PERDAMAN INDUSTRIES

CHEMICALS & FERTILISERS

# Emergency Response Management Plan

## Perdaman Project Destiny

Burrup Peninsula, Western Australia

CW1055600

Prepared for Proponent:

Perdaman Chemicals and Fertilisers Pty Ltd.

ABN: 31 121 263 741

Date: 17 March 2020

Assessment No:

2184 (WA)

2018/8383 (Commonwealth)

Cardno

## Contact Information

**Cardno (WA) Pty Ltd**
ABN 77 009 119 000

11 Harvest Terrace
West Perth WA 6005
Australia

www.cardno.com

## Document Information

| | |
|---|---|
| Prepared for | Perdaman Chemicals and Fertilisers Pty Ltd. |
| Project Name | 0BPerdaman Project Destiny |
| File Reference | CW1055600-EN-PL-004 |
| Job Reference | CW1055600 |
| Date | 17 March 2020 |
| Version Number | A |

Author(s):

Name: Bernie Riegler
Job title: Senior Environmental Consultant

Effective Date 17/03/2020

Approved By:

Name: Daniel Hunter
Job title: Manager – Environmental Planning and Approvals

Date Approved 17/03/2020

## Document History

| Version | Effective Date | Description of Revision | Prepared by | Reviewed by |
|---|---|---|---|---|
| A | 17/03/20 | Developed for EPA review | BR | DH |
| | | | | |
| | | | | |
| | | | | |

# Summary

| Proposal Title | Perdaman Urea Project |
|---|---|
| Proponent name | Perdaman Chemicals and Fertilisers Pty Ltd. |
| Assessment Number | 2184 (WA) & 2018/8383 (Commonwealth) |
| Purpose of the ERMP | The effective management of emergency incidents can have a significant impact on the consequences associated with them. Good preparation prior to, effective management during, and objective investigation after the fact, will significantly reduce the impact of emergency incidents. If not managed appropriately an emergency situation could result in injury or death to people, damage or loss of property and environmental values.<br>The purpose of the ERMP is to ensure that emergency incidents of the Project are appropriately managed in accordance with the applicable regulatory requirements, Perdaman's policies and procedures, and industry best practice. |
| Key environmental factors and objectives | The key environmental factors and objectives relevant to the Project include:<br>▪ Coastal processes - To maintain the geophysical processes that shape coastal morphology so that the environmental values of the coast are protected.<br>▪ Marine environmental quality - To maintain the quality of water, sediment and biota so that environmental values are protected.<br>▪ Marine fauna - To protect marine fauna so that biological diversity and ecological integrity are maintained.<br>▪ Flora and vegetation - To protect flora and vegetation so that biological diversity and ecological integrity are maintained.<br>▪ Terrestrial fauna - To protect terrestrial fauna so that biological diversity and ecological integrity are maintained. Ecological integrity is the composition, structure, function and processes of ecosystems, and the natural range of variation of these elements.<br>▪ Inland waters - To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected. |
| Condition clauses | To be determined. |
| Key provisions in the plan | The ERMP's key provisions are included in *Section 13 Emergency Management Actions.* This section details the outcome and management based actions, that will be applied for the life of the Project for various emergency scenarios. |

# Foreword

This Emergency Response Management Plan (ERMP) is a sub-plan of the overarching Project Environmental Management Plan (PEMP) for the Perdaman Urea Project. An overview of the structure of the PEMP and sub-plans is illustrated in Figure 0-1.

This plan shall be reviewed and updated as necessary throughout the construction, operation and decommissioning phases of the project. The review process is detailed in *Section 15 Review and Continual Improvement* of the PEMP.

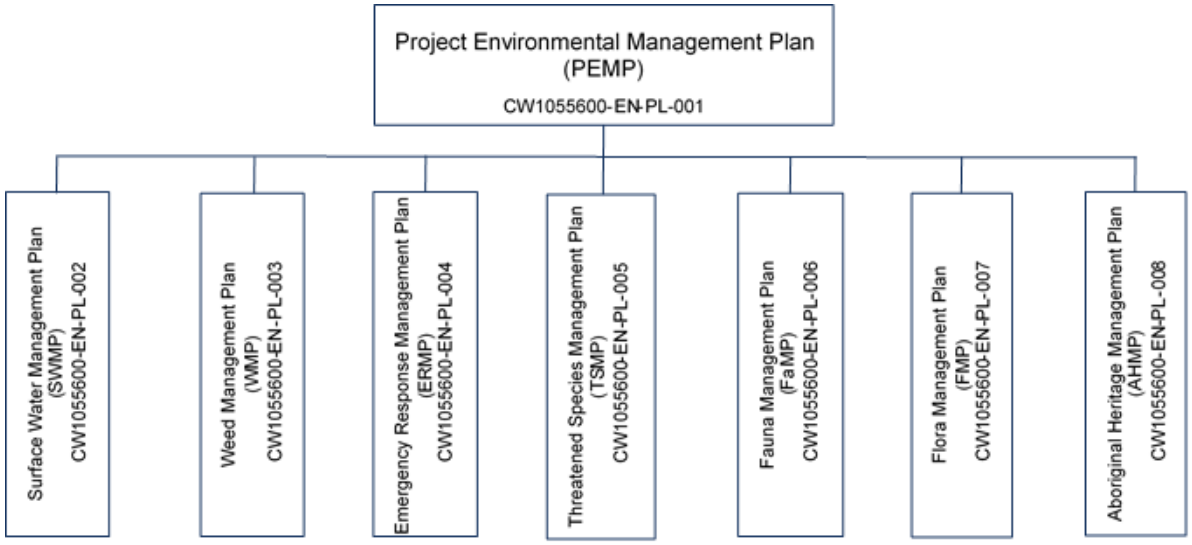


Figure 0-1: Structure of the Project Environmental Management Plan and supporting sub-plans.

# Table of Contents

# Appendices

No table of contents entries found.

# Tables



# Figures

# 1 Introduction

Perdaman Chemicals and Fertilisers Pty Ltd (Perdaman) proposes to establish a state-of-the-art urea production plant within the Burrup Strategic Industrial Area (BSIA). The site is situated approximately 8 km from Dampier and 20 km north-west of Karratha on the north-west coast of Western Australia.

The key elements of the Project include the design, engineering, construction and operation of the main urea production facility (urea plant), administration, maintenance and storage infrastructure, conveyor and port storage and shiploading facilities.

The main potential emergency scenarios on the Project include fires, uncontrolled hazardous substance releases, flooding, cyclones and security threats. The primary strategies that will be implemented to address these impacts include strict design criteria for temporary and permanent infrastructure, training in emergency preparedness and response and, effective procedures and systems communicated to Project personnel.

This Emergency Response Management Plan (ERMP) provides the management requirements for the Project. It includes a series of specific management strategies that will be applied across the construction, operation and decommissioning phases of the project.

## 1.1 Purpose

The effective management of emergency incidents can have a significant impact on the consequences associated with them. Good preparation prior to, effective management during, and objective investigation after the fact, will significantly reduce the impact of emergency incidents. If not managed appropriately an emergency situation could result in injury or death to people, damage or loss of property and environmental values.

The purpose of the ERMP is to ensure that emergency incidents of the Project are appropriately managed in accordance with the applicable regulatory requirements, Perdaman's policies and procedures, and industry best practice.

## 1.2 Scope

This ERMP applies to all Project sites including Site C process plant, Site F administration, maintenance and storage infrastructure, access roads from public areas, the causeway, the conveyor corridor, Port side storage, transfer and ship loading areas.

The commissioning and operational phases of the Project will have their own risks and associated controls pertaining to major hazard facilities and dangerous goods storage. These are broadly addressed in this plan, however further detail will be included in Perdaman's Safety Management System.

# 2 Project Overview

Perdaman plans to construct and operate a state-of-the-art urea plant with a production capacity of approximately 2 million tonnes per annum (Mtpa) on the Burrup Peninsula in the North West of Australia (Figure 2-1) (the Project).

The Project infrastructure including the main production facility (urea plant), administration, maintenance and storage infrastructure, conveyor and port storage and shiploading facilities are situated within the BSIA. The estate's close proximity to gas, port and other key infrastructure makes it an ideal location for the Project.

The BSIA is located in close proximity to the Murujuga National Park which covers an area of 4,913ha on the Burrup Peninsula. The area is considered to host the largest concentration of ancient rock art in the world. As such, the Project will apply effective management strategies that minimise or abate, actual or potential impacts on the environment, heritage and cultural values of the region.

The Project involves piping natural gas from the nearby Woodside operated LNG facility to the project site under a long term commercial off-take agreement. Natural gas is converted to urea and the final granulated product is transported by conveyor to the Dampier Port by closed conveyor along the East West Service route, where new facilities will include an enclosed stockpile shed and ship loading facilities.

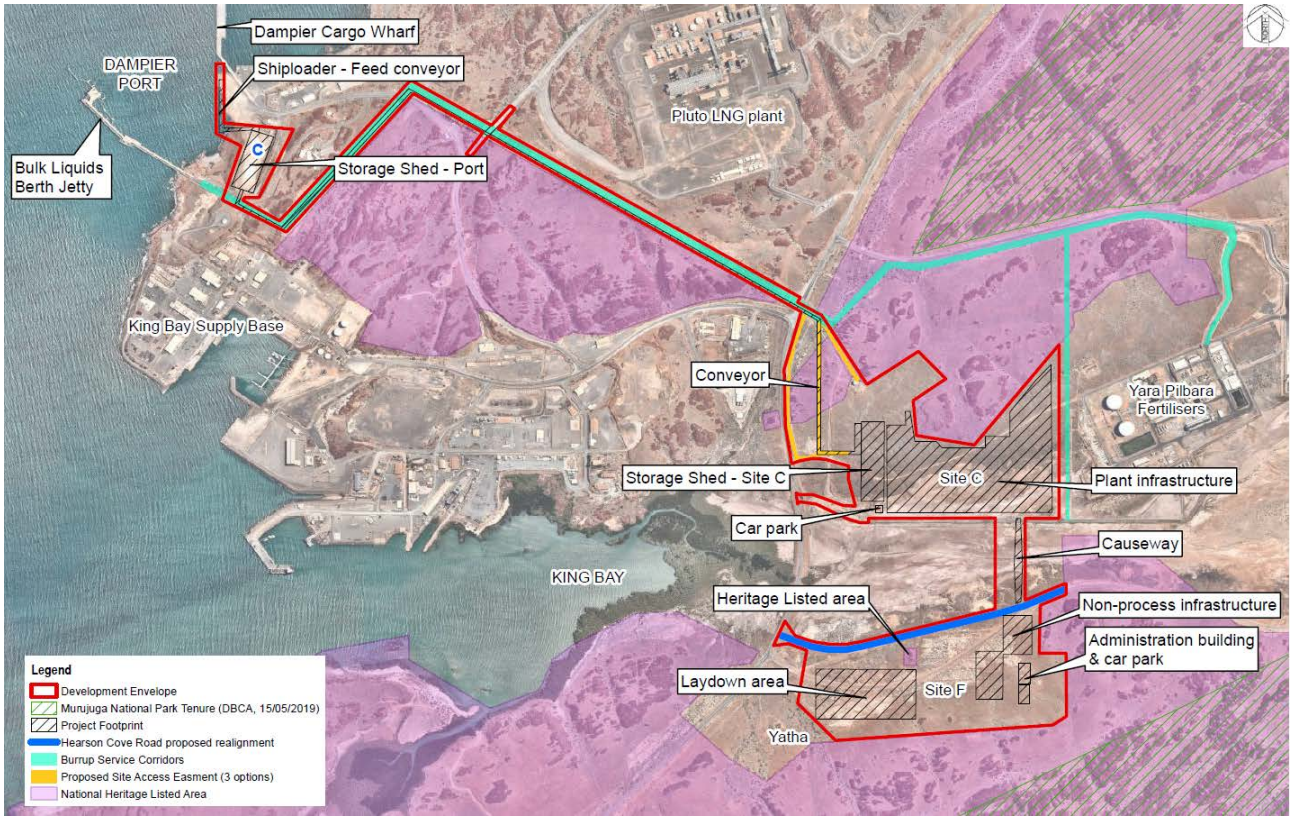


Figure 2-1 Project site layout and adjoining facilities.

Proven Urea production technology underpins each of the key stages of this project. The technologies being applied to the plant are equivalent to the industry best for the specific applications and successfully operate elsewhere in the world. The processing plant can be broadly considered in four sections, or Blocks, namely:

- Gas Block
- Product Block
- Utility Block
- Infrastructure and Logistics

Each of the Process Blocks is made up of a number of process units or physical sections of the plant. The major process sections are illustrated in Figure 2-2.

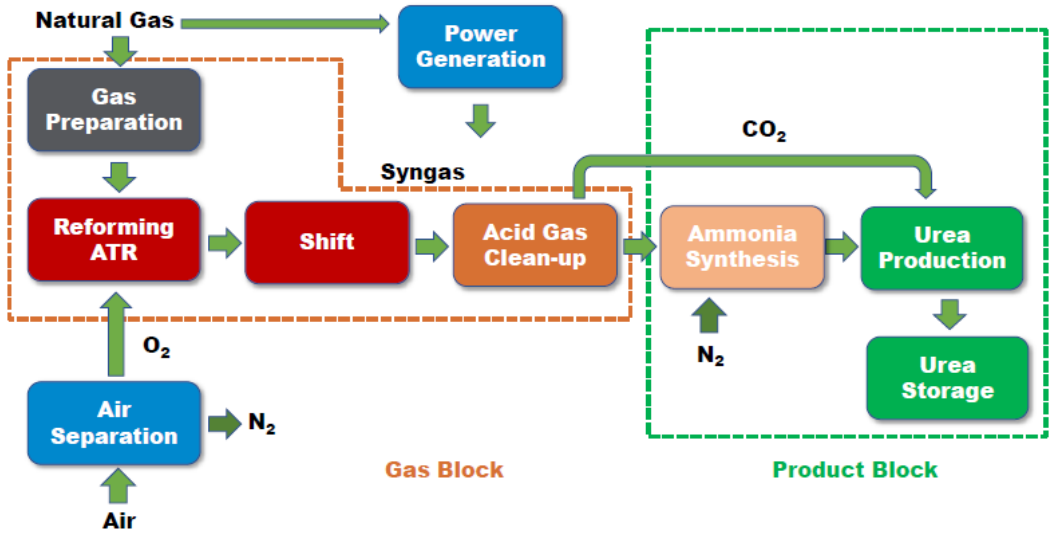


Figure 2-2 Process Block Diagram

# 3 Legislation, Commitments and Other Legal Obligations

## 3.1 Regulatory Obligations

Legislation relevant to emergency management on the Project includes, but is not limited to:

- Dangerous Goods Safety Act 2004
- Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007
- Occupational Safety and Health Act 1984
- Occupational Safety and Health Regulations 1996
- Emergency Management Act 2005
- Environmental Protection (Unauthorised Discharge) Regulations 2004
- Environmental Protection Act 1986

In addition to the aforementioned legislation, this ERMP will be developed and regularly reviewed to comply with the commitments and legal obligations arising from the Project's approvals process.

## 3.2 Project Approvals

The Project must comply with all of the conditions included in its granted approvals. Perdaman will be responsible for ensuring all statutory approvals required for activities or infrastructure specific to Project needs are attained in a timely manner.

Table 3-1 below includes indicative licenses and approvals potentially required for the Project, which may apply or contain conditions specifically related to the response management of incidents or emergency situations. This list is provided as a guide only, and is subject to change throughout the life of the Project.

A detailed approvals register will be maintained by Perdaman to monitor the implementation and progress of conditions, and the achievement, renewal and surrender of all licenses throughout the life of the Project.

Table 3-1 Project statutory approvals and agreements.

| Approval / Agreement | Purpose | Agency / Jurisdiction |
|---|---|---|
| EP Act 1986 - Part IV Approval - Ministerial Statement | EPA assessment of strategic proposal. | EPA |
| EP Act 1986 - Part V - Works Approval & Licence - Cat 31. Chemical manufacturing. | Chemical manufacturing (Operations). | DWER |
| EP Act 1986 - Part V - Works Approval & Licence - Cat 52. Power generation | For construction and operation of electric power generation using fuel. | DWER |
| EP Act 1986 - Part V - Works Approval & Licence - Cat 73. Chemical storage | For construction and operation of bulk storage of chemicals. | DWER |
| EP Act 1986 - Part V - Works Approval & Licence - Cat. 54 or 85 Sewage facility | For construction and operation of sewage facility with discharge to land or waters. | DWER |
| EP Act 1986 - Part V - Works Approval & Licence - Cat. 77 Concrete batching | For construction and operation of concrete batching plant. | DWER |
| EP Act 1986 - Part V - Works Approval & Licence - Cat 58 or 86. Material loading. | For construction and operation of bulk material loading onto vessels by material loading system. | DWER |
| Approval - Working near Water Corp assets | Approval required to work near or over the Water Corp seawater delivery line and Multi User Brine Release Line (MUBRL). | Water Corp |

| | | |
|---|---|---|
| Approval / Agreement - working near gas pipeline. | Permission required to work near or over the Burrup Fertiliser Lateral Pipeline (BFL pipeline) runs on south side of Site C to Yara Fertilisers. | Santos |
| Dangerous Goods Safety Act 2004 - Dangerous Goods Site Licence (Construction) | Storage of fuel during the construction phase. | DMIRS |
| Dangerous Goods Safety Act 2004 - Major Hazard Facility License (Class A) | Storage of dangerous goods over threshold quantities during the operational phase. | DMIRS |
| Local Government Act 1995 - Building Licence | Building approval for Port storage shed, loading facility, infrastructure on sites C&F and causeway, and conveyor. | City of Karratha |
| Mining Act 1978 - Mining proposals and letters of Intent - Overland conveyor / shiploader | Construction of overland conveyor / shiploader. | DMIRS |
| Approval for works "impacting on" the Bunbury Extension Pipeline (BEP). | Obtain approval to work in the area where the conveyor will cross over the BEP. | Australian Gas Infrastructure Group |
| Dampier to Bunbury Pipeline Act 1998 - s41. Minister's approval | To carry out activities or works within the DBNGP corridor. | DPLH |

# 4 Training

This ERMP shall be communicated to all Project personnel and posted in key locations accessible to all in the area.

## 4.1 Site Inductions

All personnel entering the Project site for the first time will be inducted into the Project areas' specific emergency management requirements. This will include, but not be limited to:

- Evacuation procedures
- Muster points
- Key contacts / Wardens
- Emergency specific safety equipment

## 4.2 Role specific training

Site personnel identified in Section 6.0 that have a specific responsibility for emergency response shall receive training, in addition to the site inductions, to carry out their responsibilities. This will include but not be limited to:

- Warden training
- Emergency response exercise
- First aid
- Security management
- Cyclone preparedness

# 5 Project Site Information

The Project area includes Site C, Site F, the causeway, conveyor and Port storage and loading facilities. It extends east-west approximately 3.4km covering about 105 hectares in area. See Figure 2-1 above.

Throughout the life of the project, emergency response in each of these Project areas will be coordinated by nominated Area Wardens. Overall emergency response management in all areas will be the responsibility of the Chief Emergency Response Officer, to whom the individual Area Wardens will report.

## 5.1 Location and Regional Setting

The project will be situated within the BSIA along with other established industrial facilities including Yarra Pilbara Fertilisers and Nitrates plants and Woodside's Pluto LNG plant.

### 5.1.1 Perdaman Site C

Site C is relatively undeveloped with the exception of a few access roads. The site is situated adjacent to the Yara Ammonia Plant to its east, to the north are steep rocky outcrops and to the south the saline coastal flat area. Drainage from the site flows in a southerly direction towards the saline coastal flat between Hearson Cove and King Bay.

Once developed Site C will include the main process plant, associated infrastructure and a 75,000 tonne urea storage shed.

### 5.1.2 Perdaman Site F

Site F is situated to the south of Site C, on the opposite side of the saline coastal flat. It includes Hearson Cove Road and a significant proportion of previously disturbed area. Drainage from this area flows primarily north into the saline coastal flat.

During the construction phase of the Project, this area will be used as laydown for equipment and modules. The east portion of Site F will be developed to include the Perdaman Urea Plant's administration, maintenance, storage and warehousing facilities.

### 5.1.3 Perdaman Causeway

The causeway, which links Sites C and F, extends across the saline coastal flat.

The causeway will be built up above the flat with regular culverts to ensure the structure does not impede natural drainage or tidal action, whilst providing continuous access between Sites C and F.

### 5.1.4 Perdaman Conveyor

The 3.2km conveyor will transport urea from the storage shed at Site C to the Port loading shed.

From Site C the conveyor will be constructed on relatively undisturbed land, to the west of the existing Water Corp pipeline corridor. It will extend north, connecting to the existing Burrup East West Services Corridor (EWSC).

The EWSC is a bitumen sealed corridor that already includes the Yara Pilbara Fertiliser's ammonia pipeline which extends to the bulk liquids jetty adjacent to the Project's Port facilities. The Project's conveyor will be positioned within this corridor and where possible use existing culverts to avoid roads and other infrastructure. Where the conveyor crosses Woodside's Haul Road the road will be built up to allow the conveyor to pass under.

### 5.1.5 Perdaman Port

The Port Area includes a 75,000 tonne storage shed, conveyor and ship loader. The storage shed will be located within an existing quarry and the shiploader on a wharf which will be constructed by Pilbara Port Authority (PPA). The Conveyor will be situated on cleared area associated with the new wharf and quarry, and a 0.2 hectare section of undisturbed rocky ground between these two areas.

### 5.1.6 Site Plan for Emergency Management

A detailed Project site plan will be developed prior to construction. It will be periodically updated to account for the continuous changes in access and the location of equipment and infrastructure during the construction phase.

Prior to full commissioning, an operational site plan will be developed.

Both construction and operational site plans will include the location of specific infrastructure and buildings, muster points, site entry points, access roads and other key emergency response infrastructure.

# 6 Key Contacts and Responsibilities

## 6.1 Contact Details of Emergency Response Personnel

Key individuals and related job positions that are trained to coordinate emergency response are identified below. These persons will have responsibility and authority during emergency situations.

Table 6-1 Key Project Personnel Responsible for Managing Emergency Incidents

| Name | Assignment | Contact Details |
|---|---|---|
| TBC | Chief Emergency Response Officer | TBC |
| TBC | Warden – Site C | TBC |
| TBC | Warden – Site F | TBC |
| TBC | Warden – Causeway | TBC |
| TBC | Warden – Conveyor | TBC |
| TBC | Warden – Port | TBC |
| TBC | North Gatehouse | TBC |
| TBC | South Gatehouse | TBC |
| TBC | Health and Safety Manager | TBC |
| TBC | Environment and Heritage Manager | TBC |
| TBC | Security Manager | TBC |

## 6.2 Chief Emergency Response Officer Responsibilities

The Chief Emergency Response Officer has overall responsibility for emergency management on the Project and implementation of this ERMP.

The Chief Emergency Response Officer is responsible for ensuring all communications with external emergency service providers is undertaken in a timely and accurate manner. The Chief Emergency Response Officer may undertake this action themselves, or delegate it to an Area Warden, Warden or other responsible person.

The Chief Emergency Response Officer, or their delegate, will maintain a contemporaneous record of incident management. This includes recording all significant observations and reported information, all relevant actions, directions and delegations made by them, when they were made, and to whom they were given.

## 6.3 Area Warden Responsibilities

Trained Area Wardens will be available in each project area to ensure efficient implementation of the ERMP.

Area Wardens shall take direction from the Chief Emergency Response Officer.

## 6.4 Deputy Warden Responsibilities

Trained Deputy Wardens will be available in each project area to support Area Wardens in their responsibilities.

The Deputy Warden will take direction from the Area Warden for their specific project area.

Where the Area Warden is not available, unable to undertake their responsibilities, or delegates their authority, the Deputy Warden will assume control of this responsibility.

## 6.5 Onsite Paramedic

An Onsite Paramedic will be available for the Project located at the Project's medical centre. This role is responsible for overseeing the provision of first aid and managing medical emergencies.

## 6.6 External Emergency Services

The timely involvement of emergency services and other agencies form an important part of the ERMP. Where relevant, the Chief Emergency Response Officer, or their delegate, should contact emergency services at the earliest opportunity:

***Emergency Call Service* on '000' and request Police, Fire or Ambulance services.**


Other agencies which may support the response or require notification include those listed in Table 3.

Table 6-2 Contact Details of External Agencies Required for Emergency Response

| Agency | Contact Details |
|---|---|
| Woodside (Gas supply to Perdaman Plant) | TBA |
| Dampier Bunbury Pipeline (Gas line adjacent to Perdaman Infrastructure) – Emergency contact | 1800 019 919 |
| Electricity – Western Power | 13 13 51 |
| Poison Information Centre | 13 11 26 |
| Dampier Police | (08) 9144 3522 |
| WorkSafe WA | 1300 307 877 |
| Water Corporation | 13 13 75 |
| Department of Water and Environmental Regulation Pollution Response | 1300 784 782 |
| State Emergency Service | 13 25 00 |
| Power, Water & Sewerage: 1800 992 777 | 1800 992 777 |
| Karratha Health Campus | (08) 9144 7777 |
| Department of Transport – oil spills (24/7 phone line) | (08) 9480 9924 |
| Department of Transport Accidents/Incidents | (08) 9431 1000 |

# 7 Injury Management

## 7.1 First Aid

During the course of an emergency, the prompt delivery of quality first aid assistance to injured persons and immediate communication with Area Warden / Chief Emergency Response Officer, as required, is the first priority of the site First Aid Officer.

A medical centre will be located as part of the main Project site office and be manned by a qualified paramedic. It shall contain appropriate first aid, medical and other emergency response equipment which is in good working order, inspected monthly, maintained, and replaced as necessary.

All personal injuries resulting from a work-related incident must be immediately reported. If the injury requires first aid, the injured person is required to go to a First Aid point where an attendant will provide assistance.

## 7.2 Medical Assistance

If the injury is more serious or if the patient is unable to safely make their way to a First Aid point, the onsite Paramedic and then the Area Warden / Chief Emergency Response Officer must be contacted immediately on the Project's Emergency Response Hotline or emergency radio channel.

The onsite Paramedic is responsible for coordinating all medical emergencies.

**DO NOT ATTEMPT TO MOVE PATIENTS WHO APPEAR TO HAVE SUFFERED HEAD, NECK OR BACK INJURIES**

As appropriate, trained First Aid personnel shall conduct an assessment of the emergency situation to determine the extent of injuries that already have been manifested and injuries which may occur due to the emergency situation. The onsite paramedic will provide further treatment and summon appropriate emergency response resources.

Should medical assistance be required, but is not an emergency, then the injured person is to be assessed by the Onsite Paramedic, and if necessary, immediately taken to the nearest hospital with an emergency department.

A Perdaman representative shall accompany an injured worker to the nearest hospital which is:

**Karratha Health Campus (Emergency Department)**
**62 Balmoral Road, Karratha**

**Phone: (08) 9144 7501**

Attachment B includes the route from the Project site to the Karratha Health Campus.

# 8 Incident Notification and Investigation

When an emergency incident occurs, regardless of its scale or nature, Perdaman's Construction Manager (or their representative) and Health and Safety Manager (or their representative) is to be verbally notified of the incident as soon as possible.

The Construction Manager will inform the Project Manager of the incident, and actions taken to mitigate impact on people, property and the environment. Reporting to the Project Manager will occur within 24 hours. The incident and response will be recorded in Perdaman's incident reporting system, within 24 hours of occurrence.

All incidents will be reported and investigated. Based on the actual severity and potential severity of the incident, the reporting of the event is escalated to the Project Director and Leadership Team. The following table summarises severity levels and points of escalation.

Table 8-1 Incident Severity Levels and Points of Contact

| Severity Levels | Duration | Examples |
|---|---|---|
| 4 & 5 Fatality (Fatalities) (Recordable) | Eternity | 5 – Multiple Fatalities.<br>4 – Single Fatalities. |
| 3 Severe Hurt (Recordable) | Long-term, Life-altering | Amputation / severe disfigurement.<br>Total loss of organ / vision / hearing. |
| 2 Moderate Hurt (Recordable) | Week to months | Bone fractures, significant laceration.<br>Moderate hearing / vision loss. |
| 1 Minor Hurt (First Aid) | Hours to days | Minor cuts / bruises / sprains / strains.<br>Mild hearing loss / corneal abrasions. |
| 0 No Hurt | No Body Damage | Dust in eye removed by flushing - no damage.<br>Slips, trips & falls with no bruising or swelling. General soreness. |

The Perdaman health and safety team conducts investigations into incidents that have the potential to cause harm or injury to Project personnel and/or member of the public as a result of Project related activities, including those impacting the environment. All Level 2 to Level 5 incidents are investigated using the ICAM Root Cause analysis tool. All Level 2 to Level 5 incidents are reviewed by the Project Director.

Level 1 incidents are investigated using the Five Whys methodology and are reviewed monthly by the Project Management Team.

All appropriate Perdaman personnel will be trained in the Incident Cause Analysis Method (ICAM). All Managers, Superintendents and Supervisors will be trained in Lead Investigator skills.

Corrective and preventive actions identified from the investigation are implemented and monitored until close out.

An alert is issued throughout the Project Management Team detailing the incident, the causes and the corrective actions implemented.

The outcomes are input into the applicable risk management documents to ensure the lessons learned are captured and implemented to prevent recurrence. Investigation outcomes and learnings will be communicated to all Project personnel through written safety alerts and via team and toolbox meetings.

# 9 Crisis Management

A crisis is an event or critical situation that may not be quickly or effectively managed within the Project's resources and may not be directly associated with the possible scenarios identified in Section 13. These could include a pandemic, significant damage to critical infrastructure associated with the manufacturing plant, transport or loading infrastructure, or loss of critical process materials such as gas and water.

Perdaman will develop a Crisis Management Plan which will include as a minimum:

- Activation guidelines that help define a crisis and detail the internal escalation protocols.
- Detailed action plans which provide a check list for the crisis management team.
- Crisis communication strategy and messaging to communicate with stakeholders.
- Contact details of relevant crisis management personnel and stakeholders.
- A detailed resource repository which includes all the additional resources and material that may be required, at short notice, by the crisis management team.

# 10 Non-Medical Emergencies

All non-medical emergencies, not including security threats, such as fire, uncontrolled hazardous releases, floods and storm surges, cyclones shall be coordinated by the Chief Emergency Response Officer or delegate.

Security threats shall be coordinated by the nominated security personnel.

# 11 Evacuations

## 11.1 Prepare to Evacuate

Where an evacuation is required of a work area, the Area Warden or their delegate will sound the area muster alarm which has an alarm tone of *Whoop, Whoop, Whoop* uniformly increasing and repeating. Personnel in the area will also be notified via Tetra Radio, either via the normal channel or through use of the emergency button.

## 11.2 Personnel Evacuating to Muster Points

At least two muster points will be designated for each work area and will be identified by a large green and white sign with the words 'Muster Point' clearly visible (Figure 12-1). These locations will be identified on site maps which will be posted around the worksite in site offices, meeting rooms, assembly areas, crib rooms and bathroom amenities.


*Figure 5: Sample Muster Point signage*

The location of muster points will be communicated to site personnel through training and, or site inductions. If there is a need to change a muster point location, all site personnel must be notified at the daily briefing on the day the change is to occur and via follow-up toolbox talks. Where site personnel are absent from site, on leave or R&R, it is the responsibility of their immediate Supervisor to ensure the change is communicated, understood and acknowledged when they first arrive back on site.

Upon notification to evacuate, all personnel are to follow the following process, or as directed by Wardens, or their delegates.

- Collect personal belongings, only if you are at your work area.
- If you are not at your work area do not attempt to obtain personal effects from your desk / locker / crib area. This action would contribute to confusion, delay and disruption of the orderly and safe evacuation of the work area. It could also endanger your life.
- If in an office, secure vital documents / cash / computer as directed.
- Suspended loads including those on forklifts and crane hooks, shall be lowered and made safe, preferably at ground level, where safe to do so.
- All plant and equipment shall be parked up, isolated and made secure.
- Proceed to your nearest safe exit or exit as designated by a Warden.
- Proceed directly to the muster point.
- Report to your Area Warden at the muster point for roll call.
- Await further instruction. Do not return to the building or work areas, for whatever reason, until told it is safe to do so by the Chief Emergency Response Officer who will give the 'ALL CLEAR' message.

# 12 Emergency Drills

Emergency drills shall be performed at least annually for possible emergencies. This could include either live or desktop exercises based on likely emergency scenarios. The exercise will test the effectiveness and understanding of this ERMP by key personnel, and the currency of the information herein.

A post drill review must be conducted to assess any recommended changes, with actions recorded and monitored through the corrective actions register.

# 13 Emergency Management Actions

The following emergency incidents have been identified as possible scenarios which could impact the project. Each of the following sections outlines the key response actions required for the relevant scenario.

## 13.1 Fires

The fires which may impact the site could be associated with onsite chemical storage / transfer, vegetation fire from surrounding bush or from neighbouring non-Project related facilities.

In the event of fire, or in the presence of smoke, no matter how minor it may appear to be, immediately:

- Alert the others in the immediate vicinity of the fire;
- Assist any person to evacuate the area, if safe to do so;
- If safe to do so and you have been trained in the use of portable fire extinguishers and hose reels, attempt to extinguish the fire;
- Always close the door (if there is one) to prevent the spread of fire or smoke;
- Inform the nearest warden of the fire either directly or through a responsible delegate, either in person, by phone or via two-way radio;
- The Contractor's Warden is to summon emergency services and notify the gatehouse of where it is required – see Section 6.6 External Emergency Services;
- Obey all instructions given by wardens.

The above items are to be undertaken simultaneously by you and others in the immediate fire area.

- If not involved with controlling the fire, keep away from the area.
- Assemble initially at a safe distance from the fire, preferably at the nearest Muster Point if it is safe to do so.
- If the fire or smoke situation warrants immediate, or subsequent evacuation, proceed quickly and quietly and in an orderly manner to the nearest available walkway, when directed by your Warden.
- Move clear of buildings, machinery or other obstructions to ensure you are not impeding those following behind you. If not already there, go to your muster point or, if directed by the Area Warden, to another safe area.
- Await further instruction. Do not return to the building or worksite, for whatever reason, until told it is safe to do so by the Chief Emergency Response Officer or designated Warden of that area.

## 13.2 Uncontrolled Hazardous Releases

### 13.2.1 Hazardous Liquid Spills

Once Project related personnel, neighbouring people and community are protected hazardous liquid spills are to be managed in accordance with CW1055600-EN-PL-001 Project Environmental Management Plan (PEMP) and the following steps:

- Ceasing the activity causing the spill;
- Containing the contaminant as much as possible to prevent its migration;

- Recovering the contaminant;
- Cleaning-up and/or decontaminating the site;
- Disposing of the contaminant and contaminated materials in conformance with applicable regulations;
- Notifying Regulators as required;
- Incident notification and investigation reports shall be produced in a timely manner, and effectively communicated to all affected parties as specified in Section 8.

The project will have a comprehensive Environmental Incident Response Plan (EIRP) which will contain:

- Identification of environmental emergency situations associated with hazardous liquid spills;
- Roles and responsibilities of Project personnel;
- Plan of the site indicating hazardous substances and spill response equipment locations;
- Internal and external stakeholders contact list;
- Instructions to be followed to minimise environmental impacts.

An adequate number of trained (HAZWOPER) spill responders shall be present on-site during all working hours.

### 13.2.2 Toxic Gas Release

Notify your supervisor and evacuate the area immediately. Do not re-enter the area until gas testing has been completed and determined that it is safe to do so.

If a broader evacuation of the Project area is required it should be managed with consideration of prevailing winds (refer to Section 12.0).

## 13.3 Floods and Storm Surges

High rainfall events, particularly during a cyclone, pose the risk of flooding to the Project in the low lowing areas within or adjacent to the tidal flat and at the Port. This includes the southern portion of Site C, the Northern portion of Site F and the causeway corridor.

In addition to flooding, cyclonic conditions can also produce storm surges particularly when coupled with high tide periods.

### 13.3.1 Site Set-Up and Storm Surge Levels

Construction compounds, laydown, soil stockpiles and treatment areas will be located outside the Flood Planning Area shown in Figure 13-1, to mitigate the impact of potential flooding during construction.

The Flood Planning Area is the equivalent to the maximum storm surge level of approximately 6.3m AHD. The Flood Planning Area should be maintained until such time that the final fill levels and protective works are above the maximum storm surge level and associated erosion and drainage controls are fully implemented.

Should any excavation works undertaken as part of the Project add additional flood planning areas to those identified in 14-1, appropriate management measures will be implemented to manage these risks.

### 13.3.2 Preparation

- Avoid establishing any temporary infrastructure in the Flood Planning Area.
- Through the induction process, all personnel shall know their nearest safe high ground and the safest access route(s) to it.
- Monitor water levels through observation of flood prone areas associated with the Project and by checking local media, emergency services and the Bureau of Meteorology website for flood and storm surge advice.
- If flooding is likely, prepare flood prone areas early, ensuring vehicles and equipment are removed.
- When relocating to a safer place, evacuate early and before the flood comes. If safe to do so, all non-essential personnel are to be evacuated away from the Project area. If personnel are to be demobilised, the Chief Emergency Response Officer is to maintain a roll of demobilised personnel in addition to those essential personnel remaining on site.


Figure 13-1 Flood Planning Areas at the Port, Site C, Site F and the Causeway (indicative only)

### 13.3.3 Emergency Response

- All personnel shall remain above the flood planning areas on site and do not enter flood waters.
- Only return back to site when the relevant emergency services have confirmed that it is safe to do so.

## 13.4 Cyclones

Tropical cyclones occur on an annual basis in the Pilbara region. Perdaman will manage cyclone planning and response through its Critical Weather Event Committee (CWEC). The Critical Weather Event Committee will coordinate planning across all Project work sites and assets. When Stage 1 (see section 13.4.3.1) is initiated by BOM, Perdaman shall initiate a CWEC Management Meeting.

When directed by the CWEC, all Project personnel are expected to remain in a state of readiness for cyclone tie down in their work areas.

Should cyclonic impacts including high winds, heavy rainfall, storm surge conditions be likely, the following should be considered.

### 13.4.1 Temporary Building Design

Temporary buildings located on the site shall be constructed in accordance with the most current revision of:

- National Construction Code published by the Australian Building Codes Board;
- Design Guidelines for Australian Public Cyclone Shelters, published by Queensland Public Works for Emergency Management Australia; and
- Australian / New Zealand Standard AS/NZS 1170.2 Structural Design Actions – Wind actions.

Anchors and tie downs shall be appropriately designed and installed on temporary structures including ablution facilities, crib rooms, offices, workshops, shelters and storage / sea containers.

### 13.4.2 Pre-Cyclone Readiness

During the cyclone season, Project sites will be constantly managed in consideration of cyclone conditions, this includes:

- The CWEC conducting cyclone awareness meetings for all personnel prior to the season;
- Review inventory required for cyclone response;
- Conduct a pre-cyclone season inspection and clean up around all Project work sites and maintain to minimise time required to secure work areas;
- Items not expected to be used on a regular basis to be tied down, anchored or stored in suitable containers;
- Identify personnel and resource requirements for timely cyclone preparation;
- Check that emergency supply kits, first aid supplies and torches are in order and restock as required;
- Check that all equipment (generators, pumps, batteries, radios) is in order; and
- Where practicable, all roof and building structures under construction are built to completeness or prepared for tie down.

### 13.4.3 Stages of Cyclone Response

#### *13.4.3.1 Stage 1: 48-hour Cyclone Watch*

Stage 1 is declared when information suggests that destructive winds are likely within the next 48 hours i.e. When an intensifying Tropical Low has been identified or cyclone has developed and moves within 800 nm and is moving closer to the site. The main tasks to be initiated upon declaration of Stage 1 include:

- Mobilise the CWEC;
- Cease site mobilisation of personnel;
- Review the cyclone contingency plans and establish the Cyclone Command Post which will have the ability to communicate with the Project's senior management team and oversee the preparation tasks;
- Advise all Project personnel of looming cyclone alert. Ensure that new and visiting personnel are informed of the cyclone status and the procedures to be followed;
- Confirm location and number of personnel on site and maintain an up-to-date list of personnel names, addresses and phone numbers;
- Prioritise and review demobilisation lists considering rostered personnel movements over the next 1 to 5 days;
- Evaluate the potential impact on the Project's building works and Project areas;
- Update inventory of all Project equipment and vehicles;
- Review status of flood planning areas;
- Ensure all relevant personnel have completed pre-season cyclone preparedness tasks;
- CWEC shall advise Project personnel to secure all loose material and remove plant and equipment to a safe location, ensuring areas are free of potential missiles;
  - Drums and tanks to be kept at least half filled where possible;
  - Tie down all equipment and sea containers as required;
  - Ensure sea containers are closed and secured;
  - Remove rubbish skips. If they can't be removed cover and secure skips.
- Prepare for evacuation of non-essential personnel; and
- Prepare for departure from site.

#### *13.4.3.2 Stage 2: 24-hour Cyclone Warning*

As a general guide, Stage 2 alert will be issued when a cyclone is within 24-hours and is forecast to move closer. A priority of Stage 2 is that all construction related work and non-essential operational activities shall cease and cyclone tie down activities commence across all Project sites. The following tasks shall be initiated upon declaration of Stage 2:

- The CWEC shall advise all Project personnel that a Cyclone Warning has been declared;
- Suspend all construction and non-essential operational activities;
- Ensure that all construction areas have been secured and all areas have been cleaned up and are free of potential airborne objects;
- Ensure offices are secure;
- Move items away from windows and doors to the centre of the buildings;
- Secure all doors and windows and complete the clean-up;
- Secure all loose items in offices in cabinets and lock them;
- Fuel up all vehicles, plant and equipment (where applicable) and park in designated cyclone parking / storage areas / containers and secure where required;
- Confirm emergency procedures with personnel and ensure that contact details are up to date;
- Stow all personal effects and prepare for cyclone; and
- Ensure all mobile telephones and radios are fully charged.

#### *13.4.3.3 Stage 3: 12-hour Cyclone Warning*

Stage 3 is declared when available information suggests that destructive winds are likely to impact within the next 6 to 12 hours. The following tasks shall be initiated upon declaration of Stage 3:

- Ensure all non-essential personnel seek shelter;
- Physically inspect the area ensuring that personnel are taking action to complete Stage 3 preparations;
- Ensure contact details of all personnel are current;
- Secure all plant, equipment and loose items;
- Secure all sheds, offices and buildings; and
- Turn off all unnecessary power supplies.

#### *13.4.3.4 Stage 4: Safety Management and Lockdown*

Stage 4 describes the situation when cyclonic conditions are imminent. The primary emphasis is on ensuring the safety and well-being of all personnel. Personnel are to be confined to secure areas. The following tasks shall be initiated upon declaration of Stage 4:

- An official announcement will be made by the local Emergency Services advising the public to seek shelter. At this stage the Contractor will instruct Project personnel to leave the workplace;
- All personnel shall leave the site and immediately seek shelter as directed by Perdaman and remain in lockdown;
- Project personnel shall confirm where local personnel intend to shelter and have full contact details of all local personnel, monitor personnel movements and maintain personnel lists and contact numbers;
- If a storm abates for a short period during the ‘eye’, doors and windows are to remain closed. No personnel shall go outside at this time;
- All Project personnel are on standby during the storm and are to be available for duty as required. Any Project personnel leaving the Accommodation Village shall comply with all Perdaman requirements and shall have their departure formally approved by the CWEC;
- The CWEC will notify Perdaman’s Security and Emergency Response team to coordinate a final sweep of site to ensure that all persons have evacuated; and
- All remaining personnel at the accommodation village during a Cyclone shall have signed in with the Village CWEC or their representative.

#### *13.4.3.5 Stage 5: All Clear*

Stage 5 – All clear describes the situation when the cyclone threat has passed and damage assessment and recovery operations can commence, and procedures to resume work can be implemented. The following tasks shall be initiated upon declaration of Stage 5:

- After the cyclone has passed the CWEC will advise when it is safe and clear to move. A CWEC reconnaissance team will be sent to assess road and site and report back. Once the roads are verified usable or repaired, Perdaman will authorise other facilities to be inspected for damage.
- Nominated Project personnel will undertake inspections to assist in assessing the impacts of the storm and develop a plan on how to progressively resume normal operations after the passage of the cyclone. Priority shall be given to communicating to management all information related to the safety and well-being of personnel.
- Once the all clear has been given by Perdaman, the workforce will be remobilised in an order that allows for making site safe before remaining 'general' workforce are allowed to return. CWEC will be working closely with Perdaman human resource representatives and providing up-to-date lists when required.
- All Project Supervisors will account for their personnel. At the accommodation village the Accommodation Duty Manager will advise CWEC when it is safe and clear for village residence to leave and be transported to the Project work sites.
- Personnel who have not been contacted by the designated representative after the 'Cyclone All Clear' has been declared are to make contact as soon as possible.
- Remaining personnel shall re-mobilise to site and prepare to resume normal operations when it is safe to do so, in consultation with Project senior management.
- CWEC will determine when all site activities can proceed for individual project personnel and notify them accordingly; and
- CWEC must take into account the impact of Notices issued by local Emergency Services to the extent that Project personnel are affected by such Notices.

#### *13.4.3.6 Stage 6: Post Event Recovery*

CWEC in conjunction with Project site management will coordinate the following:

- Inspection of the works to assess damage including documenting such damage in a report which includes summary of damage and related photos or video;
- Devise recovery strategy and re-establish priorities;
- Prepare status reports for all buildings and operational areas including details of staffing;
- Continue to liaise with Project personnel and facilitate recovery arrangements;
- Check and restock cyclone kits as soon as possible;
- Check status of personnel, report staffing position to CWEC and confirm details of key personnel present;
- Check area operational capability and level of damage, including condition of equipment and report to the CWEC;
- Ensure all vehicles and equipment available for use, have undergone inspections with outcomes documented;
- Keep the CWEC informed on the operational capacity of the area and any additional resources required to effect repairs;
- CWEC shall maintain communications with local Emergency Services to coordinate any specific requirements; and
- CWEC in conjunction with Project senior management will jointly determine when all site activities can proceed and officially notify Project personnel.

## 13.5 Security Threats

Possible security threats for the Project include:

- Unauthorised personnel entering the site
- Aggressive behaviour in the workplace
- Bomb threats
- Civil disturbance

- Suspicious package
- Theft of equipment.

Should a security breach occur, Project personnel are to report the incident immediately to the Security Team.

### 13.0.1 Security Team

The Security Team is responsible for:

- Managing all Project site security requirements and day to day operations and activity of security personnel;
- Ensure that security resources, including staff levels are appropriate for the Project's security requirements;
- Ensure security checks (i.e. vehicles, baggage and patrols) are carried out frequently in line with the Security Management Plan to provide a deterrent presence and prevent prohibited items from being brought on site, and unauthorised goods being removed;
- Ensure maintenance of all physical security and manage any security surveillance software;
- Prevent the commission of any offence or crime and investigate security incidents associated with the Project works; and
- Maintain the peace.

More specifically, the Security Team's personnel shall:

- Verify the identity of all visitors to site. Check that they have the appropriate PPE which complies with site requirements and ensure that the 'Sponsor/Escort' attends the front security gate and accompanies the visitor at all times;
- Conduct regular site security patrols considering the site perimeter and ensure all site rules, site instructions, site notices are adhered to by Project personnel and visitors;
- Provide backup support and assist site emergency response personnel when requested or in response to any site emergency request from Perdaman's Security Manager;
- Provide first point-of-contact for all visitors to site and provide the appropriate site induction, orientation and relevant site access card;
- Monitor all technology-based security monitoring equipment and report any fault or performance issue to Perdaman Security Manager;
- Verify all vehicles are authorised to access site and conduct random vehicle inspections – both incoming and outgoing traffic;
- Monitor Site access / egress by vehicles and provide reports in terms of movement and traffic trends so that appropriate controls can be implemented;
- Provide vehicle control on site by enforcing Site Notices relating to traffic movement and restriction and carrying out speed monitoring and reporting errant drivers to Perdaman's Security Manager;
- Report all cases of violation or breaches of site security rules and regulations to Perdaman Security Manager;
- Perform searches of vehicles and personnel at entry and exit points for contraband and other unauthorised articles; and
- Enforce all Material Gate Passes to ensure any material, equipment or machinery being removed from site are accounted for and reconciled against the Material Gate Pass register.

### 13.0.2 Material Gate Pass

The movement of equipment and material off-site is managed by Perdaman's Security Manager and will be enforced by the Security Team who may inspect vehicles and personnel exiting the site and in possession of any such material.

The Security Manager shall allocate a numbering system to a Material Gate Pass for tracking purposes.

If it is the intention of any person to remove any material from Project work sites they will complete a Material Gate Pass, and have the relevant Project representative (Perdaman employee or Contractor to whom it belongs) approve it. It will then be signed off by the Security Manager or their delegate. On leaving site the person removing the material will present the approved Material Gate Pass to Security personnel who will then reconcile the material listed in the Material Gate Pass against the material being removed from Site.

Material includes:

- Assets or equipment defined as light machinery or tools e.g. generators, welders, white goods, laptops, cameras, electronic device or other property capable of being moved without the need for heavy lifting equipment.
- It also includes any heavy machinery or plant being demobilised from site such as scrapers, rollers, dozers, excavators, bobcats etc.

# 14 Definitions

**Contractor**

The Contractor on the Project is any individual or party engaged directly or indirectly by Perdaman, that is not an employee of Perdaman, to carry out the Project.

**Environmental Representative**

The Environmental Representative includes Perdaman's Environment and Heritage Manager, the Environmental Coordinator or their delegated representative.

**Five Whys Method**

Five Whys is an iterative interrogative technique used to explore the cause and effect relationships underlying a particular problem. The primary goal of the technique is to determine the root cause of a defect or problem by repeating the question "Why?". Each answer forms the basis of the next question.

**HAZWOPER**

Hazardous Waste Operations and Emergency Response is a set of guidelines, standards and training for hazardous waste operations and emergency response for personnel that may need to respond to an emergency scenario associated with hazardous materials.

**May**

Indicates that the Subcontractor is permitted to do something or the Contractor reserves the right to do something according to the text.

**Perdaman**

Perdaman Chemicals and Fertilisers Pty Ltd is the proponent of the Project.

**Project Personnel**

Project Personnel includes all persons working on the Project directly employed by Perdaman, or its Contractors.

**Project Work Sites**

The Project work sites include Area C, Area F, the causeway linking these two areas, the conveyor corridor to the Port and the Port storage and loading infrastructure. It can also include any other Project relevant location under operational control of Perdaman.

**Should**

Indicates a recommendation.

**Will**

Indicates that a statement is mandatory.

**Works**

Works includes all work which Perdaman and or its Contractors are required to perform to comply with its obligations under their relevant scope of works pertaining to the Project.

# 15 Abbreviations

*Table 11-1: List of Abbreviations*

| Abbreviation | Description |
|---|---|
| AHD | Australian Height Datum |
| BSIA | Burrup Strategic Industrial Area |
| CWEC | Critical Weather Event Committee |
| EIRP | Emergency Incident Response Plan |
| PEMP | Project Environmental Management Plan |
| ERMP | Emergency Response Management Plan |
| EWSC | East West Service Corridor |
| ICAM | Incident Cause Analysis Method |
| LNG | Liquified Natural Gas |
| Mtpa | Million tonnes per annum |
| PPA | Pilbara Ports Authority |
| PPE | Personal protective equipment |

# 16 Reference Documents

*Table 12-1: Reference Documents*

| Document Number | Document Title |
|---|---|
| CW1055600-EN-PL-001 | Project Environmental Management Plan |

# 17 Codes and Standards

*Table 13-1: Codes and Standards*

| Document Number | Document Title |
|---|---|
| NA | National Construction Code published by the Australian Building Codes Board |
| NA | Design Guidelines for Australian Public Cyclone Shelters, published by Queensland Public Works for Emergency Management Australia. |
| AS/NZS 1170.2 | Structural Design Actions – Wind actions. |

# 18 Project Delivery Applicability

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Proposals | ☒ | EPC | ☒ | Construction |
| ☐ | Studies | ☒ | Project Management | ☒ | Commissioning |
| ☒ | Preliminary Engineering | ☒ | Technical Services | ☐ | Site Services |
| ☒ | FEED | ☒ | Procurement | ☒ | Ops and Maintenance |
| ☒ | Detailed Design | ☒ | Construction Management | ☐ | |

# Attachment A. Site Plan for Emergency Management

To be developed prior to construction, updated throughout construction and prior to commissioning.

# Attachment B. Map - Route to Karratha Health Campus

from Burrup Rd, Burrup WA 6714
to Karratha Health Campus, 62 Balmoral Rd, Karratha...

**20 min** (23.5 km)

via Dampier Hwy

Fastest route, the usual traffic

**Burrup Rd**
Burrup WA 6714

- Head south-west on Burrup Rd
  4 min (5.7 km)
- Continue on Dampier Hwy to Pegs Creek
  15 min (17.7 km)
- Drive to your destination
  33 s (140 m)

**Karratha Health Campus**
62 Balmoral Rd, Karratha WA 6714

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.