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## **DOCUMENT AMENDMENT TABLE**

VERSION	PREPARED BY	DATE	AMENDMENT DETAILS
1	Security and Emergency Response Coordinator	26/04/2014	Original Dampier Port Authority Plan approved
2	Security and Emergency Response Coordinator	05/07/2014	Emergency Control Organisation structure updated
3	Security and Emergency Response Coordinator	14/09/2015	All persons to "shelter in place"
4	Security and Emergency Response Coordinator	15/09/2015	PPA branding and ECO structure updated.
5	Security and Emergency Response Coordinator	02/10/2015	Removed DMSF and building block buildings as places for shelter in place and added Landside operations building as place to activate emergency siren.
6	Marine Administration	09/10/2015	General formatting
7	Marine Administration	28/10/2015	Slight change to title
8	Marine Administration	23/01/2017	Slight formatting
9-11	Security Supervisor	29/08/2017	Review and updated maps, ECO structure and added use of Handheld Card Readers.
12	Security Supervisor	27/11/2017	Review and update of entire document
13	Security Supervisor	10/09/2018	Update contact details.
14	Deputy Harbour Master (Traffic)	02/11/2020	Revised in line with commencement of ammonia muster points (AMP)
15	Security Supervisor	14/04/2023	Periodic review
16	Security Supervisor	12/08/2024	Periodic review
17	Security Supervisor	09/07/2025	Periodic review
18	Security Supervisor	14/08/2025	Reviewed to incorporate Ernst and Young recommendations

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EMERGENCY AND NEIGHBOURING FACILITIES CONTACT NUMBERS				
Emergency services	Call 000 first for all emergency situations			
Yara Pilbara Control Room (24 hours)	(08) 9183 4165			
BLB Jetty landline	(08) 9185 6577			
Yara Jetty operator emergency mobile	0417 757 650			
Woodside – Pluto facility	(08) 9159 0162			
Woodside – King Bay Supply Base	0419 954829			
Toll – King Bay	0458 732 782			
Fire (HMA)	000			
Ambulance	000			
Police	000			
Karratha Health Campus	(08) 9144 7777			

PILBARA PORTS CONTACT DETAILS				
Personnel	Office	Mobile		
Vessel Traffic Services Centre (VTSC)	(08) 9159 6556	0428 888 800		
Security Gatehouse	(08) 9159 6529	0436 529 210		
Harbour Master (Incident Controller)	(08) 9159 6562	0427 485 708		
Security Supervisor (Chief Warden)	(08) 9159 6520	0447 924 896		



#### 1. INTRODUCTION

This plan provides details of actions to be taken in the event of an unplanned release of anhydrous ammonia and potential impacts. To facilitate effective and efficient emergency response to an unplanned anhydrous ammonia release this plan incorporates clarification of roles, accountabilities and background information.

#### 2. OBJECTIVES

- To ensure that all:
  - o Pilbara Ports officers, employees, contractors and visitors; and
  - leaseholders, contractors and other persons (leaseholders, contractors and other persons),

located within the Pilbara Ports Landside Restricted Zone (LRZ), Security Gatehouse, Construction Area and Operations Area are considered in emergency response activities.

- To ensure that Pilbara Ports is in a state of readiness for an unplanned release of anhydrous ammonia that presents a risk to people.
- To ensure the timely notification of all personnel, vessels at berth and vessels within the Port of Dampier that may be impacted by an anhydrous ammonia release.
- To ensure a return to normal operations as soon as possible after the 'all clear' is given.

#### 3. SCOPE

The scope of this plan includes all personnel working on or visiting the Pilbara Ports LRZ, Security Gatehouse, Construction Area and Operations Area, and all vessels and their crews berthed alongside Pilbara Ports facilities and vessels within the Port of Dampier in an area that may be impacted upon by an anhydrous ammonia release.

#### 4. **DEFINITIONS**

**Anhydrous ammonia (NH<sub>3</sub>):** A colourless water soluble gas with a pungent odor and acrid taste, liquefied at a temperature of -33°C, classified as a hazardous substance.

**Construction Area:** Those areas shaded in yellow on the plan attached in Appendix D.

**Construction (Projects) Muster Point (CMP):** A location within a Construction Area where mustering may take place for personnel located in the Construction Area when the ammonia siren (oscillating air raid tone) has been activated (refer to Appendix D).

**Emergency Control Organisation (ECO):** Personnel who are tasked with assisting Pilbara Ports personnel and leaseholders, contractors and other persons onsite

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relocating to the nearest OMP or CMP during an anhydrous ammonia emergency. It consists of a Chief Warden (CW), Operations Area Coordinators (CAO), Muster Area Managers (MAM) and Muster Point Wardens (MPW) (Refer to ECO Diagrams at Appendix E).

**EMQNET:** A multi-channel urgent communication system utilised by Yara Pilbara to notify stakeholders that may be impacted by an anhydrous ammonia release event (SMS, voice to mobile, voice to landline and email). Recipients located in the Operations Area will be Dampier VTS, Dampier Security Gate House and Dampier Security Supervisor.

**Hazard Management Agency (HMA):** Department of Fire and Emergency Services (DFES).

**Incident Control Team (ICT):** Refers to the Harbour Master and Deputy Harbour Masters and their delegates. *Note: This ICT is responsible for the initial on-site response. Once the HMA (DFES) has been notified of the incident, this ICT will take advice from and provide advice/updates to the DFES.* 

**Mitigating measures**: Refers to actions taken to minimise the potential health impacts arising from an anhydrous ammonia release. These actions may take the form of site evacuation, relocating to an OMP, CMP and/or utilising personal protective equipment (including emergency escape hoods).

Operations Area: Those areas shaded in green on the plan attached in Appendix D.

**Operations Muster Point (OMP):** A location within the Operations Area where mustering may take place for personnel located in the Operations Area when the ammonia siren (oscillating air raid tone) has been activated (refer to Appendix D).

Parts per million (ppm): Unit concentration measure for anhydrous ammonia.

**Pilbara Ports Landside Restricted Zone (LRZ)**: Common areas and land inside of the Maritime Security Zone including the main access road, Dampier Cargo Wharf, Dampier Bulk Liquids Berth, Dampier Bulk Handling Facility (currently under construction) and lay down areas, Pilbara Ports buildings, infrastructure, services corridor and leased areas.

**Shelter in place:** This mitigating measure is where shelter is sought in the event of a suspected/confirmed release of anhydrous ammonia. The prescribed locations for sheltering are the OMPs.

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#### 5. REFERENCE DOCUMENTS

- Australian Standard 3745 Planning for emergencies in facilities
- Operating Procedures for OMP APPENDIX B
- Safety data sheet anhydrous ammonia (Yara Pilbara extract only) APPENDIX A.

#### 6. INTEGRATION WITH OTHER EMERGENCY RESPONSE PLANS

This plan is integrated with and supported by the following documents:

Port of Dampier Emergency Response Plan



## 7. RESPONSIBILITIES

RESPONSIBILITIES				
Role/Title	Responsibility			
Harbour Master West	<ul> <li>Approve this plan after each review.</li> <li>Ensure this plan is maintained, implemented, periodically reviewed an updated as required.</li> <li>Ensure the Emergency Control Organisation (ECO) is adequately resourced</li> <li>Is the Incident Controller (IC) and leads the Incident Management Team (IMT) for the initial on-site response in the case of a suspected/confirmed release of anhydrous ammonia. Initial response will be carried out in close coordination and communication with Yara Pilbara and DFES.</li> <li>Note: if the Harbour Master is not present at the time of an anhydrous ammonia emergency event, then any available member of the Incident Control Team will assume the role of IC (delegate).</li> </ul>			
Deputy Harbour Master	Member of the Pilbara Ports ICT who will assist the IC during anhydrous ammonia emergency events.			
Security Supervisor - Dampier  Vessel Traffic Services Officer	<ul> <li>Ensure ECO members receive and maintain familiarisation commensurate with their roles.</li> <li>Coordination of resources to facilitate Pilbara Ports responding to an anhydrous ammonia release.</li> <li>Ensure that information is correctly displayed identifying ECO roles in the workplace.</li> <li>Maintain emergency kits by conducting regular stock-takes and replenishing supplies/personal protective equipment as necessary.</li> <li>Responsible for all prescribed messaging with marine stakeholders as directed by the IC.</li> </ul>			
(VTSO)  Emergency Control Organisation (ECO)	Responsible for facilitating and assisting personnel during an emergency. Refer to APPENDIX E.			
Maritime Security Guards (MSG)	<ul> <li>Control access to the Pilbara Ports LRZ.</li> <li>Generate a list of all personnel onsite and provide this to the CW.</li> <li>Unlock all security doors on activation of the ammonia siren.</li> <li>Deactivate site entry boom gate on hearing the ammonia siren, then follow IC directions.</li> </ul>			
Pilbara Ports personnel	<ul><li>Follow the directions of the IC and ECO.</li><li>Assist ECO.</li></ul>			
Masters of vessels	Undertake mitigating measures in accordance with the ship's emergency plan.			
Leaseholders, contractors and other persons	<ul> <li>If subject to this plan, follow the directions of the IC and ECO.</li> <li>If not subject to this plan, undertake mitigating measures in accordance with their own emergency plan.</li> </ul>			
Authorised personnel	Members of the Security team and VTSOs.			

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#### 8. ANHYDROUS AMMONIA PIPELINE AND BULK LIQUIDS BERTH

Yara Pilbara Fertilisers Pty Ltd (Yara Pilbara) operates an anhydrous ammonia production plant located on the Burrup Peninsular, Northwest of Karratha. Yara Pilbara exports liquefied anhydrous ammonia from the production facility via a 5.2km (approx.) pipeline to a ship loading arm on the Bulk Liquids Berth. The pipeline generally contains recirculating anhydrous ammonia.

#### 9. DETECTING AND COMMUNICATING AN ANHYDROUS AMMONIA RELEASE

#### 9.1 Anhydrous ammonia detection

Anhydrous ammonia liquid vapourises to form ammonia gas (anhydrous ammonia) when it is exposed to the atmosphere (temperature above -33°C). An anhydrous ammonia release may be detected through the following mechanisms:

- Anhydrous ammonia detectors located at key positions within the LRZ (refer APPENDIX C: Location of emergency devices). The ammonia gas detectors are set to alarm at 25 parts per million (ppm) and the signals are repeated on the WAL System (refer 3.2 below)
- All OMPs (refer APPENDIX D) have stand-alone ammonia detectors inside and outside of their structure.
- Visual anhydrous ammonia will form a white cloud on contact with the air due to the condensation of water vapour in the air.
- Odour anhydrous ammonia is highly irritating with a sharp, pungent odour noticeable at a level above five ppm.

Please refer to the Yara material safety data (refer to APPENDIX A) for more information.

#### 9.2 Water, ammonia and lighting system (WAL)

The WAL system monitors water, ammonia and lighting at the Port of Dampier. The system provides real time monitoring of the ten ammonia sensors located around the site but excludes the readings from the sensors located inside and outside of the OMPs. (refer to APPENDIX C for sensor location and displays).

# 9.3 Communication of an anhydrous ammonia release

All known or suspected anhydrous ammonia releases must be communicated to Pilbara Ports via:

- Vessel Traffic Services Centre on (08) 9159 6556 or 0428 888 800
- Security Gatehouse on (08) 9159 6584
- VHF Ch11 or UHF Ch17

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**Note:** Yara Pilbara will provide periodic updates regarding the nature and extent of the ammonia release event via EMQNET.

Yara Pilbara is responsible for communicating the nature and scale of an ammonia release event to all stakeholders with the potential to be impacted. The IC or delegate is responsible for communicating with personnel within the LRZ and the Security Gatehouse.

#### 9.4 Activation of the ammonia sirens

Pilbara Ports have installed emergency sirens (oscillating air raid tone) that when activated indicate a suspected/confirmed anhydrous ammonia emergency. In the event of a suspected or confirmed anhydrous ammonia release the emergency siren will be manually activated by authorised personnel. All ammonia sirens on site sound at the same time (refer APPENDIX C for siren locations).

The ammonia sirens can be manually activated at the following locations:

- Vessel Traffic Service Centre (VTSC)
- Security Gatehouse
- Bulk Liquids Berth control room

Immediately following notification that there is a suspected or confirmed anhydrous ammonia emergency the IC will undertake all reasonable measures to ascertain the nature and extent of the anhydrous ammonia release and provide advice to the ECO regarding appropriate mitigating measures.

The ammonia siren, ECO radio network and public address system are tested every Tuesday at 9.00am.

#### 9.5 Stakeholder notification

The public address system, e-mail, landline, mobile phones and/or VHF Ch11 and UHF Ch17 may be used for notification of stakeholders as per the discretion of the IC.

Once the emergency response has commenced the IC may notify and/or maintain contact with relevant emergency stakeholders listed on page four under EMERGENCY AND NEIGHBOURING FACILITIES CONTACT NUMBERS.

#### 10. RESPONDING TO AN AMMONIA SIREN

Upon hearing the emergency siren all Pilbara Ports personnel and leaseholders, contractors and other persons must take mitigating measures in accordance with this plan. Muster at the nearest upwind CMP for all persons situated in the Construction

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Area (refer to APPENDIX D) or shelter in place at the nearest OMP for all persons located in a building in the Operations Area (Refer APPENDIX D) is the first stage of response in case of a suspected/confirmed ammonia gas release event.

Emergency escape hoods are provided at all Pilbara Ports workstations. Additional emergency escape hoods are stocked in Pilbara Ports occupied buildings, for the use of visitors to facilitate their relocation to the OMP or to an upwind CMP.

Unless otherwise advised, leaseholders, contractors and other persons are responsible for providing appropriate PPE, including emergency escape hoods, for their personnel.

Immediately following activation of the emergency siren, the MSGs will close the entry boom to the Pilbara Ports LRZ, allow vehicles to exit through the exit boom gate (without swiping their access card) and deactivate all security doors.

#### 10.1 For personnel in operations areas:

- **10.1.1** Retrieve an emergency escape hood located at Pilbara Ports employees workstations (refer APPENDIX C).
- 10.1.2 Follow directions of ECO 1 (Pilbara Ports Chief Warden).
- 10.1.3 Don the emergency escape hood and if safe to do so, proceed to the nearest OMP and wait within the vestibule after closing the external door (Refer APPENDIX G).
- 10.1.4 Entry into the refuge chamber (this room is the inner room with air scrubbing equipment Refer APPENDIX G) of the OMP should be made under the guidance/instructions of an ECO warden.
- **10.1.5** If no ECO warden is available, entry into the **refuge chamber** (inner room) should only be made after confirming that the building's external door is closed.

The locations of the OMPs are detailed in APPENDIX D and also listed below:

- Training and Incident Management Building (TIM Muster Point) can accommodate 60 persons for minimum four hours.
- Landside Operations Building (Landside Muster Point) can accommodate 60 persons for minimum four hours.
- Bulk Liquid Berth (BLB AMP) can accommodate 12 persons for minimum 36 hours.
- The IC may choose to remain in the VTSC if required and safe to do so.

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#### 10.2 For personnel in construction areas:

- **10.2.1** Don an emergency escape hood, if available, then move immediately to the nearest upwind CMP if safe to do so (Refer Map at APPENDIX D).
- **10.2.2** Report to the Construction Area CMP Warden and have your name recorded, then await further instruction from the Incident Controller.
- 10.2.3 If persons cannot safely access a CMP, enter a vehicle, close all windows and vents and depart the site. All attempts must be made to then contact the VTS, IMT or CW to advise on location and situation (If possible, call the VTSO mobile number on 0428 888 800, VHF 11 or UHF 17 or contact the IC on 0427 485 708 or CW on 0447 924 896)
- **10.2.4** If unable to safely access a CMP or vehicle, then consider embarking onto the nearest vessel and follow instructions from the vessels staff.

#### 10.3 For vessels within port waters:

Masters of vessels berthed at Pilbara Ports berths are advised through the NOTICE OF ANHYDROUS AMMONIA TRANSFER AT DAMPIER BULK LIQUID BERTH form when anhydrous ammonia is being transferred onto a ship at the Bulk Liquids Berth and that contingency plans are requested in case of accidental release. Masters of vessels alongside Pilbara Ports berths and within port waters are responsible for the health and safety of their crews and should take appropriate action(s) in accordance with their own ship's emergency plan in the event of an anhydrous ammonia emergency.

#### 10.4 PERSONNEL WITHIN THE SECURITY GATEHOUSE:

The AW in the Security Gatehouse will account for all personnel within the building, then report details to the CW. The MSG's must also complete their ammonia release checklist tasks and follow advice from the IC regarding whether to evacuate site or relocate to the nearest OMP, if safe to do so.

#### 10.5 VESSEL TRAFFIC SERVICES OFFICERs:

Upon hearing the emergency siren, the VTSO will immediately complete the actions outlined in the VTSO Anhydrous Ammonia Release checklist, then follow the directions of the IC and may shelter at the nearest OMP and maintain contact with the ECO and/or IC.

## 10.6 Missing persons:

ECO Wardens will conduct roll calls at the OMPs and CMPs and report to the CW and/or IC. The CW will report to the IC and the IC will maintain a master list of all personnel believed to be onsite. These role calls may be facilitated using handheld electronic access card readers or by handwritten lists compiled by the ECO members at CMPs. This list will be handed over to the appointed HMA as

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soon as practicable. Any responsibility to search for, identify and render assistance to missing people sits with the HMA.

#### 11. ACTIONS AT A OMP OR CMP

In the event of an anhydrous ammonia release, muster then consideration may be made by the IC for staged site evacuation.

Site evacuation will be decided and communicated by the IC, dependent on the location, size, concentration and direction of travel of the anhydrous ammonia plume. This decision will be conveyed to the Construction Area Wardens, Operations Area Wardens and Chief Warden.

## 11.1 Shelter in place

ECO team members will direct personnel at an OMP to ensure:

- The following entry protocols are observed:
- The first ECO warden to the OMP should ensure that the OMP is activated. (Refer APPENDIX B).

**Note:** At no time should both internal and external vestibule doors be open simultaneously (Refer APPENDIX G).

- Personnel arriving to the OMP should first wait in the vestibule of the OMP before being advised to enter the refugee chamber (refer APPENDIX G).
- Entry from the vestibule into the refugee chamber will only occur once all external OMP doors have been closed.
- Once inside the refugee chamber, all personnel must swipe their electronic access control cards on the hand-held muster card reader or provide their details to an ECO warden for recording on a list of all personnel in the OMP.
- Each subsequent arrival of personnel to the vestibule should ensure that they
  do not enter the **refugee chamber** until invited to do so by the Warden who
  is managing the OMP at that time.
- Communications equipment is working.
- OMP is secured and operational.
- A head count is conducted, all personnel are recorded on a list or have swiped their access cards on a handheld card reader and updates on the progress of the emergency event are communicated to all in the OMP.

Personnel will continue to shelter in place at the OMPs until notified that it is safe to evacuate the site or return to work by the IC.

(Note: If no ECO team members are located at an OMP, then any person in the OMP may ensure that the OMP is operational by following the instructions outlined in APPENDIX B).

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#### 12. SITE EVACUATION

A site evacuation will only commence when instructed by the IC. Site evacuation will be coordinated in a manner that, as far as practicable, ensures efficient egress of all personnel from the Pilbara Ports LRZ. ECO team members will take all reasonable measures to account for persons at their OMP or CMP prior to evacuation. The ECO Wardens should take all reasonable measures to ensure appropriate vehicular resources are identified prior to evacuating site.

Before each OMP or CMP is evacuated, personnel may don a new escape hood (if they have one available). There are sufficient escape hoods in each OMP for the personnel capacity of the OMP. As each OMP or CMP is evacuated, the ECO Warden will post signs at the OMP or CMP indicating that an evacuation has occurred. The sign will also direct any subsequent personnel arriving to the OMP or CMP, to precede offsite if safe to do so or shelter at an OMP and call 000. Upon evacuating the OMP, the ECO Warden must ensure that access to the OMP is secured effectively to prevent ingress of ammonia vapors by ensuring that at no time both internal and external vestibule doors are open simultaneously.

Site evacuations will be coordinated in a staged manner to avoid traffic congestion.

There is no requirement for personnel to swipe their access card at the exit boom gate during an anhydrous ammonia emergency site evacuation.

The IC will direct personnel to evacuate to their residence or an alternate location which may include a medical facility for health check.

#### 13. ALL CLEAR

When an anhydrous ammonia emergency no longer represents a danger, IC will communicate to the CW and ECO team the All-Clear status. This may be done by switching the ammonia siren to one long continuous tone followed by an announcement over the public-address system. LRZ lease areas not covered by the public-address system may be contacted by e-mail, phone, EMQNET or radio.

#### 14. PERSONAL PROTECTION MEASURES

### 14.1 Respiratory protection

Emergency escape hoods are located at each workstation in each building (refer APPENDIX C). Emergency escape hoods are an air purifying, full-face respirator equipped with a chemical cartridge. These emergency escape hoods are equipped with a highly efficient combination filter. Pilbara Ports has industrial escape hoods which provide a maximum of 15 minutes escape protection against toxic industrial gases, fumes, and particles (refer APPENDIX F).

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#### 14.2 Wind direction

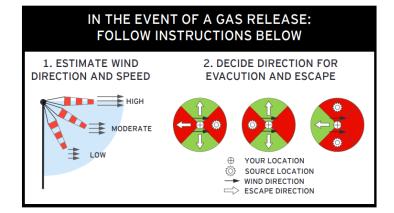
An anhydrous ammonia release may develop into a plume (cloud). The time of day, weather conditions and quantity of anhydrous ammonia will determine the visibility of the plume of anhydrous ammonia. Personnel relocating to the nearest OMP, CMP or taking other mitigating measures should (if possible) make note of the wind direction using the windsocks.

Taking note of the wind direction may assist in determining the direction that an ammonia gas plume is travelling. Windsocks are located on all CMP's, at the Bulk Liquids Berth, Wharf Services Area Car Park and the Administration Building Car Park and in prominent locations in the construction areas (refer APPENDIX C). Wherever possible, personnel should move across or upwind from the anhydrous ammonia plume.

COMMON INSTRUCTIONS (EXAMPLE)

#### IN THE EVENT OF AN AMMONIA EMERGENCY:

- ☐ Remain calm and check wind direction;
- ☐ Move across and upwind of any plume;
- ☐ Don emergency escape hood;



#### **KEY FACTS ABOUT AMMONIA:**

- ☐ a distinct pungent odour;
  - a low odour threshold (1 to 5 ppm) which acts as an early detection guide;
  - at low levels is not harmful to health;
- □ the safe exposure level determined by safety authorities is 25 ppm over 8 hrs;
- exposure at higher levels (>300 ppm) can cause irritation and be harmful; and,
- ☐ reacts quickly with moisture

### 14.3 First aid management

Prompt action is essential if there is an anhydrous ammonia release emergency. Trained first aid representatives are directed to consult the anhydrous ammonia material safety data sheet (refer APPENDIX A).

## 15. EMERGENCY CONTROL ORGANISATION

An ECO has been established (refer APPENDIX E) and is under the direction of the IC to assist Pilbara Ports to respond appropriately in the event of an anhydrous ammonia emergency.

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Two levels of familiarisation are required to support this plan, the higher level being (OMP operator) for those staff who may be required to operate the OMP's during an emergency. The second level (basic familiarisation for use of an OMP under OMP OPERATOR supervision) will be for all other Pilbara Ports employees that are normally based at Dampier.

Training material will be made available for the construction areas workers on request.

**Note:** The Port of Dampier site induction includes instruction on the recommendation to muster at an OMP during an ammonia emergency and follow the instruction of the ECO.

#### 15.1 OMP operators

All Dampier based members of the ECO, IC, Incident Control Team and VTSO's will be required to undertake OMP OPERATOR level familiarisation annually, this training will provide instruction on the operation of this Plan and on the use of the OMPs.

#### 15.2 Drills and exercises

There will be a site wide anhydrous ammonia emergency drill run at a minimum of once each year, with more drills to be completed if deemed appropriate by the IC.

Other drills or exercises will be completed as required by the IC.

#### 16. PROCESS OWNER

The Harbour Master is responsible for this external document.

Date approved: 10/07/2025 Review date: 14/08/2027

Version: 18 Approved by: Harbour Master Central



#### APPENDIX A - EXTRACT OF ANHYDROUS AMMONIA SAFETY DATA SHEET

Based on: GHS (rev 7) (2017). - Australia

Date of issue/ Date of revision 12.06.2024 Date of previous issue 05.05.2023 Version 2.6



# SAFETY DATA SHEET

#### Anhydrous Ammonia

## Section 1. Identification

Product identifier Anhydrous Ammonia gas (Liquefied gas.) PA01HL Product type

Product code

Uses

Area of application Industrial applications, Professional applications

Supplier

: YARA PILBARA FERTILISERS PTY LTD Supplier's details

Address

Street Eastpoint Plaza level 10, 233 Adelaide Terrace

Postal code 6000 Perth City Country Australia

Telephone number +61 8 9183 4000 Fax no. +61 8 9185 6776

e-mail address of person Info.yara.pilbara@yara.com responsible for this SDS

Emergency telephone number Australia: 1300 927 200

Intl: +61 2801 44558 / +44 (0) 1235 239 670 (with hours of operation)

(24 HRS)

#### National advisory body/Poison Center

Name Poisons Information Centre

Telephone number

Hours of operation 24h, within Australia only

#### Section 2. Hazard(s) identification

Classification of the FLAMMABLE GASES - Category 2 substance or mixture.

GASES UNDER PRESSURE - Liquefied gas ACUTE TOXICITY (inhalation) - Category 3 SKIN CORROSION/IRRITATION - Category 1B

SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1

AQUATIC HAZARD (ACUTE) - Category 1 AQUATIC HAZARD (LONG-TERM) - Category 2

#### **GHS** label elements

Date of issue: 12.06.2024 Page:1/14



Anhydrous Ammonia

Hazard pictograms



Signal word DANGER

Hazard statements H280 Contains gas under pressure; may explode

if heated.

H314 Causes severe skin burns and eye damage.

H331 Toxic if inhaled.

Very toxic to aquatic life. H400

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention P280 Wear protective gloves/clothing and

eye/face protection.

P260 Do not breathe gas or vapour. Response P305 IF IN EYES:

> P351 Rinse cautiously with water for several

P338 Remove contact lenses, if present and easy

to do. Continue rinsing.

P304 IF INHALED:

P340 Remove person to fresh air and keep

comfortable for breathing.

P310 Immediately call a POISON CENTER or

doctor/physician.

P303 IF ON SKIN (or hair):

P361 Take off immediately all contaminated

clothing.

P353 Rinse skin with water.

Storage P410 + Protect from sunlight. Store in a well-

P403 ventilated place.

Supplemental label elements Not applicable.

Other hazards which do not

result in classification

None known.

Additional information Liquid can cause burns similar to frostbite.

# Section 3. Composition and ingredient information

Substance/mixture Substance

CAS number/other identifiers

ammonia, anhydrous Other means of identification

CAS number 7664-41-7 EC number 231-635-3

Ingredient name	% (v/v)	CAS number
ammonia, anhydrous	100	7664-41-7

Date of issue: 12.06.2024



Anhydrous Ammonia

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

The total concentration of ingredients in this product, reported or not in this section, is 100%. Chemical formula : H3 N

## Section 4. First aid measures

#### Description of necessary first aid measures

Eye contact : Immediately flush eyes with running water for at least 15

minutes, keeping eyelids open. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get

medical attention immediately.

Inhalation : If inhaled, remove to fresh air. Get medical attention

immediately. If not breathing, give artificial respiration. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If

necessary, call a poison center or physician.

Skin contact : In case of contact, immediately flush skin with plenty of water

for at least 15 minutes while removing contaminated clothing and shoes. Flush contaminated skin with plenty of water. Do not rub affected area. Get medical attention immediately. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Chemical burns must be treated promptly by

a physician.

Ingestion : Not applicable (gas). Get medical attention. Remove victim to

fresh air and keep at rest in a position comfortable for breathing. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. As this product rapidly becomes a gas when released, refer to the

inhalation section.

#### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

Eye contact : Causes serious eye damage. Liquid can cause burns similar

to frostbite.

Inhalation : Toxic if inhaled. Exposure to decomposition products may

cause a health hazard. Serious effects may be delayed

following exposure.

Skin contact : Causes severe burns. Dermal contact with rapidly evaporating

liquid could result in freezing of the tissues or frostbite.

Ingestion : May cause burns to mouth, throat and stomach. Ingestion of

liquid can cause burns similar to frostbite.

#### Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following: pain, watering,

redness, frostbite (Cryogenic burn)

Inhalation : Adverse symptoms include the following: wheezing and breathing

difficulties, asthma

Skin contact : Adverse symptoms may include the following: pain or irritation,

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Anhydrous Ammonia

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Personal protective equipment

(Pictograms)



# Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state gas [Liquefied gas.]

Color Colorless... Odor Pungent. Odor threshold 5 ppm

Not applicable. Melting point/freezing point -78 °C (-108 °F) Boiling point, initial boiling -33 °C (-27 °F) point, and boiling range

Flash point Not applicable. Flammability Flammable Lower and upper explosion Lower: 15 %(V) limit/flammability limit Upper: 27 %(V)

8,611 hPa @ 20 °C (68 °F) Vapor pressure

Relative vapor density 0.6 [Air = 1]

Relative density 0.682 @ -33.4 °C (-28.1 °F)

Density Not applicable.

Solubility in water 510 - 531 g/l @ 20 °C (68 °F)

Partition coefficient: n-

octanol/water

Not applicable.

Auto-ignition temperature 651 °C (1204 °F) Decomposition temperature Not applicable.

0.22 mPa.s Viscosity Dynamic: Kinematic: Not determined.

Molecular weight 17.04 g/mol Explosive properties Non-explosive

Oxidizing properties Non-oxidizer. No oxidizing ingredients present.

Particle characteristics

Median particle size Not applicable.

# Section 10. Stability and reactivity

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Anhydrous Ammonia

Reactivity : No specific test data related to reactivity available for this

product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous

reactions

Under normal conditions of storage and use, hazardous

reactions will not occur.

Conditions to avoid : Avoid contamination by any source including metals, dust and

organic materials.

Incompatible materials : No specific data.

Hazardous decomposition

products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

# Section 11. Toxicological information

#### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Method	Species	Result	Exposure
ammonia, anhydrous				
	LC50 Inhalation Vapor	Rat	7.939 mg/l	1 h

Conclusion/Summary : Toxic if inhaled.

Irritation/Corrosion

Conclusion/Summary

Skin : Corrosive.

Eyes : Causes serious eye damage.

Respiratory : Corrosive to the respiratory system.

Sensitization

Conclusion/Summary

Skin : Not sensitizing Respiratory : Not sensitizing

<u>Mutagenicity</u>

Conclusion/Summary : No known significant effects or critical hazards.

#### Carcinogenicity

stations.

Product/ingredient name	Method	Species	Result	Exposure
ammonia, anhydrous				
	OECD 453 Oral	Rat	Negative NOAEL 67 mg/kg bw/day	Not applicable.
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Note: Complete (all 15 pages) safety data sheets are located in all AMP's and ECO emergency



#### APPENDIX B - PROCEDURE FOR USE OF OPERATIONS MUSTER POINT



Entry to Shelter-in-Place, PPMS, Air Scrubbing System operation, and Aura-FX Gas Monitoring





#### ENTER & ACTIVATE THE SHELTER

#### STEP 1 Entry & Lighting

· Enter and seal shelter in place.



# STEP 2 PRESS Red Button on PPMS

 Activate emergency compressed air system by pressing red button on PPMS (Positive Pressure Maintenance System) manifold.



#### AIR SCRUBBING SYSTEM

#### STEP 3 Install Marcisorb CO2 Cartridges

 Remove two (2) MARCISORB CO2 Cartridges (BLUE) from their packaging and place on top right hand side and center of scrubber unit.

NOTE: REPLACE BOTH CARTRIDGES WHEN CO2 REACHES 1%.





#### STEP 4 Install Marcisorb CO Cartridge

 Remove one (1) MARCISORB CO Cartridge (YELLOW) from its packaging and place on the top left hand side of scrubber unit.

NOTE: DO NOT REMOVE ONCE INSTALLED.





# STEP 5 Turn ON Scrubber Unit

 Turn scrubber unit ON by pressing the emergency operation button on the front panel (this button is a white cross in a green square).



#### Commence Gas Monitoring

Commence gas monitoring with Aura-FX (Fixed Gas Monitor). Open external gas monitoring valve.

Refer to the 'Gas Testing Guide' at the rear of this manual for procedures for both digital and manual gas sampling.



NOTE: Aura-FX (DGM) will periodically alarm when it detects changes in gas levels. Only alarms displaying readings OUTSIDE the acceptable gas levels require attention: REFER TO THE REAR OF THIS MANUAL FOR GUIDE ON READING ALARMS to ensure breathing air quality is maintained.

#### Turn ON Emergency Lighting

 Turn lights to "manual" mode by pushing LIGHTS button on controller module.



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AODS (Automatic Oxygen Delivery System) operation and Life Support Setting Tables

#### **AODS SYSTEM**

#### Standard Operation - AODS System

Under normal circumstances, the Automated Oxygen Delivery System (AODS) is operational at all times. As such occupants need only monitor Oxygen levels via Aura-FX and act accordingly if Oxygen levels read outside of acceptable levels.



#### **AODS System Bypass**

IF AODS is operational, and O2 falls below 18.5%, install provided oxygen flowmeter into quick-connect fitting on the AODS, and adjust to 0.5 litres per shelter occupant - see LIFE SUPPORT SETTINGS TABLE (round up to nearest flow rate marked on regulator).





 Align Quick Connect Couplings Insert Quick Connect Fitting Vertically Into Position







 Adjusting the Flow Rate Down

#### LIFE SUPPORT SETTINGS TABLES

**CO2 Chemical Changeout Table** 



Oxygen	Regul	lator	Setting	g Table
(Only applica	ble whe	n AOD	S Bypass	is installed

NUMBER OF PERSONS	CO2 CHEMICAL REPLACEMENT APPROXIMATE (HOURS)	NUMBER OF PERSONS	SET FLOW RATE AT (LITERS)
3	61.2	3	1.5
6	30.6	6	3
9	20.4	9	4.5
12	15.3	12	6
15	12.2	15	7.5
18	10.2	18	9
21	8.7	21	10.5
24	7.7	24	12
27	6.8	27	13.5
30	6.1	30	15
33	5.6	33	16.5
36	5.1	36	18
39	4.7	39	19.5
42	4.4	42	21
45	4.1	45	22.5



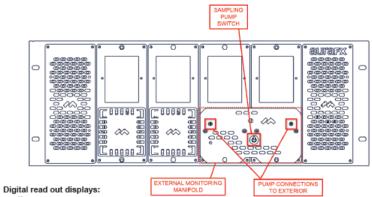


Aura-FX alarms and actions required when gas levels read outside of acceptable levels

#### **GAS TESTING GUIDE**

#### **Aura-FX Information**

Aura-FX is operational at all times. It displays a current reading and a trend for the previous hour (1) for temperature, and each gas being monitored. To sample external gases, activate SAMPLING PUMP SWITCH on right side of Aura-FX. For more information on external gas monitoring refer to section 1.1.3 External Gas monitoring in the Aura-FX Operation Manual.



- Temperature
- Oxygen Level Indicator
- Carbon Dioxide Level Indicator
- · Carbon Monoxide Level Indicator
- · Optional site specific gas concentration monitor(s)

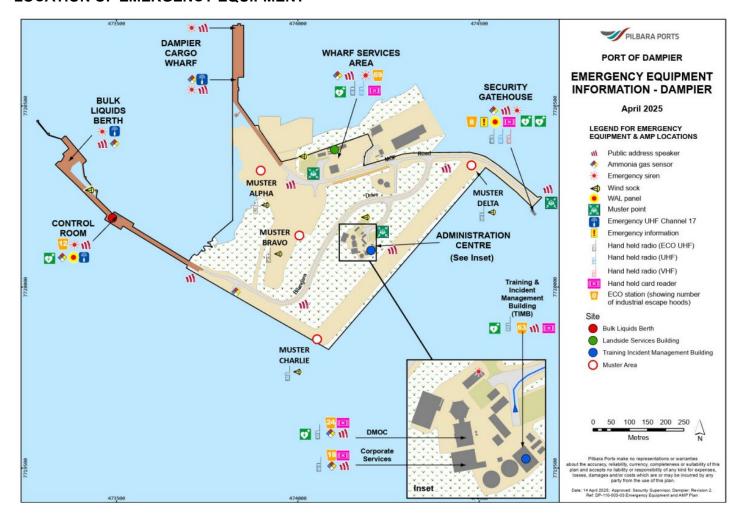




ALARM TYPE		ACTION		
CO2 Levels ABOVE 1% Indicated on Aura-FX Screen		Action: Remove Both MARCISORB CO2 Cartridges from scrubber and replace with new cartridges.  Note: Refer to LIFE SUPPORT SETTINGS TABLE on Page 7 for approximate chemical change out durations.		
CO Levels ABOVE 25ppm Indicated on Aura-FX Screen		Action: Ensure MARCISORB CO Cartridge has been placed on scrubber.		
O2 Levels ABOVE 23% Indicated on Aura-FX Screen		Action: Turn O2 regulator DOWN one (1) notch. Ensure regulator is set to correct flow rate (e.g. if 10 persons, set to 5 liters of flow).  Refer to LIFE SUPPORT SETTING TABLE on Page 7.  Note: To adjust oxygen flow rate, AODS bypass must be installed. Refer to AODS Bypass Instructions on Page 6.		
O2 Levels BELOW 18.5% Indicated on Aura-FX Screen	o mid o mid o mid o mid	Action: Turn O2 regulator UP one (1) notch (repeat as necessary).  Note: To adjust oxygen flow rate, AODS bypass must be installed. Refer to AODS Bypass Instructions on Page 6.		



#### **APPENDIX C - LOCATION OF EMERGENCY EQUIPMENT**



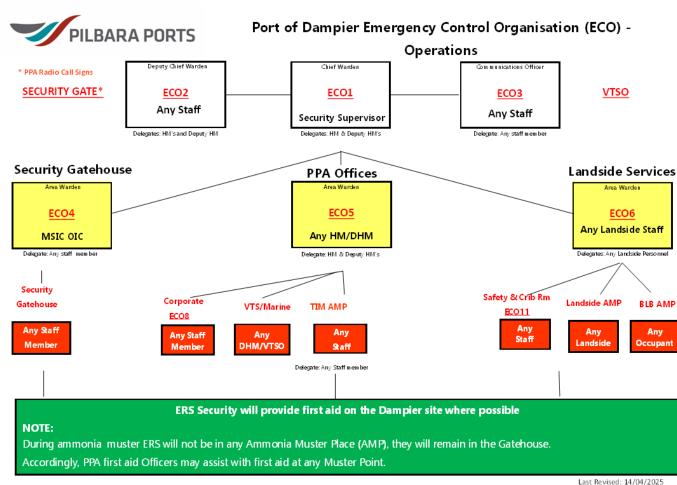


#### **APPENDIX D - MUSTER LOCATIONS**





#### APPENDIX E - DAMPIER (OPERATIONS AREAS ECO TEAM

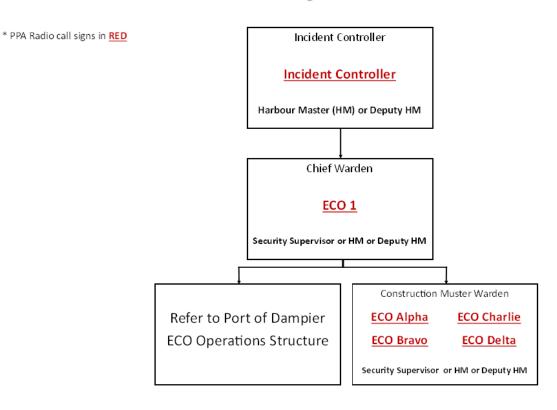




## APPENDIX F - DAMPIER PROJECT (CONSTRUCTION AREAS) ECO TEAM



# Port of Dampier Emergency Control Organisation (ECO) - Construction



Last Revised: 14/04/2025



## APPENDIX G - INDUSTRIAL ESCAPE HOODS USED BY PILBARA PORTS



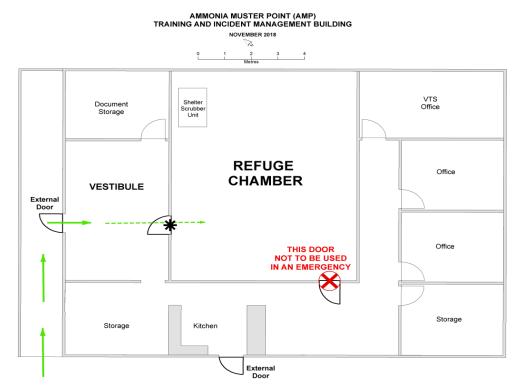


## APPENDIX H - ESCAPE HOODS RECOMMENDED BY YARA PILBARA





# APPENDIX I: FLOOR PLANS FOR TIM AND LANDSIDE OMP'S



\* NOTE: REFUGE CHAMBER DOORS MUST NOT BE OPENED WHILE ANY EXTERNAL DOOR IS OPEN

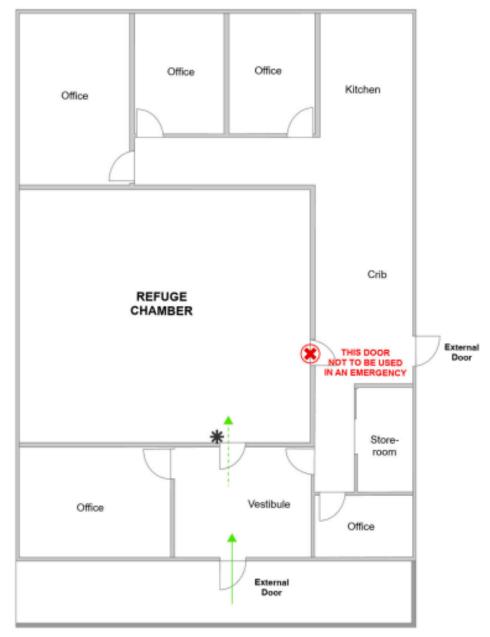
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# PORT OF DAMPIER AMMONIA MUSTER POINT LANDSIDE OPERATIONS BUILDING

February 2025



\* NOTE: REFUGE CHAMBER DOORS MUST NOT BE OPENED WHILE ANY EXTERNAL DOOR IS OPEN.