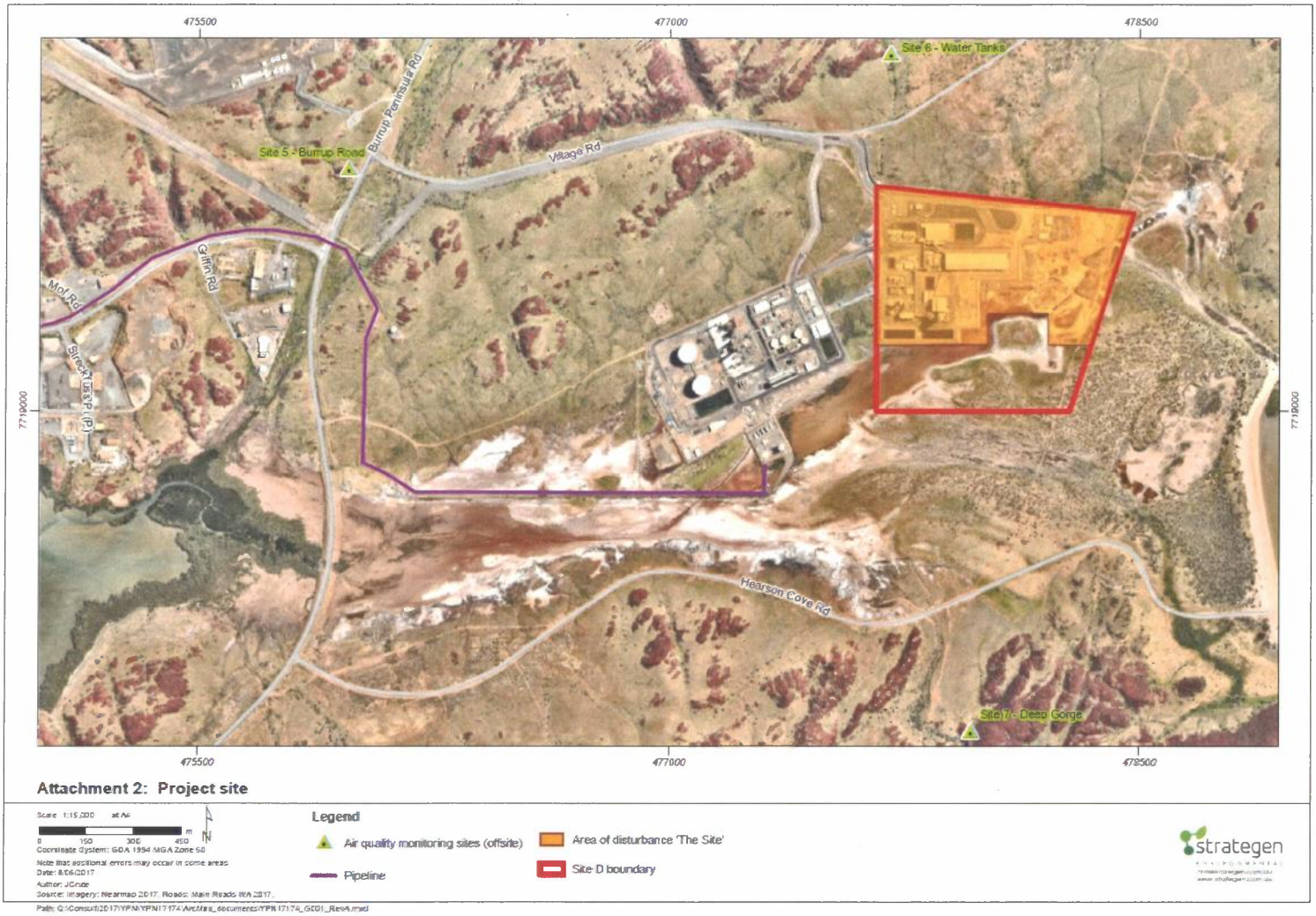
Legend

- Site D boundary
- National heritage
- Registered aboriginal heritage site

strategen ENVIRONMENTAL

info@strategen.com.au
www.strategen.com.au

Attachment 2



Attachment 2: Project site

Scale: 1:15,000 at A4
0 150 300 450 m
Coordinate System: GDA 1994 MGA Zone 50
Note that positional errors may occur in some areas
Date: 8/06/2017
Author: JCrute
Source: Imagery: Nearmap 2017. Roads: Main Roads WA 2017.
Path: Q:\Consult\2017\YPN\YPN17174\ArcMap_documents\YPN17174_GC01_RevA.mxd

Legend

- Air quality monitoring sites (offsite)
- Pipeline
- Area of disturbance 'The Site'
- Site D boundary

stategen

Appendix 2: Risk Management Matrix

Topic	Management objective/desired outcome	Event or circumstance (issues)	Relevant management actions/measures (controls)	Residual risk			Threshold detection and monitoring activity/is	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	Moderate	Medium	Negative trend in water quality in monitoring bores downstream of the TAN Plant as compared with background (upstream) water quality,	1. Review historical monitoring data as available. 2. Assess results against background and baseline groundwater quality. 3. Investigation/assessment as to whether reduced water quality is likely to be attributed to the operation of the TAN Plant. 4. In the event that the reduced water quality is attributed to the operation of the TAN Plant, develop management and/or contingency actions. 5. Implement specific management actions/ contingency measures. 6. 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.	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. Maintain purchase and inventory records of hazardous materials on-site in the Hazardous Materials Register. Provide secondary containment for stored hazardous materials in accordance with AS 1940-1993: The Storage and Handling of Flammable and Combustible Liquids. Ensure hazardous materials are clearly labelled and placarded (DG Regs). Ensure that SDS are available and used to direct all storage and handling of hazardous materials including: • transport requirements • use of Personal Protective Equipment • storage requirements • clean-up procedures. 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. 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. 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. 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. Record all spillages (both inside and outside bunded areas) in Synergi and report to EO as soon as practicable in accordance with the YPN Incident Reporting Procedure.	Possible	Moderate	Medium	Spill or loss of containment of hazardous material	1. Undertake immediate inspection, temporary control and report as an environmental incident. 2. Contain spill (e.g. by removal, or bunding). 3. Using a risk-based approach, determine severity of incident and priority, taking into account the nature and extent of the environmental impact. 4. Identify and implement corrective actions to be undertaken or planned to mitigate adverse environmental consequences. 5. Follow up on recommendations to ensure corrective actions are completed. 6. Identify changes to work practices or operations that are required to ensure that the incident will not re-occur together with a timetable for implementation of those changes. 7. Advise relevant authorities of final outcome of incident management (as necessary) or any long term initiatives proposed to manage residual impacts from the incident.
	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		
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	1. Report the exceedance to the Environmental Superintendent. 2. Pump excess water to another pond or temporary storage facility. 3. If becoming regular event, review potential for more storage locations, transport off-site or to pump to the MUBRL
	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	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	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.
							Identification of gully, sheet or rill erosion	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.
	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	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. 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	Unlikely	Minor	Low	Integrity and function of structures and apparatus to deter birds from the water ponds compromised	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..	Inappropraite disposal /segregation of waste	Manage materials that come to site to reduce potential for waste. Segregate waste using different storage vessels into different categories as far as practicable. Contain all waste, taking into consideration: • fire safety; • pest control; • odour control; and • protection of water and soil resources. Clearly mark waste bins and provide at convenient locations. Provide a laydown area where materials can be re-usable or recyclable where practicable. Recover spent catalyst wherever possible.	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.
		Inappropraite waste disposal/removal from Site and potentially not in accordance with the Environmental Protection (Controlled Waste) Regulations 2004	No burning of waste material. Provide litter and general waste vessels around site to ensure waste is disposed appropriately Prior to the removal of waste from the Site, the EO ensures that: • 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.	Unlikely	Minor	Low	Significant waste spill on site or on transport route	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 incident will not re-occur together with a timetable for implementation of those changes. 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.
				Unlikely	Minor	Low	Minor waste spills	1. Clean up spill. 2. 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	1. Investigate cause(s), including stack emissions performance, scrubber efficiency, maintenance records and TAN plant operating parameters 2. If a significant exceedance is observed, then conduct air dispersion modelling to predict ambient air concentrations at sensitive receptors 3. If necessary, make any repairs or carry any maintenance to restore scrubber efficiency 4. Re-test stack emissions to confirm effectiveness of actions
							Monitoring identifies exceedance of ambient air quality criteria	1. Investigate cause(s), including stack emissions performance, scrubber efficiency and maintenance records. 2. Identify potential contributions of airborne pollutants from other sources in the air shed using meteorological data. 3. Estimate contributions from YPN and/or YPF operations using dispersion modelling of stack emissions 4. If necessary, make any repairs or carry any maintenance to restore scrubber efficiency and minimise stack emissions 5. 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	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 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	1. Notify Environmental Superintendent. 2. Enter the incident into Synergi (refer to incident reporting procedure). 3. Determine how access was gained and, if possible, the likely time of access. 4. Implement remedy, which could include: • 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. 5. Monitor success of control.
		Measurable impact from air pollutants to any rock art sites within 2 km of the boundary.	Ensure process exhaust gas streams meet emissions performance criteria Comply with Condition 10A of EPBC 2008/4546. 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.	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	1. Report the event to the Environmental Superintendent. 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 the reduced water quality is attributed to the operation of the TAN Plant, report the event to the DEE. 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 Minster. 5. 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	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; • 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	1. Notify Environmental Superintendent. 2. Enter the incident into Synergi (refer to incident reporting procedure). 3. Determine how access was gained and, if possible, the likely time of access. 4. Implement remedy, which could include: • 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. 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 *Wildlife Conservation Act 1950* . 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.