

Port Authority of New South Wales

# **Dangerous Goods Explosives Guidelines for Port of Eden**

July 2014



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# 1 Explosives in Port Areas

Port Authority of New South Wales has a responsibility under the legislation to control the conditions under which dangerous goods are handled and/or kept in the defined port operational areas. Port Authority of New South Wales draws on information and advice from the following

- Australian Standard 3846 - “The Handling and Transport of Dangerous Cargoes in Port Areas”.
  - The basic safety precautions applicable to the handling of explosives in port areas are described in Section 4.3 of AS3846 (2005).
- Australian Standard 2187 - “Explosives-Storage, Transport and Use”.
  - The quantity distances for the storage of Division 1.1, or 1.6 Explosives table 3.2.3.2.
- International Maritime Dangerous Goods (IMDG) Code
- International Maritime Organisation’s (IMO’s) “Recommendations on the Safe Transport of Dangerous Cargoes and Related Activities in Port Areas.
- Australian Explosives Code – Third edition

Dangerous Goods are substances and articles that:

- Satisfy the UN tests and criteria for determining whether they are dangerous goods: or
- Are listed in the IMDG Code; or
- Are determined to be dangerous goods by the competent authority.

There are nine class(s) of dangerous goods. Explosives are designated as class 1. There are six divisions within class 1. Within the division, compatibility groups are also assigned to define which explosive can be safely stowed and transported together.

Typical commercial blasting type explosives are classified as Division 1.1 Compatibility Group D (commonly depicted as 1.1 D), detonators are typically of 1.1 B or 1.4B, display fireworks generally fall under a 1.3G or 1.4G classification and shop-goods varieties of fireworks are usually classified as 1.4S explosives. The numbers and letters in the classification system relate to the sensitivity, mass explosion hazard and projectile hazard of a particular type of explosive. Since the properties of explosives differ vastly it follows that the safety distances required for their handling will also vary significantly.

AS3846 provides guidance material for management of explosives in ports. The material gives guidance on separation distances that should be maintained to the accommodation block of another vessel and other protected places (as defined in AS 3846).

These safety distances vary according to the classification of the explosives and are based on the distance required to prevent property damage or injury should the total quantity of explosives detonate. Under normal circumstances therefore the port of Eden has the following maximum standard limits as detailed in Table 1.1

## 2 Class 1 Explosive Import and Export Standard Limit

Table 1.1

<b>Berths</b> (See Note A)	<b>Separation distance to “Protected Place”</b> (See Note B)	<b>Net Explosive Quantity (NEQ) permitted aboard ship (kilograms) (See Notes B, C &amp; E)</b>			
		<b>Classes 1.1, 1.5 &amp; 1.6</b> (See Note D)	<b>Class 1.2</b> (See Note D)	<b>Class 1.3</b> (See Note D)	<b>Class 1.4</b> (See Note D)
<b>Multi-Purpose (Navy) Wharf</b>	360 metres	4,333	40,000	174,990	Unlimited

- a) No berth other than those listed above, has approval for handling explosives.
- b) The separation distance nominated (and the corresponding allowable NEQ) must be reduced to the distance from accommodation quarters on other ships, if present at nearby berths and/or a protected place.
- c) Where a ship is carrying explosives of more than one sub-class, the total net weight of explosives which may be permitted is the **weight applying to the most restrictive sub-class aboard** in order 1.1 most dangerous, 1.5, 1.2, 1.6 and 1.4 least dangerous.
- d) For one type of article of division 1.6, the total NEQ shall be that of one article. Where different types of articles of division 1.6 are involved, the total NEQ of all articles shall be used.

Critical points to note are:

- port limits for explosives apply to and are inclusive of transit cargo; and
- all references to explosive quantity are references to Net Explosive Quantity (NEQ) which is the actual quantity of explosive in the cargo excluding all packaging materials and non-explosive components.
- Notification in writing to the port authority of the class one cargo 48 hours prior to the vessel entering port waters and/or being delivered to the port operational area (Multi-Purpose (Navy) Wharf)

### 3 Safety Requirements

Port Authority of New South Wales requirements apply to the handling and transport of explosives in port areas, but not limited to:

- a) Adequate warning notices advising the public not to enter the restricted area while explosive are present.
- b) Adequate measures are in place to prevent the public from entering the protected place separation distance as required by the Class 1 Net Explosive Quantity (NEQ) as specified in table 1.2 from the wharf when explosive are present.
- c) Explosives shall not be unloaded from a ship unless the means of transport, by which they are to be removed from the port area, are on the terminal and ready to receive them.
- d) Explosives of Divisions other than 1.4 shall be taken directly to or from a ship, and not be held on a berth for more than 2 hours
- e) Explosives of Divisions 1.4 shall be taken directly to or from a ship, and not be held on a berth for more than 12 hours
- f) Explosives shall be unloaded as soon as reasonably practicable.
- g) Explosives (excluding Division 1.4) shall not be brought to a berth for loading onto a ship unless the ship is ready to receive them.
- h) Explosives of Division 1.4 shall not be brought to a berth for loading onto a ship unless the ship is ready to receive them within 12 hours of being on the terminal.
- i) The area of the berth where explosives are being handled, and a space of at least 15m beyond the immediate handling area, shall be excluded of non-essential personnel involved in the loading/unloading of explosives while the explosives are being loaded/unloaded from the vessel
- j) The handling of explosives, once commenced, shall proceed without delay or interruption. Except during an electrical storm, such operations shall be suspended and not resume until the storm has passed.
- k) Explosives shall not be handled unless they have been classified in accordance with the **IMDG Code**.
- l) Explosives shall be handled in a safe, efficient and secure manner.
- m) On completion of loading of the explosives onto a vessel, the loaded ship shall depart from the port area as soon as practical.
- n) On completion of the vehicle being loaded with explosives (excluding Division 1.4), the vehicle must leave the port area as soon as possible being within 2 hours of the explosive being unload from the vessel.
- o) On completion of the vehicle being loaded with explosives of Division 1.4, the vehicle must leave the port area as soon as possible (within 12 hours) of the explosive being unload from the vessel.

- p) Where more than 100kg of explosives (other than Division 1.4) are to be loaded or unloaded in the port area, a shipper's or consignee's representative shall be contactable by phone and be immediately available while the explosives are being loaded and/or unloaded, who has immediate access to specialist advice in the case of an emergency. The phone contact (representative) must be verified prior to commencement of the loading/unloading of the vessel and/or vehicle. The representative role should not involve a command or control position in an incident.
- q) Emergency Procedures, developed in conjunction with the port authority and the emergency services, shall be in place before any explosives are handled.
- r) Traffic management plan be developed for road vehicles carrying explosives.
- s) Road vehicles carrying explosives shall be at least 100 meters apart while waiting to load a ship and/or leaving the port area.
- t) Whilst explosives are being handled, ignition sources shall not be permitted in or near handling areas, smoking shall be strictly prohibited on the ship and on the berth (except in safe areas). Notices shall be displayed on the ship and on the berth bearing the words **DANGER-NO SMOKING-NO NAKED LIGHTS** and repairs involving hot work shall be prohibited on the ship and on the berth. Appropriate signage shall be displayed.
- u) Adequate and appropriate fire fighting facilities and water shall be immediately available on the ship - fire hoses shall be laid out ready for use (not applicable to Division 1.4 explosives).
- v) Ship and shore personnel shall receive prior instruction regarding the hazards, handling methods and emergency procedures for explosives.
- w) Repairs involving hot work shall be prohibited on the ship or on the berth whilst explosives (excluding Division 1.4S) are being transported.
- x) Repairs involving engine repairs resulting in the vessel being immobilised are prohibited whilst explosives are onboard the vessel (excluding Division 1.4).
- y) No bunkering shall take place whilst explosives are loaded or unloaded.
- z) Except when explosives of Division 1.4 are handled, adequate and appropriate firefighting equipment and water shall be immediately available on the ship. Fire hoses shall be run out and ready for immediate use.
- aa) If emulsion precursors are handled on the same vessel, or in the same area as explosives, then the total quantity of these materials shall be considered as Class 1 and the relevant separation distances shall apply (table 1.2).
- bb) Where ammonium nitrate is to be handled simultaneously with explosives of Division 1.1, 1.5 or 1.6, and within the separation distances given in table 1.1 and table 1.2, then 50% of the quantity of ammonium nitrate shall be added to the explosives quantity to obtain the resultant NEQ, and the relevant separation distance shall apply (Table 1.2).
- cc) Explosives shall be segregated from incompatible cargoes, combustibles and other dangerous cargoes at all times.

- dd) The vessel pre departure and operational checks must be completed prior to receiving explosives and the ship's engines and ancillary equipment shall be kept ready at all times, so that the ship can leave the berth immediately.
- ee) When explosives NEQ quantities as stated in Table 1.1 are to be exceeded the following extra conditions apply in addition to the above conditions ( "a" to "dd" inclusive) apply:
  - Form(s) 1.4, 1.5, 1.6, 1.7, 1.8, 1.9 & 1.10 are to be completed
- ff) When explosives separation distances as stated in Table 1.1 are encroached, the following extra to the above conditions ("a "to "gg" inclusive) apply.
  - Form(s) 1.4, 1.5, 1.6, 1.7, 1.8, 1.9 & 1.10 are to be completed
- gg) When the explosive NEQ quantities as stated in Table 1.1 are to be exceeded, the separation distances as stated in Table 1.2. must be maintained.
- hh) When the explosive NEQ quantities as stated in Table 1.1 are to be exceeded the special approval is required from the Manager Dangerous Goods @ [DGAudit@sydneyports.com.au](mailto:DGAudit@sydneyports.com.au) or phone (02) 9296 4659 and (02) 9296 4989.
- ii) Special approval will need to obtain in writing from the Manager Dangerous Goods prior to making any arrangement, as each application will be accessed on a case by case bases and not limited to separation distances to protected place
- jj) The maximum explosive NEQ quantities for Import and/or Export cargo are stated in Table 1.3

**Table 1.2**

Separation distances from ordinary berths to protected places including accommodation block of another vessel

Net explosive quantity	Separation Distances (M)			
(NEQ) of explosives	Division			
	1.1, 1.5, 1.6	1.2	1.3	1.4
<b>Kg</b>				
25	10	50	10	10
50	25	50	10	10
100	33	50	10	10
200	52	52	10	10
300	68	68	10	10
400	82	82	10	10
500	95	95	10	10
1 000	150	150	10	10
1 500	191	191	10	10
2 000	240	210	10	10
2 500	257	220	87	10
3 000	284	225	92	10
4 000	350	235	105	10
5 000	380	245	110	10
7 500	424	265	125	10
10 000	480	280	140	10
15 000	546	300	158	10
20 000	610	320	175	10
25 000	650	340	186	10
30 000	689	340	199	10
40 000	762	360	218	10
50 000	820	375	240	20
75 000	940	400	273	20
100 000	1 040	410	300	20
150 000	1 180	410	345	20
200 000	1 300	410	375	20
250 000	1 400	410	405	20

## Class 1 Explosive Import and Export Maximum Limit Table 1.3

<b>Berths</b> (See Note A)	<b>Separation distance to “Protected Place”</b> (See Note B)	<b>Net Explosive Quantity (NEQ) permitted aboard ship (kilograms) (See Notes B, C &amp; E)</b>			
		<b>Classes 1.1, 1.5 &amp; 1.6</b> (See Note D)	<b>Class 1.2</b> (See Note D)	<b>Class 1.3</b> (See Note D)	<b>Class 1.4</b> (See Note D)
<b>Multi-Purpose (Navy) Wharf</b>	400 metres	6,136	By application	By application	Unlimited
<b>Multi-Purpose (Navy) Wharf</b>	475 metres	9,776	By application	By application	Unlimited
<b>Multi-Purpose (Navy) Wharf</b>	500 metres	11,428	By application	By application	Unlimited
<b>Multi-Purpose (Navy) Wharf</b>	600 metres	19,218	By application	By application	Unlimited
<b>Multi-Purpose (Navy) Wharf</b>	610 metres	20,000	By application	By application	Unlimited
<b>Multi-Purpose (Navy) Wharf</b>	633 metres	22,875	By application	By application	Unlimited
<b>Multi-Purpose (Navy) Wharf</b>	650 metres	25,000	By application	By application	Unlimited
<b>Multi-Purpose (Navy) Wharf</b>	689 metres	30,000	By application	By application	Unlimited

- a) No berth other than those listed above, has approval for handling explosives.
- b) The separation distance nominated (and the corresponding allowable NEQ) must be reduced to the distance from accommodation quarters on other ships, if present at nearby berths and/or a protected place.
- c) Where a ship is carrying explosives of more than one sub-class, the total net weight of explosives which may be permitted is the **weight applying to the most restrictive sub-class aboard** in order 1.1 most dangerous, 1.5, 1.2, 1.6 and 1.4 least dangerous.
- d) For one type of article of division 1.6, the total NEQ shall be that of one article. Where different types of articles of division 1.6 are involved, the total NEQ of all articles shall be used.

## Class 1 Explosive in Transit Maximum Limit Table 1.4

<b>Berths</b> (See Note A)	<b>Separation distance to “Protected Place”</b> (See Note B)	<b>Net Explosive Quantity (NEQ) permitted aboard ship (kilograms) (See Notes B, C &amp; E)</b>			
		<b>Classes 1.1, 1.5 &amp; 1.6</b> (See Note D)	<b>Class 1.2</b> (See Note D)	<b>Class 1.3</b> (See Note D)	<b>Class 1.4</b> (See Note D)
<b>Multi-Purpose (Navy) Wharf</b>	360 metres	4,333	40,000	174,990	Unlimited

- a) No berth other than those listed above, has approval for handling explosives.
- b) The separation distance nominated (and the corresponding allowable NEQ) must be reduced to the distance from accommodation quarters on other ships, if present at nearby berths and/or a protected place.
- c) Where a ship is carrying explosives of more than one sub-class, the total net weight of explosives which may be permitted is the **weight applying to the most restrictive sub-class aboard** in order 1.1 most dangerous, 1.5, 1.2, 1.6 and 1.4 least dangerous.
- d) For one type of article of division 1.6, the total NEQ shall be that of one article. Where different types of articles of division 1.6 are involved, the total NEQ of all articles shall be used.

## 4 Shipment Notification & Planning

### Form 1.4

Shipment Notification & Planning	Responsibility for Completing Task	Responsibility for Verifying Task Completed	Verified By
Agent has stevedore in writing, of total NEQ in ship greater than the general limits, prior to shipment being loaded in load port or prior to transport beginning.	Agent	Stevedore	
Port Authority of New South Wales has been notified in writing, of total NEQ in ship greater than the general limits, prior to shipment being loaded in load port or prior to transport beginning.	Agent	Stevedore	
Stevedore has granted written permission for shipment prior to the shipment being loaded in load port or prior to transport beginning.	Stevedore	Agent	
Port Authority of New South Wales has received a copy of the stevedore written permission for the shipment	Stevedore	Agent	
Port Authority of New South Wales has granted written permission for shipment to enter port area prior to shipment being loaded in load port or prior to transport beginning.	Port Authority of New South Wales	Stevedore	
All notifications and approvals for Explosives have been obtained from other relevant agency(s) parties involved as well as stevedore been notified of proposed shipment.	Agent	Stevedore	
" Port Authority of New South Wales "Explosive in Port Areas" form(s) are being used and checked 48 hours prior to shipment berthing.	Agent	Stevedore	
Stevedore has developed safety plan for explosives.	Stevedore	Stevedore	

In the event of conflict between AS 3846 and Port Authority of New South Wales "Explosive in Port Areas" requirement, Port Authority of New South Wales requirement take precedent over AS 3846

## 5 Before Explosives Enters Port

### Form 1.5

Before Explosives Enters Port	Responsibility for Completing Task	Responsibility for Verifying Task Completed	Verified By
Stevedore emergency evacuation procedures are documented, available, current and procedure can be implemented if needed.	Port and Stevedore	Stevedore	
Where more than 100kg of explosives (other than division 1.4).Customers representative phone contact verified	Agent	Stevedore	
Transport company contact details have been supplied	Agent	Stevedore	
Unloading/Loading plan is ready to be implemented by Stevedores	Stevedore, Agent	Stevedore	

## 6 Before Unloading and/or Loading Shipment

### Form 1.6

Before Unloading / Loading Shipment	Responsibility for Completing Task	Responsibility for Verifying Task Completed	Verified By
<p>Only personnel having a direct involvement in the unloading/loading of the explosives are within 15 metres of the unloading/loading area. Adequate security measures are in place. Collision, fire, chemical hazards within this area have been minimised. The truck routes have been made safe for transport of explosives.</p>	Stevedore	Stevedore	
<p>Protected places including the accommodation block of adjoining vessels have been notified of explosives unloading/loading activities</p>	Stevedore	Stevedore	
<p>Personnel on the terminal have been notified of the explosives unloading/loading activities and are aware of the safety plan for explosives.</p>	Stevedore	Stevedore	
<p>Transport vehicles are on site to load and/or unload the explosives so they are unload and/or loaded onto and/or from the vessel and move off of port land as quickly as possible within the permitted time period for those explosive (unless special dispensation has been granted).. Trucks carrying explosives are not to be within 100m of each other on port land.</p>	Stevedore	Stevedore	
<p>Drivers are aware of explosive route to be taken (attach route map)</p>	Stevedore	Stevedore	

## 7 After Unloading and/or Loading is Completed

### Form 1.7

After Unloading / Loading is Completed	Responsibility for Completing Task	Responsibility for Verifying Task Completed	Verified By
Stevedores discontinue separation requirements when Unloading/Loading is completed	Stevedore	Stevedore	
Stevedore to retain a copy of this completed checklist with all relevant documents for a period of not less than 12 months on completion of loading and/or unloading the explosives	Stevedore	Stevedore	

## 8 Vessel Cargo Safety Alert

### Form 1.8

Issue: No.

Date: 24/5/2007

Vessel: AOTEAROA CHIEF

Voyage No.: 0092N

ETA: 0130 HRS 23/05/2007

Cargo: LOAD CLASS 1.3

2 X 20 CONTAINER DIRECT FROM TRANSPORT TO VESSEL  
WITHIN 2 HOUR OF DEPARTURE

Berth: 6BD

### Information

**Please follow normal safety procedures and be alert to the following:**

- Identify potential hazards and make the work area safe before proceeding.
- Follow instructions from the Foreman and Supervisor.
- No Smoking on Board or near the vessel. Signs to be placed.
- No naked flames near containers-
- Supervisor to have ready, written evacuation and emergency response plan.
- Identify escape routes and safety zones in the event of a leak.
- Copy of Stow Plan to be placed at the top of the gangway and a copy on wharf.
- Do not work alone and be alert to the location of fellow workers.

M Taylor

Operations Superintendent

Ref:

Date:

# 9 SAFE WORK PROCEDURES

## Form 1.9

To: Duty Supervisor and Operations Staff  
 Copy: Transport Company  
 Copy: SYDNEY PORTS – For the attention of: \_\_\_\_\_  
 Copy: SWIRES

### SAFE WORK PROCEDURE

LOADING CLASS 1.3G UN 0335 1 container  
 1.2G UN 0334 1 container

AOTEAROA CHIEF VOY 092N

PROCEDURES TO MINIMISE RISK:	Checked
1. Follow instructions as issues by the Duty Supervisor, M Taylor and Foreman	
2. Only designated employees to be working on the vessel	
3. All other personnel to be kept away from Berth 6	
4. No unauthorised visitors to be allowed on the wharf	
5. Crane to be positioned over the vessel after mooring only	
6. Trucks to be marshalled in the car park and along Berth 4 fence line	
7. Hazardous manifest and documentation to be checked by Ship Planner	
8. Foreman to align trucks in sequence under the crane	
9. Containers to be discharged direct to truck under the crane	
10. Once unloaded each truck to be escorted by Marshal to designated terminal exit	
11. Supervisor to verify completed discharge with C/O or Master	
12. Operations Superintendent to be notified of any requirement to hold Class 1 in terminal or any other major problems encountered during exchange	
13. Trucks to be held waiting for more than two hours to be parked at (TBC)	
14. Class 1.1 to be the last containers loaded	
15. All terminal site rules to be obeyed including no smoking and no naked flames	

Checked By: \_\_\_\_\_

**Supervisor**

**Planner**

\_\_\_\_\_  
**M Taylor**  
**Manager Stevedoring Operations**

# 10 EXPLOSIVE NOTIFICATION PROTECTED PLACE and/or VESSEL ACCOMODATION BLOCK OF ANOTHER VESSEL

## FORM 1.10

After vessel arriving	Responsibility for Completing Task	Responsibility for Verifying Task Completed	Details of Notified Party date & time	Verified By
Stevedores notifies adjoining vessel(s) of class 1, Division, NEQ, location and ETD of explosive	Stevedore	Stevedore	Stevedore	
Stevedores discontinue separation requirements when unloading is completed	Stevedore	Stevedore	Stevedore	
Stevedores discontinue separation requirements when vessel leaves port (Transit cargo)	Stevedore	Stevedore	Stevedore	
Stevedore has sent a copy of this completed checklist with all relevant documents to the Sydney Ports	Stevedore	Stevedore	Stevedore	

**1. Vessel Name:**

2. Vessel Location:

3. Date & Time:

**4. Notified Details**

Name:

Position:

**5. Protected Place**

6. Location

7. Date & Time

**8. Notified Details**

Name:

Position:

9. Location