Report and recommendations of the Environmental Protection Authority

Technical Ammonium Nitrate Production Facility, Burrup Peninsula – inquiry under section 46 of the *Environmental Protection Act 1986* to amend Ministerial Statement 870

Yara Pilbara Nitrates Pty Ltd

Report 1648

September 2019

Inquiry under section 46 of the *Environmental Protection Act 1986*

The Minister for Environment has requested that the Environmental Protection Authority (EPA) inquire into and report on the matter of changing implementation Condition 5-1: Air Quality in Ministerial Statement 870 for the Yara Pilbara Nitrates Pty Ltd Technical Ammonium Nitrate Production Facility on the Burrup Peninsula, to protect rock art.

Section 46(6) of the *Environmental Protection Act 1986* requires the EPA Report to include:

1. a recommendation on whether or not implementation conditions to which the inquiry relates, or any of them, should be changed
2. any other recommendations that it thinks appropriate.

The following is the EPA's Report and Recommendations to the Minister pursuant to s. 46(6) of the *Environmental Protection Act 1986*.

Dr Tom Hatton
Chairman

13 September 2019

ISSN 1836-0483 (Print)
ISSN 1836-0491 (Online)
Assessment No. 2166

Contents

Page

Executive summary ..... **ii**

1. The proposal **1**

2. Requested changes to conditions **3**

3. Inquiry into changing conditions **3**

4. Inquiry findings **4**

4.1 Air Quality and Social Surroundings 4

4.2 Other advice 16

5. Conclusions and recommendations **17**

References **21**

Appendix 1: Identified Decision-Making Authorities and recommended environmental conditions **22**

Executive summary

The Environmental Protection Authority (EPA) assessed the proposal to construct and operate a Technical Ammonium Nitrate Production Facility (TANPF) on the Burrup Peninsula at the level of Public Environmental Review (PER) and released its assessment report (Report 1379) in January 2011.

In April 2018, the Minister for Environment requested that the EPA inquire into and report on the matter of changing implementation Condition 5-1: Air Quality in Ministerial Statement 870 for the Yara Pilbara Nitrates Pty Ltd TANPF, to protect rock art.

The potential impacts on two key environmental factors: Air Quality and Social Surroundings were examined by the EPA during its inquiry.

The EPA has recommended that Condition 5 in Ministerial Statement 870 be deleted and replaced with the amended version in Appendix 1. The recommended amended Condition 5 includes clear objectives to minimise air emissions in order to enable regional air quality to be maintained so that the environmental values of human health and amenity are protected, and to reduce the risk of impacts to rock art on Murujuga (the Dampier Archipelago and Burrup Peninsula).

As a result of this inquiry, the EPA has concluded the impacts to Air Quality and Social Surroundings are manageable, based on the imposition of the recommended new version of Condition 5 in place of the original version.

The EPA has also provided Other advice to the Minister for Environment in relation to ambient air quality monitoring and rock art monitoring on Murujuga and the implications of the outcomes of its inquiry on both existing and future industrial facilities located on Murujuga.

1. The proposal

The proposal was for the construction and operation of a Technical Ammonium Nitrate Production Facility (TANPF) with a nominal production capacity of 350,000 tonnes of technical ammonium nitrate (TAN) per year. The proposal is located on Site D within the Burrup Strategic Industrial Area on the Burrup Peninsula, approximately 13 kilometres north-west of Karratha. The proposal included a nitric acid plant, ammonium nitrate solution plant, TAN prilling plant, evaporation ponds, and associated storage, loading and transport infrastructure. The nominated proponent for the proposal is Yara Pilbara Nitrates Pty Ltd.

The EPA assessed the proposal at the level of Public Environmental Review (PER) and released its assessment report (Report 1379) in January 2011. In Report 1379 the EPA identified the following key environmental factors relevant to the proposal:

- Air quality
- Biodiversity
- Surface water and groundwater
- Liquid waste disposal.

Applying the *Statement of Environmental Principles, Factors and Objectives*, (EPA 2018a) these factors are now described as:

- Air Quality and Social Surroundings
- Flora and Vegetation and Terrestrial Fauna
- Inland Waters
- Terrestrial Environmental Quality and Marine Environmental Quality.

In identifying the above key environmental factors, the EPA had regard to the object and principles set out in s. 4A of the *Environmental Protection Act 1986* (EP Act). The EPA considered that the following principles were particularly relevant to this inquiry:

1. The precautionary principle
2. The principle of intergenerational equity
3. The principle of the conservation of biological diversity and ecological integrity
4. The polluter pays principle
5. The principle of waste minimisation.

The proposal was also determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as it had the potential to impact on a national heritage listed place (s. 15B and s. 15C), listed threatened species and communities (s. 18 and s. 18A), and listed migratory species (s. 20 and s. 20A). The environmental impact assessment of the proposal was undertaken by the EPA under the then bilateral agreement between the Commonwealth and Western Australian Governments.

The EPA concluded in Report 1379 “that it is unlikely that the EPA’s objectives would be compromised, provided there was satisfactory implementation by the proponent of the recommended conditions”.

Seven appeals were received by the Appeals Convenor in relation to the EPA’s report and recommendations for the TANPF in Report 1379. The then Minister for Environment allowed the appeals in part. In regard to the appeal ground of Air Emissions, the Minister allowed the appeal ground to the extent that the recommended conditions be modified to require the proponent to implement best practice pollution control as determined by the then Department of Environment and Conservation for all relevant air emissions, rather than just for ammonia and particulates. The Minister also supported the Appeals Convenor’s recommendation that ambient air quality monitoring be required as a condition of approval. In addition, the Minister supported the EPA’s recommendation that the government develop an air quality management strategy for the region and the strategy be developed in consultation with the Burrup Rock Art Technical Working Group to ensure that any program would be designed to consider multiple objectives for the protection of both environmental and cultural values of Murujuga.

The then Minister for Environment approved the proposal for implementation, subject to the implementation conditions of Ministerial Statement 870 (MS 870), on 11 July 2011.

The then Commonwealth Department of Sustainability, Environment, Water, Population and Communities [now the Department of the Environment and Energy (DoEE)] granted approval for the TANPF (EPBC 2008/4546) on 14 September 2011 under s.130(1) and s. 133 of the EPBC Act which included conditions requiring the proponent to protect the values of rock art sites and participate in the monitoring of rock art.

On 18 December 2013, the then Commonwealth Department of the Environment issued a Variation to Conditions Attached to Approval under s. 143 of the EPBC Act. An additional Variation to Conditions Attached to Approval and a Consolidated Approval Notice were issued by the DoEE for the proposal on 12 September 2017.

Previously approved changes to conditions

There have been no previous s. 46 changes to the conditions for this proposal. There have been two s. 45C changes to the proposal. However, these changes have no direct bearing on this inquiry. The changes were:

- Removal of 'Wastewater' from the key proposal characteristics table – approved under s. 45C on 9 July 2013 (Refer to Attachment 1 to MS 870).
- Decrease in Development Envelope and disturbance area and removal of TAN storage capacity – approved under s. 45C on 7 June 2017 (Refer to Attachment 2 to MS 870).

2. Requested changes to conditions

In April 2018, the Minister for Environment requested that the EPA inquire into and report on the matter of changing implementation Condition 5-1: Air Quality in MS 870 for the Yara Pilbara Nitrates Pty Ltd TANPF on the Burrup Peninsula, to protect rock art. This report satisfies the requirements of the EPA's inquiry.

3. Inquiry into changing conditions

The EPA has discretion as to how it conducts this inquiry. The inquiry considered the:

- currency of its original assessment (Report 1379)
- outcomes of the desktop technical review of documentation previously submitted by the proponent, to satisfy the requirements of Condition 5-1 in MS 870, which was undertaken by the Department of Water and Environmental Regulation (DWER) and completed in March 2018
- Part V Licence L7997/2002/11 which currently regulates the operations of both the TANPF and the adjacent Yara Pilbara Fertilisers Pty Ltd ammonia plant, and includes stack emission concentration limits
- outcomes of the independent peer review of documents submitted to the DWER by Yara Pilbara Nitrates Pty Ltd to support the amendment of Licence L7997/2002/11 that was undertaken by Benchmark Toxicology Services Pty Ltd which included an assessment to determine whether there is likely to be any impact on public health from the air emissions produced by the TANPF
- Murujuga Rock Art Strategy and the proposed associated Environmental Quality Management Framework, Murujuga Rock Art Monitoring Program, and Murujuga Ambient Air Quality Monitoring Network
- input from the Murujuga Rock Art Stakeholder Reference Group (MRASRG)
- input provided by Yara Pilbara Nitrates Pty Ltd
- Air Quality Management Plan prepared by Yara Pilbara Nitrates Pty Ltd to satisfy the requirements of Conditions 5-1 and 5-2 in MS 870
- air quality monitoring and rock art monitoring conditions in EPBC 2008/4546
- advice provided by the DoEE
- initiation of the process for Murujuga to receive World Heritage Listing
- outcomes of the EPA's site visit to the Burrup Peninsula and the meetings with representatives from the Murujuga Aboriginal Corporation (MAC) and Yara Pilbara Nitrates Pty Ltd.

The above information was instructive in determining the extent and nature of the inquiry under s. 46 of the EP Act.

EPA policy and procedures

In conducting this inquiry, the EPA has considered and given due regard to relevant current policy documents. The EPA followed the procedures in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2016* (EPA 2016a) and the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual 2016* (EPA 2018b).

4. Inquiry findings

The EPA considered that the following are the key environmental factors relevant to the change to conditions:

- Air Quality
- Social Surroundings.

Given the intrinsic link between the above environmental factors due to the potential for air emissions to impact on culturally significant rock art on Murujuga, the EPA has considered both factors together in Section 4.1 below.

4.1 Air Quality and Social Surroundings

The EPA's objectives for these factors are *to maintain air quality and minimise emissions so that environmental values are protected* and *to protect social surroundings from significant harm*, respectively.

EPA Report 1379

In Report 1379, the EPA concluded that:

- Condition 5 should be imposed on the proponent to adopt and implement best practice pollution control technology as determined by the Chief Executive Officer of the Department of Environment and Conservation (DEC) on advice of the Chief Executive Officer of the Office of the EPA to minimise ammonia (NH_3) and particulate [as total suspended particulates (TSP)] emissions from the TANPF ammonium nitrate prilling plant "common stack"
- stack and plant emissions from the TANPF can be adequately regulated through Part V of the EP Act, and that the EPA expects the DEC to incorporate stack emission concentration figures in the Works Approval and Licence that are commensurate with the use of best practice pollution control technology
- based on the results obtained from the Pluto LNG Development Cumulative Air Quality Study (SKM 2006), the CSIRO study on the impact of industrial air emissions on rock art located on the Burrup Peninsula (CSIRO 2007), and the Burrup Peninsula Air Pollution Study: Report for 2004/2005 and 2007/2008 (CSIRO 2008), it is unlikely that the relatively small quantities of nitrogen dioxide (NO_2) and NH_3 that would be emitted from the TANPF would have a significant impact on rock art in the surrounding areas.

To manage these impacts, the EPA recommended the following condition:

5-1 The proponent shall adopt and implement best practice pollution control technology as determined by the Chief Executive Officer of the Department of Environment and Conservation on advice of the Chief Executive Officer of the Office of the Environmental Protection Authority to minimise ammonia (NH_3) and particulate [as total suspended particulates (TSP)] emissions from the TANPF ammonium nitrate prilling plant "common stack".

Assessment of the proposed change to conditions

The EPA considers that the following current environmental policy and guidance is relevant to its assessment on the matter of changing implementation Condition 5-1: Air Quality in MS 870 relating to the TANPF on Murujuga, to protect rock art:

- Environmental Factor Guideline – *Air Quality* (EPA 2016b)
- Environmental Factor Guideline – *Social Surroundings* (EPA 2016c).

The above guidelines were applied with regard to:

- application of the mitigation hierarchy to avoid and minimise emissions and impacts on social surroundings, where possible
- whether analysis of potential health and amenity impacts has been undertaken using recognised criteria and standards, where relevant, informed by Australian and international standards
- the application of technology appropriate to the potential environmental impacts and risks
- the significance of the likely change to air quality as well as the environmental values affected by those changes, in the context of existing and predicted cumulative impacts
- the aesthetic, cultural, economic and social surroundings of the Burrup Peninsula to the extent that those surroundings directly affect, or are directly affected, by the physical or biological surroundings
- the level of confidence with which the predicted impacts to social surroundings have been made, and what is the risk should those predictions be incorrect
- whether proposed management or mitigation of impacts to cultural and social surroundings is technically and practically feasible.

DWER desktop technical review of information previously submitted by Yara Pilbara Nitrates Pty Ltd to satisfy Condition 5-1 in MS 870

A desktop technical review undertaken by the DWER and completed in March 2018, confirmed that contemporary best practice pollution control technology [e.g. wet scrubbers and an oxides of nitrogen (NO_X) reduction unit equipped with a catalyst (i.e. a De-NO_X reactor)] has been incorporated into the TANPF and that its

performance compares favourably with relevant best practice stack emission concentration criteria under normal operating conditions (DWER 2018).

Licence L7997/2002/11

Licence L7997/2002/11 was amended to facilitate the simultaneous regulation of the operations of the TANPF and the adjacent Yara Pilbara Fertilisers Pty Ltd ammonia plant. The EPA notes that the amended licence was issued on 29 June 2018.

The EPA also notes that the amended licence includes stack emission concentration limits for NO_X (as NO_2), NH_3, and nitrous oxide (N_2O) from the TANPF nitric acid plant stack and for particulate matter and NH_3 from the TANPF ammonium nitrate prilling plant common stack that are commensurate with relevant best practice stack emission concentration criteria under normal operating conditions.

The amended licence also requires the proponent to monitor stack emissions from the TANPF's nitric acid plant stack and ammonium nitrate prilling plant common stack as well as ambient ground level concentrations of NH_3 at the boundaries of both the TANPF and the adjacent ammonia plant. The EPA is aware that Licence L7997/2002/11 is currently subject to appeal and that the Appeals Convenor is investigating the appeal on behalf of the Minister for Environment. Licence L7997/2002/11 is also subject to a judicial review which was filed on 21 January 2019 by the Friends of Australian Rock Art. The status of this licence and its interactions with Part IV of the EP Act are dependent on the outcomes of the above processes.

Independent peer review of documents submitted to the DWER by Yara Pilbara Nitrates Pty Ltd to support the amendment of Licence L7997/2002/11

The DWER engaged the services of Benchmark Toxicology Services Pty Ltd (BTS) to undertake an independent peer review of documents submitted to the DWER by Yara Pilbara Nitrates Pty Ltd to support the amendment of Licence L7997/2002/11 to include the operations of both the TANPF and the adjacent Yara Pilbara Fertilisers Pty Ltd ammonia plant. The review included an assessment of modelled ground level concentrations derived from updated air quality modelling undertaken by Environmental Resources Management Australia (ERM 2013) against relevant ambient air quality criteria (short term and long term) to confirm that the emission limits specified in Licence L7997/2002/11 are suitable for the protection of human health in the surrounding area. The EPA notes from the information provided in the BTS report that atmospheric emissions from the TANPF during either normal or non-routine operations are unlikely to have an adverse impact on the health of people located in the vicinity of the TANPF.

Murujuga Rock Art Strategy

The Minister for Environment released the Murujuga Rock Art Strategy in February 2019 (DWER 2019). The strategy establishes the framework for the long-term management and monitoring of environmental quality to protect the rock art on Murujuga (the Dampier Archipelago and Burrup Peninsula) from the impacts of

anthropogenic emissions that is consistent with the state government's responsibilities under the EP Act. The strategy builds on previous work undertaken on Murujuga to deliver a scientifically rigorous approach to monitoring, analysis, and management. The strategy has been informed by the submissions received through consultation on the draft strategy and finalised in consultation with the Murujuga Rock Art Stakeholder Reference Group (MRASRG). The EPA notes that the DWER will be responsible for the day-to-day implementation of the strategy and will work in partnership with the MAC to implement the strategy, in consultation with stakeholders, including the community and industry.

Environmental Quality Management Framework

An Environmental Quality Management Framework (EQMF) will be implemented as part of the Murujuga Rock Art Strategy to provide a transparent, risk-based, and adaptive framework for monitoring and managing environmental quality to protect the rock art on Murujuga from anthropogenic emissions. The EQMF will establish a common and agreed Environmental Quality Objective and scientifically based limits of 'acceptable' change. The successful implementation of the EQMF will require:

- the application of Environmental Quality Criteria (EQC) that are based on sound scientific information
- a monitoring program that is appropriately designed and implemented to make the necessary measurements, to analyse the data and to report on the integrity or condition of the rock art and change in that condition
- a governance process that enables information to be assessed and appropriate management actions to be implemented.

There are currently no existing or default guideline 'trigger values' for protecting the rock art from anthropogenic emissions that could be used as EQC. The EPA notes that the development of interim EQC, based on the best available scientific information at the time, will be informed by the monitoring studies undertaken to underpin the design of the Murujuga Rock Art Monitoring Program.

Murujuga Rock Art Monitoring Program

The EPA notes that there have been a number of independent scientific studies and monitoring of rock art colour change and spectral mineralogy undertaken over the past 15 years on Murujuga. The EPA also notes there has been some criticism of the methodology used and the interpretation of the findings of some of this work. The then Department of Environment Regulation commissioned independent reviews of the monitoring program and data analysis. The reviews recommended the monitoring program be redesigned using well established principles of experimental design.

The DWER is partnering with the MAC to oversee the development and implementation of a world best practice rock art monitoring program to determine whether the rock art on Murujuga is being subject to accelerated change. The development and implementation of the monitoring program by the DWER in

partnership with the MAC will be undertaken in close consultation with a team of national and international experts in relevant disciplines. The purpose of the Murujuga Rock Art Monitoring Program is to monitor, evaluate, and report on changes and trends in the integrity of the rock art, specifically to determine whether anthropogenic emissions are accelerating the natural weathering, alteration, or degradation of the rock art. This will enable timely and appropriate management responses by the state government, industry, and other stakeholders to emerging issues and risks.

The objectives of the Murujuga Rock Art Monitoring Program are to:

- obtain data for comparison against the EQC to ascertain whether the Environmental Quality Objective is being achieved and the environmental value (the rock art) protected
- provide the state government, the MAC, industry, and the community with robust, replicable and reliable information on changes and trends in the integrity or condition of the rock art on Murujuga
- ensure decisions regarding the protection of the rock art are based on the best available science
- inform the evaluation of the effectiveness of any measures taken to mitigate adverse effects on the rock art, including efforts to protect the rock art.

The EPA is aware that the DWER is developing options for sourcing contributions from industry to fund the costs of the Murujuga Rock Art Monitoring Program.

Murujuga Ambient Air Quality Monitoring Network

The EPA is aware that the state government is considering the establishment of a long-term, coordinated ambient air quality monitoring network on Murujuga and in the surrounding area which would be coordinated by the DWER. The introduction of a centralised and coordinated monitoring network would expand the knowledge base to manage air quality in the region and result in more informed decision-making in relation to the management of the Murujuga airshed.

The Murujuga airshed encompasses the Burrup Peninsula and the Dampier Archipelago, and includes the population centres of Dampier and Karratha and surrounding areas. There are currently several existing industrial facilities that release air emissions into the Murujuga airshed. These include the Woodside Karratha Gas Plant, the Woodside Pluto LNG Plant, the Yara Pilbara Fertilisers Pty Ltd Ammonia Plant, and the TANPF. Shipping operations mainly associated with the loading and transport of iron ore and LNG also release emissions into the Murujuga airshed. The most significant sources of air emissions are the Karratha Gas Plant and the Pluto LNG Plant. The magnitude of the atmospheric emissions from the TANPF needs to be considered within this broader cumulative context.

Murujuga Rock Art Stakeholder Reference Group

The MRASRG was established by the Minister for Environment in September 2018 to facilitate engagement between the MAC and key government, industry, and community representatives on the development and implementation of the Murujuga Rock Art Strategy. The EPA notes that the role of the MRASRG is to:

- contribute constructively to the monitoring and protection of rock art, being considerate of all stakeholder views and provide advice to the DWER and the Minister for Environment on the design, implementation and analysis of the scientific monitoring and analysis program
- consult, inform, and educate other stakeholders on matters referred by the DWER for input or comment, including further development of the strategy, implementation of the strategy, and five yearly reviews
- inform the government's broader consideration of other strategic issues relating to the protection of the rock art on Murujuga.

The EPA met with the MRASRG in February 2019 to brief it on this inquiry. The EPA provided the MRASRG with an overview of the history behind the inquiry and the process it followed in conducting the inquiry. The EPA advised the MRASRG that it would provide independent advice to the Minister for Environment which includes general advice on the potential implications of it inquiry on existing and future industrial developments. During the meeting the MRASRG was also informed that the outcomes of the EPA's inquiry would align with the Murujuga Rock Art Strategy.

Input provided by Yara Pilbara Nitrates Pty Ltd

Yara Pilbara Nitrates Pty Ltd has provided input on the following matters pertaining to the EPA's inquiry:

- a discussion on the contemporary best practice pollution control technology implemented within the TANPF
- additional information to demonstrate that plant optimisation, systems, and processes would enable the plant to achieve best practice emissions concentrations at full production, and the measures that will be employed to minimise emissions under non-normal conditions (i.e. start-up and shut down conditions)
- details of the Ambient Air Quality Monitoring Program required under Condition 9A in EPBC 2008/4546 and the additional air quality monitoring program that has been implemented
- an outline of the Rock Art Monitoring Program required under Condition 10A in EPBC 2008/4546.

The EPA notes from the above information that Licence L7997/2002/11 includes NO_X and NH_3 stack emission concentration limits for the TANPF nitric acid plant stack that are applicable under start-up conditions. These limits are applicable for a period of two hours from the commencement of start-up after which the licence limits for normal operations are applied. The EPA also notes that as shutdown emissions

are lower than during normal operations, the NO_X and NH_3 stack emission concentration limits for the nitric acid plant stack under normal operations apply during shutdowns.

Yara Pilbara Nitrates Pty Ltd indicated that it is continually evaluating emission control technology and trends as they become commercially available to further limit air emissions from the TANPF.

The objective of the above-mentioned additional air quality monitoring program is to enable Yara Pilbara Nitrates Pty Ltd to gain a better understanding of the TANPF's contribution to the local air shed and the potential impacts of air pollutants on rock art.

The expanded air quality monitoring program includes:

- chemical analyses of deposition samples to facilitate a more detailed understanding of atmospheric and surface depositional chemistry
- the capture and analysis of rainwater to determine the nature and significance of wet deposition
- the installation and operation of a reference air quality monitoring station and a satellite monitoring network for source apportionment analysis which will determine the TANPF's air pollutant contribution at monitoring locations given the presence of other major air emission sources in the region.

The EPA notes that the findings of the expanded air quality monitoring program may be integrated into the Rock Art Monitoring Program to assist in the analysis of rock art surface chemistry and mineralogy, and the risk of rock art degradation.

Yara Pilbara Nitrates Pty Ltd indicated that the requirement for it to undertake its own rock art monitoring under Condition 10A of EPBC 2008/4546 in the absence of the state government's Murujuga Rock Art Monitoring Program, does not recognise the influence of other industries on air quality in the region. Yara Pilbara Nitrates Pty Ltd considers that the continuation of an independent government managed working group is the most appropriate and equitable approach to coordinating ongoing monitoring to protect the values of Murujuga, particularly the rock art sites, as the requirement for it to implement its own rock art monitoring program does not recognise the shared responsibility of all emitters in the region.

Yara Pilbara Nitrates Pty Ltd also indicated that this s. 46 inquiry would be more effective if it considered air emissions from all industrial sources on the Burrup Peninsula rather than just focussing on emissions from the TANPF, and should ideally be undertaken once the implementation of the state government's Murujuga Rock Art Strategy has been better defined.

Air Quality Management Plan

Yara Pilbara Nitrates Pty Ltd prepared an Air Quality Management Plan (AQMP) to satisfy the requirements of Conditions 5-1 and 5-2 in MS 870. The AQMP was approved by the then Office of the EPA (OEPA) in March 2013.

In December 2016, Yara Pilbara Nitrates Pty Ltd sought approval from the then OEPA for future monitoring activities to be undertaken as described within the "Operational Monitoring" section of the approved AQMP on the basis that there had been a change in the risk profile associated with impacts to air quality following the completion of construction activities, and that the above-mentioned section of the AQMP would include both stack emissions monitoring and off-site ambient air quality monitoring. The above approach was approved by the then OEPA in December 2016.

In October 2018, Yara Pilbara Nitrates Pty Ltd submitted the *Yara Pilbara Nitrates 2018 Compliance Assessment Report Ministerial Statement 870 Technical Ammonium Nitrate Production Facility* for the reporting period of 8 July 2017 to 7 July 2018 to the DWER. In November 2018, the DWER advised Yara Pilbara Nitrates Pty Ltd that during this reporting period, air quality monitoring was undertaken in accordance with the requirements of the *Yara Pilbara Nitrates Operational Environmental Management Plan EPBC 2008/4546* (OEMP), which was approved by the Commonwealth DoEE in September 2017, and not the "Operational Monitoring" section in the AQMP. In November 2018, the DWER advised Yara Pilbara Nitrates Pty Ltd that it would need to undertake a comparison analysis of the AQMP and the OEMP to determine whether the air quality monitoring requirements and objectives of the AQMP were met by the monitoring undertaken in accordance with the OEMP, and submit a report on the analysis by 10 January 2019.

In January 2019, Yara Pilbara Nitrates Pty Ltd submitted the required report to the DWER and indicated that the air quality monitoring requirements and objectives of the AQMP were met by the monitoring undertaken in accordance with the OEMP. The report also recommended that the AQMP be revoked and that Yara Pilbara Nitrates Pty Ltd should request the CEO of the DWER to approve the implementation of the OEMP which was updated in June 2018 to reflect the issue of the amended version of Licence L7997/2002/11.

In April 2019, Yara Pilbara Nitrates Pty Ltd advised the DWER that it would submit the updated OEMP once it has been approved by the DoEE and request that it approves the implementation of the OEMP's air quality management measures. The EPA understands that approval of the OEMP from the DoEE is pending and that a request to the DWER seeking approval of the OEMP's air quality management arrangements is yet to be submitted by Yara Pilbara Nitrates Pty Ltd. In the absence of these required approvals, the EPA considers that the currently approved AQMP is still applicable with respect to prescribing the required air quality management arrangements for the TANPF until the Murujuga Rock Art Monitoring Program and the Murujuga Ambient Air Quality Monitoring Network are established and the process for collecting the required operational funds from industry has been determined.

Air quality monitoring and rock art monitoring conditions in EPBC 2008/4546

Condition 9A in EPBC 2008/4546 requires the proponent to undertake on-going air quality monitoring at three rock art sites on Murujuga known as Site 5 – Burrup

Road, Site 6 – Water Tanks, and Site 7 – Deep Gorge. The monitoring involves measuring ambient ground level concentrations of ammonia (NH_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulates, and dust deposition.

Condition 10A in EPBC 2008/4546 requires the proponent to undertake on-going rock art monitoring at the three above-mentioned rock art sites and at other additional rock art sites on Murujuga.

Conditions 14d and 14f in EPBC 2008/4546 require the proponent to publish the following information on their website, respectively:

- all on-going air quality monitoring data required under Condition 9A within three months of collection of each datum
- all on-going rock art monitoring data or reports required under Condition 10A within 30 days of the data or reports being provided to the proponent.

The EPA notes the requirements of Conditions 9A, 10A, 14d, and 14f in Commonwealth approval EPBC 2008/4546 for the TANPF in regard to ambient air quality monitoring and rock art monitoring. The EPA is not seeking to duplicate these requirements as an outcome of this inquiry.

Advice provided by the DoEE

The DoEE advised the EPA that one of the controlling provisions under the EPBC Act that is relevant to EPBC 2008/4546 for the TANPF, is national heritage places (s. 15B and s. 15C), namely, the Dampier Archipelago (including the Burrup Peninsula) National Heritage Place. The DoEE indicated that its regulation of air emissions from the TANPF is designed to protect rock art sites of the national heritage place.

The DoEE also advised the EPA that in May 2017, it issued an infringement notice to Yara Pilbara Nitrates Pty Ltd for a breach of Condition 3 of EPBC 2008/4546 for failing to submit annual compliance reports on time. The EPA notes that after considering expert advice, the DoEE issued another infringement notice to Yara Pilbara Nitrates Pty Ltd in August 2017 for failure to collect the required air quality monitoring data. A baseline monitoring report provided to the DoEE was reviewed by the DoEE's independent air quality monitoring expert and deemed to be an acceptable alternative to meeting the original conditions. The DoEE issued a directed variation to strengthen the monitoring requirements by requiring monitoring for the life of the approval and for monitoring data to be published.

World Heritage listing of Murujuga

The EPA is aware that in August 2018, the state government and the MAC agreed to progress a World Heritage nomination for Murujuga which would see its cultural heritage values recognised at the highest international level. The EPA is also aware of the public concerns about the effect that emissions from the TANPF and other existing and future industrial emission sources may have in relation to Murujuga receiving World Heritage listing.

EPA site visit to Murujuga

In September 2018, the EPA travelled to Murujuga to meet with representatives from the MAC, and with representatives from Yara Pilbara Nitrates Pty Ltd at the TANPF. The EPA took part in a Cultural Awareness Induction provided by the MAC and visited several rock art sites, including Deep Gorge, where a Welcome to Country ceremony was performed. During the meeting with Yara Pilbara Nitrates Pty Ltd, the EPA was provided with an update on air quality and rock art monitoring undertaken in accordance with the requirements of EPBC 2008/4546 and were taken to an air quality and rock art monitoring site known as Site 6 – Water Tanks located approximately 450 metres to the north of the TANPF.

Recommended changes to Condition 5 in MS 870

The EPA acknowledges that the outcomes of the various investigations associated with the Murujuga Rock Art Monitoring Program will not be available in the short term. As a result, definitive information on whether cumulative industrial air emissions, including those from the TANPF, are adversely affecting rock art is currently not available.

In the absence of conclusive information from the Murujuga Rock Art Monitoring Program, the EPA considers that the best practice stack emission concentration limits in Licence L7997/2002/11 are an effective means of minimising the risk of air emissions from the TANPF impacting on rock art. Accordingly, the EPA considers that there is no need for the above-mentioned limits to be included in Condition 5.

The EPA supports the enforceable and auditable conditions in Commonwealth approval EPBC 2008/4546 for the TANPF pertaining to ambient air quality monitoring and rock art monitoring and considers that they do not need to be duplicated in Condition 5.

Although the desktop technical review undertaken by the DWER has confirmed that contemporary best practice pollution control technology has been incorporated into the TANPF in accordance with the requirements of Condition 5-1, the EPA is aware that the potential exists for improvements in pollution control technology and process management to occur in the future. As the proponent's approved AQMP was prepared to satisfy the requirements of Conditions 5-1 and 5-2 in MS 870, the EPA considers that it is still generally applicable with respect to prescribing the air quality management requirements for the TANPF. However, the EPA also considers that it should focus on the progressive minimisation of air emissions through the adoption of advances in air pollution control technology and process management as a means of minimising the risk of rock art being adversely affected by air emissions from the TANPF.

The precautionary principle states that where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, decisions should be guided by –

a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and

b) an assessment of the risk-weighted consequences of various options.

In considering the above principle, the EPA has noted that there is currently no compelling scientific evidence which indicates that there is an immediate material threat of serious or irreversible damage to rock art from cumulative industrial air emissions within the Murujuga airshed. As the TANPF utilises contemporary best practice pollution control technology to minimise air emissions within the Murujuga airshed, the EPA considers that the risk of rock art being damaged due to the operation of the TANPF has also been minimised, whilst recognising the lack of full scientific certainty in regard to whether cumulative industrial air emissions within the Murujuga airshed are damaging rock art. On the above basis, the EPA considers that there is sufficient time for the monitoring and evaluation activities associated with the Murujuga Rock Art Monitoring Program to be undertaken and for definitive information in regard to whether cumulative industrial air emissions within the Murujuga airshed are adversely affecting rock art to be obtained.

Given the lack of full scientific certainty regarding whether cumulative industrial air emissions are adversely affecting rock art on Murujuga, the EPA has considered the practicable measures through which the risk of rock art being damaged by air emissions from the TANPF can be further mitigated, whilst acknowledging that the plant has been built and has undergone commissioning. The EPA has determined that the additional risk mitigation could be achieved through the progressive minimisation of air emissions from the TANPF through the adoption of advances in air pollution control technology and process management.

The EPA has noted the outcomes of the technical review undertaken by the DWER (DWER 2018) which confirmed that contemporary best practice pollution control technology has been incorporated into the TANPF, and has advised that the proponent's AQMP should focus on the progressive minimisation of air emissions from the TANPF through the adoption of advances in air pollution control technology and process management.

The principle of intergenerational equity states that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. The EPA has considered this principle by investigating practicable measures to mitigate the risk of rock art being damaged by air emissions from the TANPF so that it can be appreciated by local Indigenous people, the broader community, and future generations.

The principle of the conservation of biological diversity and ecological integrity states that conservation of biological diversity and ecological integrity should be a fundamental consideration. Although the TANPF has been built and has undergone commissioning, the EPA considers that biological diversity and ecological integrity in the areas surrounding the TANPF are unlikely to be adversely affected by air emissions from the TANPF given the use of best practice pollution control technology within the plant.

The polluter pays principle states that those who generate pollution and waste should bear the cost of containment, avoidance or abatement. The EPA understands that the proponent is responsible for bearing the cost of operating and maintaining the existing pollution control technology within the TANPF. The EPA is also aware that the proponent will be responsible for bearing the cost of adopting advances in air pollution control technology and process management in the future.

The principle of waste minimisation states that all reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment. The EPA has noted that contemporary best practice pollution control technology has been incorporated into the TANPF and considers that the requirements of this principle have been adequately addressed by the proponent.

Therefore, being mindful of the above-mentioned principles, the EPA considers that Condition 5 should include:

- clear objectives to minimise air emissions from the TANPF to assist in the maintenance of regional air quality in accordance with applicable air quality standards including, but not limited to, the National Environment Protection (Ambient Air Quality) Measure (NEPM) so that the environmental values of human health and amenity are protected, and to assist in minimising the risk of adverse impacts to rock art on Murujuga
- a requirement for the proponent to prepare a revised version of their AQMP which:
    - includes the above-mentioned objectives
    - specifies the expected air emissions that will be produced by the TANPF based on the existing air pollution control technology selection and plant design
    - includes a comparison of expected air emissions that will be produced by the TANPF and the existing air pollution control technology and plant design that has been incorporated into the TANPF against international industry best practice for technical ammonium nitrate production facilities
    - includes the existing provisions for the monitoring and reporting of on-site meteorological conditions including wind speed / direction, temperature, and rainfall rate as this would provide valuable data for the forthcoming investigations associated with the Murujuga Rock Art Monitoring Program
    - identifies the measures that will be implemented to progressively minimise air emissions, including the adoption of advances in air pollution control technology and process management, and specifies the timeframe within which each measure will be implemented, and the means to determine the effectiveness of each measure in minimising air emissions
    - includes a requirement for the proponent to provide copies of annual reports and data relating to on-going ambient air quality monitoring and rock art condition / integrity monitoring required under the EPBC Act to the CEO of DWER within one month of their provision to the Commonwealth Government.

In view of the above, the EPA recommends that the existing version of Condition 5 in MS 870 should be deleted and replaced with the amended version shown in the recommended statement in Appendix 1 of this report.

The EPA considers, having regard to the environmental objectives for the factors Air Quality and Social Surroundings and relevant policies and guidelines, that the impacts to these factors are manageable and would not be significant provided that the amended version of implementation Condition 5 in the attached recommended Statement is implemented.

4.2 Other advice

Ambient air quality monitoring and rock art monitoring on Murujuga

The EPA considers that the Murujuga Ambient Air Quality Monitoring Network and the Murujuga Rock Art Monitoring Program, once established, would be the most appropriate overarching systems through which ambient air quality monitoring and rock art monitoring on Murujuga should be coordinated. This would ensure that the responsibility for such monitoring is shared amongst all existing and future industrial emitters in an equitable manner. The EPA expects that the relevant industries would contribute resources to facilitate the establishment and on-going operation of the Murujuga Ambient Air Quality Monitoring Network and the Murujuga Rock Art Monitoring Program. The mechanism through which the required resources would be collected from these industrial emitters is yet to be determined.

Prior to the Murujuga Ambient Air Quality Monitoring Network and the Murujuga Rock Art Monitoring Program being established, the EPA recommends that when the opportunity arises to change the ministerial conditions of other existing industrial facilities located on Murujuga via s. 46 of the EP Act, the amended conditions should also include a requirement to reduce the risk of impacts to rock art from air emissions.

Once the Murujuga Ambient Air Quality Monitoring Network and the Murujuga Rock Art Monitoring Program have been established and a suitable mechanism for the collection of resources from industries has been determined, the EPA recommends that the ministerial statements of existing industries should be changed via s. 46 of the EP Act to:

- where necessary, remove any requirements for the proponents to undertake their own individual ambient air quality monitoring and / or rock art monitoring in order to avoid any regulatory duplication of monitoring activities; and
- include a requirement for the relevant proponents to contribute to airshed monitoring activities.

Should the monitoring undertaken as part of the Murujuga Rock Art Monitoring Program determine that air emissions from the TANPF are adversely affecting rock art on Murujuga, it is recommended that the Minister for Environment requests that the EPA investigate what measures should be taken via s. 46 of the EP Act.

Cumulative air emissions within the Murujuga airshed

The EPA is in the process of commissioning a study to:

- quantify the cumulative air emissions from existing and proposed future industries and shipping operations, and aggregated sources such as road vehicles, sub-threshold industry, biogenics, and wildfires within the Murujuga airshed
- determine the predicted ground level concentrations and deposition rates of various air pollutants due to emissions from the above-mentioned sources within the Murujuga airshed using a number of different scenarios.

The information derived from the study will be used to inform the EPA's assessment of industrial development proposals located within the Murujuga airshed. It will also inform the Murujuga Rock Art Monitoring Program and the establishment of the Murujuga Ambient Air Quality Monitoring Network.

5. Conclusions and recommendations

Change to Condition 5

The Minister for Environment has requested the EPA to inquire into and report on the matter of changing implementation Condition 5-1: Air Quality in MS 870 relating to the TANPF on Murujuga, to protect rock art. The EPA considers that it is appropriate to delete implementation Condition 5 in MS 870 in its entirety and replace it with the new implementation condition in the attached recommended Statement (Appendix 1).

Conclusions

In relation to the environmental factors, and considering the information provided by the proponent and relevant EPA policies and guidelines, the EPA concludes that:

- definitive information on whether industrial air emissions, including those from the TANPF, are adversely affecting rock art is currently not available
- the best practice stack emission concentration limits in Licence L7997/2002/11 are an effective means of minimising the risk of air emissions from the TANPF impacting on rock art in the absence of conclusive information from the Murujuga Rock Art Monitoring Program in regard to whether industrial air emissions are impacting on rock art
- as Licence L7997/2002/11 already includes best practice stack emission concentration limits, there is no need for them to be included in Condition 5
- as Commonwealth approval (EPBC 2008/4546) for the TANPF contains enforceable and auditable conditions for air quality monitoring and rock art monitoring, the specific requirements of those conditions do not need to be duplicated in Condition 5

- as the TANPF utilises contemporary best practice pollution control technology to minimise air emissions within the Murujuga airshed, the risk of damage to rock art due to the operation of the TANPF has also been minimised, whilst recognising the lack of full scientific certainty in regard to whether cumulative industrial air emissions within the Murujuga airshed are damaging rock art;
- there is sufficient time for the monitoring and evaluation activities associated with the Murujuga Rock Art Monitoring Program to be undertaken and for definitive information in regard to whether cumulative industrial air emissions within the Murujuga airshed are adversely affecting rock art to be obtained
- the risk of rock art being damaged by air emissions from the TANPF can be further mitigated through the progressive minimisation of air emissions from the TANPF through the adoption of advances in air pollution control technology and process management
- Condition 5 in MS 870 should include:
    - clear objectives to minimise air emissions to assist in the maintenance of regional air quality in accordance with applicable air quality standards including, but not limited to, the NEPM so that the environmental values of human health and amenity are protected, and to assist in minimising the risk of impacts to rock art on Murujuga
    - a requirement for the proponent to prepare a revised version of the AQMP which:
        (a) includes the above-mentioned objectives
        (b) specifies the expected air emissions that will be produced by the TANPF based on the existing air pollution control technology selection and plant design
        (b) includes a comparison of the expected air emissions that will be produced by the TANPF and the existing air pollution control technology and plant design that has been incorporated into the TANPF against international industry best practice for technical ammonium nitrate production facilities
        (c) includes the existing provisions for the monitoring and reporting of on-site meteorological conditions including wind speed / direction, temperature, and rainfall rate as this would provide valuable data for the forthcoming investigations associated with the Murujuga Rock Art Monitoring Program
        (d) identifies the available measures that will be implemented to progressively reduce air emissions, including the adoption of advances in air pollution control technology and process management, and specify the timeframe within which each available measure will be implemented, and the means to determine the effectiveness of each available measure in reducing air emissions
        (e) includes a requirement for the proponent to provide, for information only, copies of annual reports and data relating to on-going ambient air quality monitoring and rock art condition / integrity monitoring required under the

EPBC Act to the CEO of DWER within one month of their provision to the Commonwealth Government

- the impacts to the key environmental factors are considered manageable, based on the imposition of the attached recommended amended version of Condition 5 in place of the original version.

Recommendations

Having inquired into the matter of changing Condition 5-1: Air quality in MS 870 to protect rock art, the EPA submits the following recommendations to the Minister for Environment under s. 46 of the EP Act:

1. It is appropriate to delete implementation Condition 5 in MS 870 in its entirety and replace it with a new implementation condition which:
   (a) includes clear objectives to minimise air emissions in order to assist in the maintenance of regional air quality in accordance with applicable air quality standards including, but not limited to, the NEPM so that the environmental values of human health and amenity are protected, and to assist in minimising the risk of impacts to rock art on Murujuga
   (b) a requirement for the proponent to prepare a revised version of their AQMP which:
      - includes the above-mentioned objectives
      - specifies the expected air emissions that will be produced by the TANPF based on the existing air pollution control technology selection and plant design
      - includes a comparison of the expected air emissions that will be produced by the TANPF and the existing air pollution control technology and plant design that has been incorporated into the TANPF against international industry best practice for technical ammonium nitrate production facilities
      - includes the existing provisions for the monitoring and reporting of on-site meteorological conditions including wind speed / direction, temperature, and rainfall rate to enable the data that is collected to be available for use in the forthcoming investigations associated with the Murujuga Rock Art Monitoring Program
      - identifies the available measures that will be implemented to progressively minimise air emissions, including the adoption of advances in air pollution control technology and process management, and specify the timeframe within which each available measure will be implemented, and the means to determine the effectiveness of each available measure in minimising air emissions
      - includes a requirement for the proponent to provide, for information only, copies of annual reports and data relating to on-going ambient air quality monitoring and rock art condition / integrity monitoring required under the EPBC Act to the CEO of DWER within one month of their provision to the Commonwealth Government

2. After complying with s. 46(8) of the EP Act, the Minister issues a statement of decision to change Condition 5 in MS 870 in the manner provided for in the attached recommended Statement (Appendix 1)
3. The Minister notes the advice provided in Section 4.2 of this report regarding ambient air quality monitoring and rock art monitoring on Murujuga and cumulative air emissions within the Murujuga airshed.

References

BTS 2018, *Independent peer review of documents submitted to the DWER by Yara Pilbara Nitrates Pty Ltd to support the amendment of Licence L7997/2002/11,* Benchmark Toxicology Services Pty Ltd (BTS), Perth, WA.

CSIRO 2007, *Field Studies of Rock Art Appearance – Final Report: Fumigation & Dust Deposition – Progress Report: Colour Change & Spectral Mineralogy*, March 2007.

CSIRO 2008, *Burrup Peninsula Air Pollution Study: Report for 2004/2005 and 2007/2008*, CSIRO Marine and Atmospheric Research, 10 September 2008.

DWER 2018, *Desktop technical review of information previously submitted by Yara Pilbara Nitrates Pty Ltd to satisfy Condition 5-1 in Ministerial Statement 870*, Department of Water and Environmental Regulation, Perth, WA.

DWER 2019, *Murujuga Rock Art Strategy, A monitoring, analysis and decision-making framework to protect Aboriginal rock art located on Murujuga (the Dampier Archipelago and Burrup Peninsula)*, Department of Water and Environmental Regulation, Perth, WA.

EPA 2011, *Technical Ammonium Nitrate Production Facility, Burrup Peninsula*, Report 1379, Environmental Protection Authority, Perth, WA.

EPA 2016a, *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures*, Environmental Protection Authority, Perth, WA.

EPA 2016b, *Environmental Factor Guideline – Air Quality*, Environmental Protection Authority, Perth, WA.

EPA 2016c, *Environmental Factor Guideline – Social Surroundings*, Environmental Protection Authority, Perth, WA.

EPA 2018a, *Statement of Environmental Principles, Factors and Objectives*, Environmental Protection Authority, Perth, WA.

EPA 2018b, *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual*, Environmental Protection Authority, Perth, WA.

ERM 2013, *Burrup Technical Ammonium Nitrate Production Facility Air Quality Management Plan*, prepared for Yara Pilbara Nitrates Pty Ltd by Environmental Resources Management Australia, Perth, WA.

SKM 2006, *Pluto LNG Development Cumulative Air Quality Study*. Prepared by Sinclair Knight Merz Pty Ltd for Woodside Energy Ltd.

Appendix 1: Identified Decision-Making Authorities and recommended environmental conditions

Identified Decision-Making Authorities

The following decision-making authorities have been identified for the purposes of s. 45 as applied by s. 46(8) of the *Environmental Protection Act 1986*:

1. Minister for Water
2. Minister for Aboriginal Affairs
3. Chief Dangerous Goods Officer, Department of Mines, Industry Regulation and Safety
4. Chief Executive Officer, Department of Water and Environmental Regulation
5. Director General, Department of Jobs, Tourism, Science and Innovation
6. Chief Executive Officer, City of Karratha

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT TO CHANGE THE IMPLEMENTATION CONDITIONS APPLYING TO A PROPOSAL
(Section 46 of the *Environmental Protection Act 1986*)

TECHNICAL AMMONIUM NITRATE PRODUCTION FACILITY,
BURRUP PENINSULA, CITY OF KARRATHA

Proposal: The proposal is for the construction and operation of a technical ammonium nitrate production facility (TANPF) on Site D within the King Bay/Hearson Cove Industrial Estate on the Burrup Peninsula. The proposal is located approximately 13 kilometres north-west of Karratha.

The proposal is further documented in Schedule 1 of Statement 870.

Proponent: Yara Pilbara Nitrates Pty Ltd
Australian Company Number: 127 391 422

Proponent Address: Level 5, 182 St Georges Terrace, PERTH WA 6000

Report of the Environmental Protection Authority: 1643

Preceding Statement/s Relating to this Proposal: 870

Pursuant to section 45 of the *Environmental Protection Act 1986,* as applied by section 46(8), it has been agreed that the implementation conditions set out in Ministerial Statement No. 870, be changed as specified in this Statement.

Condition 5 of Ministerial Statement 870 is deleted and replaced with:

5 Air Quality

5-1 The Proponent shall manage the implementation of the Proposal to meet the following objectives:

(1) minimise air emissions from the Proposal to assist in the maintenance of regional air quality in accordance with applicable air quality standards including, but not limited to, the National Environment Protection (Ambient Air Quality) Measure (NEPM) so that the environmental values of human health and amenity are protected; and

(2) minimise air emissions from the Proposal as far as practicable to assist in minimising the risk of adverse impacts to rock art on Murujuga.

5-2 Within twelve (12) months of the date of this Statement, unless otherwise agreed by the CEO, the Proponent shall prepare and submit to the CEO a

revised Air Quality Management Plan that describes how the Proponent will meet the following objectives:

(1) minimise air emissions from the Proposal to assist in the maintenance of regional air quality in accordance with applicable air quality standards including, but not limited to, the NEPM so that the environmental values of human health and amenity are protected; and

(2) minimise air emissions from the Proposal as far as practicable to assist in minimising the risk of adverse impacts to rock art on Murujuga.

5-3 The revised Air Quality Management Plan must:

(1) specify the expected air emissions for the Proposal based on the current air pollution control technology selection and plant design for the Proposal;

(2) include a comparison of the expected air emissions for the Proposal against international industry best practice for technical ammonium nitrate production facilities;

(3) include a comparison of the current air pollution control technology selection and plant design for the Proposal against international industry best practice for technical ammonium nitrate production facilities;

(4) include provisions for monitoring of on-site meteorological conditions including wind speed / direction, temperature, and rainfall rate to enable the data that is collected to be available for use in the forthcoming investigations associated with the Murujuga Rock Art Monitoring Program, with annual reporting to the CEO; and

(5) identify and describe the measures that the Proponent will implement to minimise air emissions, including the adoption of advances in air pollution control technology and process management, and specify:

(a) the timeframe within which each measure will be implemented; and

(b) the means to determine the effectiveness of each measure in minimising air emissions.

5-4 After receiving notice in writing from the CEO that the revised Air Quality Management Plan, or any subsequent revision of that plan, satisfies the requirements of Condition 5-2 and Condition 5-3, the Proponent shall:

(1) commence implementation of the approved revised Air Quality Management Plan; and

(2) continue to implement the approved revised Air Quality Management Plan, or any subsequent revision, including the measures identified under Condition 5-3(5), for the remainder of the life of the Proposal.

5-5 Should monitoring of air emissions from the Proposal indicate that the objectives of Condition 5-2 are not being met, the Proponent shall:

(1) report the non-compliance in writing to the CEO within seven (7) days of the non-compliance being identified;

(2) investigate to determine the cause of the non-compliance;

(3) provide a report to the CEO within 90 days of the non-compliance being reported as required by Condition 5-5(1). The report shall include:

(a) the cause of the non-compliance;

(b) the findings of the investigation required by Condition 5-5(2);

(c) details of revised and/or additional management actions to be implemented to prevent non-compliance; and

(d) relevant changes to proposal activities.

5-6 The Proponent shall, for information only, provide the CEO with copies of all reports and data relating to ambient air quality monitoring and rock art condition / integrity monitoring required under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* within one (1) month of their provision to the Commonwealth Government.

5-7 The Proponent may review and revise the Air Quality Management Plan or any subsequently approved revisions.

5-8 The Proponent shall review and revise the Air Quality Management Plan or any subsequently approved revisions every four years, or as and when directed by the CEO.

5-9 Any proposed revision of the Air Quality Management Plan must be submitted to the CEO for approval.

5-10 The Proponent shall implement the latest version of the Air Quality Management Plan which the CEO has confirmed by notice in writing satisfies the requirements of Condition 5-2 and Condition 5-3.

5-11 The Proponent shall make publicly available for the remainder of the life of the Proposal in a manner approved by the CEO:

(1) the approved Air Quality Management Plan, or any subsequently approved revision, within one (1) month of the relevant plan being approved by the CEO; and

(2) the reports referred to in Condition 5-3(4) and Condition 5-6 and associated data, within one (1) month of the relevant report being submitted to the CEO.

5-12 The Proponent shall continue to implement the current approved version of the Air Quality Management Plan (Doc Ref: 0086269, February 2013) until notified by the CEO under Condition 5-4 that the revised Air Quality Management Plan meets the requirements of Condition 5-2 and Condition 5-3.

Abbreviations and Definitions

Item	Definition
Murujuga	The name given to the Dampier Archipelago and Burrup Peninsula by the Traditional Owners and custodians of this area.
As far as practicable	As far as reasonably achievable or feasible as determined by the CEO having regard to, among other things, local conditions and circumstances (including costs) and to the current state of technical knowledge.
Industry best practice	A method, process, or technique employed within a particular industry that has consistently shown through research and experience results superior to those achieved by applying other means, and can be used as a benchmark.
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or his delegate.