

City Pacific Limited

# Townsville Ocean Terminal Hazard and Risk Assessment

---

Response to EIS  
Submissions

Wednesday, 30 July 2008

Report no: AA001185-HRA01-080730



City Pacific Limited

# Townsville Ocean Terminal Hazard and Risk Assessment

---

Response to EIS Submissions

**Author:** Liz Clough

**Checker:** Matt Smith

**Approver:** Jason Harley

**Report no:** AA001185-HRA01-080730

**Date:** Wednesday, 30 July 2008

This report has been prepared for City Pacific Limited in accordance with the terms and conditions of appointment for Hazard and Risk Assessment. Hyder Consulting Pty Ltd—Incorporating Weathered Howe (ABN 76 104 485 289) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

**Hyder Consulting Pty Ltd**

ABN 76 104 485 289

45 Nerang Street, Southport QLD 4215, Australia

Tel: +61 7 5532 3933 Fax: +61 7 5591 4778 [www.hyderconsulting.com](http://www.hyderconsulting.com)



# Contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
<b>2</b>	<b>Response .....</b>	<b>2</b>
2.1	North Queensland Conservation Council Submission.....	2
2.2	Townsville Local Advisory Committee Submission .....	3
2.3	Environmental Protection Agency Submission.....	4
2.4	Queensland Police Service Submission.....	6
2.5	Queensland Transport Submission .....	10
2.6	Townsville Port Authority Submission .....	11
2.7	Townsville City Council Submission.....	14
2.8	CHEM Services Submission – Berth 1 Fuel Loading .....	17

# 1 Introduction

---

The Environmental Impact Statement (EIS) for the Townsville Ocean Terminal (TOT) was submitted for public review from 1 December 2007 to 1 February 2008. Submissions on the EIS were received by the Coordinator General and were provided to the proponent to prepare a Supplementary EIS in response to issues raised in these submissions.

This report provides a response to the submissions relating to the Hazard and Risk Assessment Report dated 13 November 2007 prepared by Hyder Consulting Pty Ltd.

## 2 Response

---

### 2.1 North Queensland Conservation Council Submission

**Issue:**

*No consideration has been given to the public cost of a disaster such as a cyclone or major shipping accident resulting from this proposal. Cyclonic winds drop sharply after a cyclone crosses the coast. The location of the proposed development perched on filled ocean is highly exposed and would have to be considered a high-risk location in terms of cyclone damage. Dwellings built on the site will be able to withstand cyclonic winds, however this will rely on them maintaining structural integrity. In the event of a cyclone air borne debris is the major cause of building damage in the first instance. Once the structural integrity of a building is weakened by wind borne debris cyclonic winds are then able to turn the weakened structure into more debris creating a domino effect of destruction. Current building regulations in Queensland only consider wind speed and do not take into account flying debris generated cyclonic winds. It is the view of NQCC that allowing the residential part of this development to proceed would add considerably to the cost to government in the event of a cyclone hitting Townsville.*

**Response:**

The potential impacts of coastal processes on the TOT project site as a result of cyclone and storm surge were addressed in the *Coastal Engineering Studies Report* dated 24 August 2007 (EIS Appendix 13) prepared by Coastal Engineering Solutions Pty Ltd (CES). This study assessed the wave climate affecting the site under both cyclonic and ambient conditions. The results of this study were used in the design of rock-armoured breakwaters and revetments to provide protection of the site under extreme wave conditions and storm tides.

The structural integrity of these structures will be maintained by rock armouring. The CES report states that these rock structures have been designed in accordance with the Environmental Protection Agency's *Building and Engineering Standards for Tidal Works Version 1.2* and that the TOT project complies with the requirements of *State Coastal Plan Policy 2.2.4* with regard to minimising the adverse impacts of storm tide inundation.

The results of the CES report were considered in assessing the risks on Breakwater Cove residents from cyclone and storm surge. The risk of impacts due to extreme waves and storm tide under cyclonic conditions were assessed as Low to Moderate given that protection will be provided by structures that have been designed to withstand such conditions.

The risk of a major shipping accident such as vessel collision and loading/unloading incidents were assessed in the Hazard and Risk Assessment (EIS Appendix 24). These risks were assessed as Moderate given that the Port of Townsville has existing Emergency Response Plans to deal with such incidents. The operator of the ocean terminal facility will also be required to prepare an Operational Management Plan detailing emergency response and evacuation procedures for the TOT Precinct.

A draft Disaster Management Plan has now been prepared for the Breakwater Cove Precinct to outline the required prevention and preparation measures to minimise potential impacts of disasters such as cyclones, floods, severe storms and accidents or incidents within the Port of Townsville and evacuation procedures to be implemented in response to a disaster.

## 2.2 Townsville Local Advisory Committee Submission

### Issue:

*It would seem that Queensland's lack of standard buffer zones to protect residential development from the very real risks posed by fuel and gas handling terminals being located in close proximity make this proposed residential development a very good case for such regulation to be introduced. To place residents so close to the Port's facility borders on irresponsible. The risks are recognised in the EIS without being given the prominence or weight which they deserve. The "cascading effects of negligence" have the potential to create a significant risk in the placement of this residential project. Townsville Port has spent a great deal of time and money to create a buffer zone between South Townsville residents and its tenants' operations. The fuels handling terminal and storage areas within the Port are generally at some distance from residents. Where they are not, their location is a product of last century's planning practices. The TOT's planned residential component has no such excuse.*

### Response:

The potential impacts of the Port's operations on residents in the Breakwater Cove precinct include air quality, noise and health and safety. The risks of such impacts have been addressed in the Hazard and Risk Assessment (EIS Appendix 24) in consultation with specialist technical consultants who were commissioned to assess the predicted level of impact against national standards and criteria.

One of these reports has addressed the hazard from fuel, gas and other hazardous products. It is noted that comment in relation to the "buffer zone" to South Townsville actually relates to an environmental buffer between a new industrial subdivision south of the Port and South Townsville. This is what the Port has spent money on. Furthermore, the locations of major fuel tanks in the Port are considerably closer to the residents in South

Townsville than either the existing residents west of Ross Creek or the proposed FDA.

## 2.3 Environmental Protection Agency Submission

### Issue:

**Port Protection Code.** *Appendix 15 – Townsville Ocean Terminal Air Quality Assessment Report should be further considered and updated as per the EPA EIS comments. Once the report is updated further consideration is required to determine if environmental nuisance control measures are adequate and whether the residential component of the development is compatible with existing surrounding land uses.*

### Response:

The Risk Registers have been updated following review of the revised Air Quality Assessment Report prepared by Air Noise Environment Pty Ltd. Additional risks include:

Risk	Risk Treatment	Residual Risk
Exposure of site residents to elevated lead levels	BHP has implemented mitigation measures to reduce lead emissions.	High
Exposure of residents to Q fever from livestock transport within the Port	No mitigation measures proposed as insufficient data available for a quantified assessment - but those considered most at risk are animal husbandry workers.	Moderate

### Issue:

**Industrial Air Emissions from the Port.** *The likelihood of impacts of port air emissions on Breakwater Cove is assessed and the risk re-calculated. The new risk level should then be considered in conjunction with the developments compatibility with the Townsville Port and any requirement for further mitigation measures*

### Response:

As Above

### Issue:

**Maintenance Dredging.** *Maintenance dredging risks should be considered with specific consideration given locating a permanent dredge spoil disposal site.*

**Response:**

The Risk Registers have been updated following review of the Dredging Methodology Report prepared by Hyder Consulting Pty Ltd and assessment of potential impacts on downstream environments undertaken by Flanagan Consulting Group.

**Issue:**

***Potential Impact on Existing Marine Users during Construction.*** *The likelihood of potential impact on existing marine users during construction is re-assessed and the risk re-calculated. Any new risk level should consider any requirement for further mitigation measures.*

**Response:**

Summary of Boat Traffic Survey, Ross Creek

Day, Date Time	Total # Boats	# Boats > 0m	# Boats > +1m	# Boats > +2m	Outgoing > 0m	Incoming > 0m
<b>Wed, 14 May 2008</b> 6am – 5 pm	8	3	2	2	3	0
<b>Wed, 14 May 2008</b> 5pm – 6pm	18	17	17	14	17	0
<b>Thur, 15 May 2008</b> 6am – 6pm	15	8	6	5	6	2
<b>Fri, 16 May 2008</b> 6am – 6pm	27	12	10	9	7	5
<b>Sat, 17 May 2008</b> 6am – 12 noon	20	11	8	7	9	2
<b>Sat, 17 May 2008</b> 12 noon – 6pm	41	22	19	15	10	12
<b>Sun, 18 May 2008</b> 6am – 6pm	35	18	14	13	7	11
<b>Mon, 19 May</b>						

Day, Date Time	Total # Boats	# Boats > 0m	# Boats > +1m	# Boats > +2m	Outgoing > 0m	Incoming > 0m
<b>2008</b> <b>6am – 6pm</b>	18	4	4	4	2	2
<b>Tue, 20 May</b> <b>2008</b> <b>6am – 6pm</b>	13	10	6	5	5	5
<b>7 Day Total</b> <b>6am-6pm</b>	195	105	83	74	66	39
<b># Boats</b> <b>During Haulage</b> <b>Hours</b>	101	48	36	32	32	16

Haul times are 6am -6pm Mon, Tue, Thur, Fri, 6am - 5pm, Wed, 6am – 12 noon, Sat

Survey results for non haul times are shown in **Red**

0 datum = level of south-eastern end of the Strand at Ross Creek

The Marine Traffic survey of Ross Creek indicates that Ross Creek at the alignment of the southern end of the Strand is a relatively lightly trafficked waterway with 195 traffic movements recorded during the period from 6:00am to 6:00pm over 7 days

## 2.4 Queensland Police Service Submission

### Issue:

**Emergency Management.** Section 4 of the EIS indicates the TOT and Breakwater Cove residential area will each have a disaster action plan. For the Breakwater Cove residential area the Body Corporate will be responsible for development of the disaster action plan and reviewing it in consultation with the TCC.

Overall the proposed project will not provide any significant issues for policing from an emergency management aspect. Any incident or event can be managed either under the current disaster management arrangements or major incident guidelines.

The primary scenarios that could require a significant response by emergency response agencies include:

- a. Natural events - primarily cyclones;
- b. Major structural or ship fire - at the TOT, Breakwater Cove, Townsville Port or the ferry terminal;
- c. Major chemical incident - primarily at the Townsville Port;
- d. Major traffic crash --- e.g. collision between a bus/coach and a fuel tanker;

e. *Criminal 1 terrorist activity - e.g. explosion or barricaded offender.*

**Response:**

A Draft Disaster Management Plan has been prepared for the Breakwater Cove Precinct. This document has been prepared to provide guidance for preparation of Disaster Action Plans by the Body Corporate with the assistance of input from the Emergency Services Group. It outlines proposed measures for disaster prevention and preparedness to mitigate potential risks during a disaster and response measures for safety procedures including evacuation of the site under the direction of emergency services if required.

**Issue:**

*Any of these events potentially could close Sir Leslie Thiess Drive for several hours or longer.*

*The HTC report notes that access in and around the site by emergency vehicles (eg ambulance, fire and rescue) is not expected to be a problem. The report, which is Attachment 9 of the EIS, at section 10 reinforces the unacceptability of Sir Leslie Thiess Drive as the only means of access by road.*

*The report indicates there are constraints to the construction of a secondary road assess on the basis of lack of available land on the northern side of the Casino and a perceived desire by the population to retain the existing marina. It is suggested alternative evacuation by helicopter, private vessels or ferry is viable.*

*From a policing perspective where evacuation of Breakwater Cove, Jupiter's and the TECC is required the use of a helicopter would be impractical assuming it was not tasked for a medical emergency elsewhere. Use of vessels and ferries may be possible but would take time to arrange and initiate.*

*The proposal suggests the construction of a bridge capable of carrying maintenance /emergency vehicles between the Mariner's North complex and the proposed western breakwater. I suggest a similar bridge be considered between the Mariner's North complex and the land that is currently vacant on the western side of Jupiter's. This will allow mass evacuation by foot if necessary plus provide an alternative access for emergency vehicles should Sir Leslie Thiess Drive be closed for any reason.*

**Response:**

It is proposed that in the event that the primary access to the Breakwater Cove Precinct cannot be used during an emergency, evacuation of the site will be achieved by provision of evacuation points at the end of each residential land finger. Assembly areas and jetties will be provided at the

evacuation points to allow access for emergency evacuation vessels to transfer residents to the Strand Breakwater which has direct access to the mainland. This is addressed in the Draft Disaster Management Plan.

**Issue:**

**Security.** *The Townsville Port Authority (TPA) Security Plan documents the western edge of the waterside restricted zone runs along the eastern bank of Ross Creek out to the edge of berth 1 and berth 11. Comment is also made the TOT security plan will work in with the TPA security plan. It is assumed the TOT security pass will only come into operation when a ship is about to berth. The TPA waterside restricted zone cannot be extended to include the TOT as Ross Creek needs to be accessible to all other water craft. Whilst this is not strictly a policing issue it does have an impact as outlined below.*

*Section 3 commencing on page 3.75 refers to security requirements to comply with the Maritime Transport and Off-Shore Facilities Security Act (MTOFSA). Whilst this is not strictly a policing issue there is an impact on policing when US Naval ships visit. Under current arrangements Townsville police no longer has a security role for cruise ships. Up to early 2007 Townsville police and specifically the Water Police provided waterside security to allow cruise ship operators meet their security requirements under MTOFSA. In the latter part of 2007 this responsibility shifted to private security companies.*

*The issue the cruise ship operators will need to consider once the TOT is operational is whether private security companies will be able to provide an adequate waterside security presence. Under current arrangements cruise ships berth in the Townsville Port which has a full time waterside restricted zone thus making it easier to keep unauthorised vessels away from cruise ships. This may not be the case for the TOT as security providers do not have the authority to direct pleasure and other craft away from the cruise ship. Should this become an issue it may be necessary for police to again become involved in the provision of waterside security for cruise ships.*

*If police are required to again provide waterside security it will not be an issue as arrival dates can be factored into the roster to ensure a vessel and crew is available for the visit All police involvement is on a full cost recovery basis.*

**Response:**

The operator of the TOT will be required to enter into a process of consultation with the Queensland Police Service, the Townsville Port Authority and private security companies to determine security requirements for the TOT while ensuring that Ross Creek remains accessible to public water craft. Consideration will need to be given to whether private security companies can provide adequate waterside security and are able to direct recreational and other craft away from cruise

ships or whether the Queensland Police Service will need to provide waterside security on occasions when cruise ships are at the TOT.

In this regard reference is made to the report by Admiral R Natter US Navy Retired (R Natter & Associates) which has addressed and canvassed the views and position of the US Navy on these important issues.

**Issue:**

*Section 1.3 at page 1.8 under Primary Objectives indicates that use of the TOT by US Naval vessels is an important factor from an income generation perspective. It is noted from reading of the EIS there is no reference to consultation with the United States Consulate and specifically the US Navy regarding use of the TOT.*

*Section 4.3.1.3 outlines that naval vessels require a 100m exclusion zone around the vessel whilst berthed at the TOT wharf. This requirement is currently provided by the Port of Townsville when a naval vessel is at berth. This requirement will be provided within the TOT Precinct by construction of security fencing on the landward side and by maintaining moveable exclusion zone transition lights on the seaward side of the vessel.*

*The provision of exclusion zone lights will only be an addition to the requirement for a police presence on the water. It is not known what consultation took place between the proponent and the TPA regarding the provision of physical security for US military shipping but I am not aware of any consultation with local QPS personnel on this issue.*

*This will impact on a free movement of other water craft as the EIS executive summary indicates the distance between the centre of Platypus channel and the TOT berth is 46m. In effect Ross Creek will need to be closed to all water craft whilst a US military vessel is in port to meet the 100m security zone. This is obviously not possible and has the following implications:*

*US naval vessels will not use the TOT and will continue to use the Townsville port facilities. This is a comment that has been made to me personally by US Navy representatives.*

*It is not a policing issue as police will provide waterside security wherever the vessel is berthed;*

*The US Navy will not use private security to provide waterside security and insists on a police presence as police are fully armed, able to enforce any direction given and have Harbour Master authority delegations which private security providers are not. Some ship commanders also insist on a police presence landside to supplement private security.*

*This is not a specific issue for police as the security operation is on a full cost recovery basis and the Water Police operational plan and roster is managed to accommodate US Naval visits;*

*US navel vessels will use the TOT and insist on the 100m security restricted zone. This will have a policing impact potentially from a very negative public relations perspective. If the US Navy insists on the full 100m security restricted zone the impact on the police operation is as follows:*

*The police piquet vessel will be anchored at least part way into Ross Creek. This will obstruct water craft such as the ferries, barges and pleasure craft navigating along Ross Creek. This will cause adverse comment against the Police Service, TOT, TPA and the US Navy.*

*A full enforcement of the 100m waterside security restricted zone will see Ross Creek closed off and forcing vessel operators to detour into the TPA waterside restricted zone thus causing the vessel operators to commit offences against the MTOFSA. Again this will cause adverse comment against the Police Service, TOT, TPA and the US Navy.*

*In either scenario above the US ship commander could insist on a floating barrier around the ship to reduce the risk of water borne improvised explosive devices such as occurred with the USS Cole. The floatation barrier would need to be some distance off the naval vessel to be effective and again will impact on the free movement of water craft along Ross Creek and again with the negative comment described above.*

*Overall the decision on whether US military vessels use the TOT or not is a commercial and security issue to be resolved between the TOT operator and the US Navy. Given the potential adverse public opinion on restriction of the use of Ross Creek the US Navy will either opt to continue using the Townsville Port or withdraw their Townsville port visits. No reference is made to Australian warships in the EIS and it is assumed they will make use of the TOT given no police orientated security is currently provided.*

*The overall issue for police is the potential adverse public comment regarding restricting movement of vessels in Ross Creek and possible enforcement action for breaches of the TPA waterside restricted zone.*

#### **Response:**

The comments of the Queensland Police Service are noted. Full consultation has been undertaken with the US Navy, the results of which are set out in the report by Admiral R Natter US Navy Retired (R Natter & Associates) and which can be found at Appendix A23 in Volume 3 of the Supplementary Environmental Impact Statement.

## 2.5 Queensland Transport Submission

#### **Issue:**

**Hazard & Risk Assessment - Appendix 24.** *The assessment of risk is very thorough in explaining the theory of risk assessment but fails to analyse specific hazardous activities that currently take place within the*

port other than placing them in a risk register. QT has raised this concern previously with the Department of Infrastructure and Planning.

For example, Section 7.2 of the Hazard and Risk Assessment mentions the unloading of explosives and ammonium nitrate at various berths within the port and states that the berths are closer to the proposed residential development than the "Major Hazard Facilities" within the port. However there is no discussion as to whether the activity poses any risk to residents in the proposed development. Similarly petroleum and noxious chemicals are unloaded at berth 1 for transfer by pipeline to the "Major Hazard Facilities" within the port. But there is no analysis of any risk posed by the location of the berth and the unloading activity. Can it also be confirmed whether berth 1 is itself a "Major Hazard Facility" considering fully laden tankers will be occupying the berth. The facility is not even mentioned in the list of Dangerous Goods Locations in Section 7.1.

The risk register is all that is to be relied on then further detail needs to be included in the register as to the nature and consequences of the risk. With respect to the current risk register entries, QT also questions the categorisation of "unlikely" against the risk categories of emissions and noise from the port. If this were to be the case, port protection would not be an issue of concern to the State.

**Response:**

The comments of Queensland Transport are noted. Reference is made to the Explosives Overpressure Report and supplementary reports prepared by Hyder Consulting which has addressed these matters. (Appendix A17 in Volume 3 of the Supplementary Environmental Impact Statement).

## 2.6 Townsville Port Authority Submission

**Issue:**

*TOR Section 2.2.2: Health and Social Impacts and Section 4.1.6: Hazards & Risks. Drawing on information developed in technical assessments, undertake an integrated health impact assessment of the proposed Breakwater Cove precinct to determine if the location of the residential development is appropriate considering the existing and proposed activities in the port area. Issues that should be considered include dust and air emissions, noise and odours from mineral products, fire and explosions, export of live cattle and other products.*

*Undertake an analysis of the risks and hazards to people and property in the TOT and Breakwater Cove precincts associated with cargoes and operations at adjacent berths in the port, as well as future development areas to be created within the port*

*Describe the potential social impacts on future residents of the Breakwater Cove Precinct from operations associated with the Port of Townsville. Include:*

*a description of the likely demographics of the proposed Breakwater Cove precinct including residents and employees of businesses.*

*the expected local community values, vitality and lifestyles.*

*implications (real and perceived) for public amenity associated with existing port operations and as a result of potential future expansion of the port.*

*Section 4.1.6 of the ToR required that the Proponent consider health and social impacts of the proposed Breakwater Cove precinct to determine if the location of the residential development is appropriate considering the existing and proposed activities in the port area. The ToR specifically requires that this assessment consider issues of fire and explosion, requiring that the proponent undertake an analysis of the risks and hazards to people and property in the TOT and Breakwater Cove precincts associated with cargoes and operations at adjacent berths in the port, as well as future development areas and berths to be created within the port.*

*The Authority considers that the "Hazard and Risk Assessment Report" (Hyder) fails to adequately address the potential impact of dangerous goods and hazardous substances that are carried on ships, loaded and unloaded at berths in the port and stored/handled within the Port, and other hazards and risks that may potentially exist or arise as a result of a multi-cargo industrial and naval port (including the TOT facility) operating on the doorstep of a major, high-class residential development.*

*The Proponent has not undertaken any risk assessments or modelling of potential impacts of dangerous goods and hazardous substances in the context of the proposed new development. The EIS also has not considered toxic gases impacts from a fire or other event.*

#### **Response:**

Assessments were undertaken of dust and air emissions, noise and odours and export of live cattle and other products. These potential impacts were addressed in the *Air Quality Assessment* (EIS Appendix 15) prepared by Air Noise Environment Pty Ltd and the *Noise and Vibration Assessment* (EIS Appendix 17) prepared by Hyder Consulting Pty Ltd.

The results of these investigations were considered in assessing the risks on Breakwater Cove residents from emissions from the Port. The risks of these potential impacts were assessed as being Low to Moderate given that design of future residences within the Breakwater Cove Precinct is to be controlled by development of the Port Protection Code requiring compliance with building design criteria.

The risk of fire and explosions from Port operations were considered as part of the Hazard and Risk assessment. These were addressed in an Explosives Overpressure Report and supplementary reports prepared by Hyder Consulting (Appendix A17 in Volume 3 of the Supplementary Environmental Impact Statement).

#### **Issue:**

**Dangerous Goods, Hazardous and Toxic Substances.** *In terms of the potential incompatibilities or impacts of cargoes handled/transiting the port, the EIS has not involved any separate investigations, consequence or scenario modelling.*

*The EIS does not identify all of the hazardous goods that are currently, or in future may, transit or be handled/stored at the port.*

*There are currently nine (9) different classes of cargoes that come through the port. Within these nine (9) classes are products that are broken down into UN numbers, of up to about 3,500 different products. Table 1 below highlights products that are currently handled / transported through the Port of Townsville. Whilst not all cargoes are regularly handled by the Authority, they are trades that are handled, which would be expected to grow in volume in future.*

*In looking at potential impacts, it is important to consider that many ships have multiple cargoes on board. Ships are required to stow in accordance with the IMDG code and other shipping practices. It is therefore important to recognise that risks may arise not only from the product being loaded or unloaded (such as a gas or fuel ship on Berth 1), but also in addition to this the products that may already be stowed on the ship as transit cargo.*

*Currently limits determined by the Chief Inspector of Explosives on Class 1 Explosives (handling and transit) and Security Sensitive Ammonium Nitrate are 400 tonnes for handling and 1,400 tonnes for transit. Figures 1 and 2 below show the potential consequence zones for handling limits from the risk assessment for these products. No risk assessments have been undertaken for the various scenarios that could arise for the various cargoes (including transit cargoes). The EIS has failed to address any of these potential risks and impacts.*

*Berth 10 is currently used by the Royal Australian Navy for operational purposes which include the handling of explosives. An existing Explosive Limit Licence, Explosives Handling Area (EHA) issued by the Department of Defence has determined the explosive limit based on the distance between the Explosive Ordinance loading operation and all building groups (offices etc) and traffic routes within a 400m radius. The Port is restricted in its loading operations during events at the Townsville Entertainment Centre. The proposed developments potentially involve establishment of 6-storey multiple dwellings and an Entertainment Precinct within the 400m radius. Any significant changes to developments within this 400m radius would trigger a review of the licence and further restrict the use of Berth 10 to the detriment of Defence activities. It should be noted that substantial upgrade plans are being prepared for Berth 10 to enable increased use by the Department of Defence for operational purposes, and for increased general cargo handling.*

### **Response:**

Hazardous goods and the risks from these have been considered in the Hyder Consulting report on Explosives Overpressure and supplementary

reports at Appendix A17 in Volume 3 of the Supplementary Environmental Impact Statement.

## 2.7 Townsville City Council Submission

### Issue:

**Hazard and Risk Assessment.** *In Section 4.16, the EIS discusses a Hazards and Risks Assessment undertaken by Ryder Consulting. The Hazards and the Risks Assessment is again presented in the Appendices as Appendix A24.*

*A Hazards and Risks assessment is very much subject to the point of view from which the assessment is undertaken. The assessment in the EIS has been broken into two sections viz: Risks relating to the construction phase and risks relating to the existence of the development once it has been completed (i.e Operations Phase).*

*There are many things in the construction phase that do not concern the community and the environment. These would be issues that may, if not managed properly affect the profit margins of the contractors and the developers or have other consequences; however contamination of the environment during construction that would affect the environment is of concern.*

*Therefore not all of the items in the construction risk register are of importance to the community and have not been assessed as part of this response. It would be expected that a competent construction organization would have a detailed risk management plan to manage the relevant construction phase risks.*

### Response:

The decision of the TCC not to reassess Construction Risks is noted.

### Issue:

*An important part of any risk assessment is the assessment of the consequence scale, likelihood scale, and the risk matrix for combining the consequence scales and likelihood scales. The consequence scales as proposed did not accurately or comprehensively reflect the range of impacts of risks as they related to the community and the environment as there was no financial consequence scales included.*

*The Risk Matrix to determine the overall risk priority had 5 levels of risk as a product of consequence and likelihood when most matrices have 4 scales. However these matters are only of concern to the party conducting the risk assessment and if they do not want a financial consequence rating scale then that is their prerogative.*

### Response:

The EIS Risk methodology employed conforms to AS/NZS Risk Management Standard 4360:2004 as required in the EIS TOR. The risk matrices of Consequence and Likelihood used to derive Risk Rating is as per AS/NZS Risk Management Standard as defined in HB203:2006 Environmental Risk Management – Principles and Processes.

A risk matrix of five scales was employed to allow more detailed analysis

The claim that '*most matrices have 4 scales*' may be accurate, but the use of four scales is inappropriate in a project of this size and nature, with risks spanning multiple categories. A risk matrix on a scale of four rather than five scales will be naturally skewed to simplistic extremes.

Qualitative estimates in the analysis were based on specialist reports, interviews and professional judgments.

Financial consequences are not appropriate given the breadth of the scope of the EIS, and were not required by the TOR.

#### **Issue:**

*In the interest of having a more accurate reflection of how this project would affect the community it was determined that a risk management workshop with participants selected as being representative of the community should review the identified risks.*

*[text omitted from original response – addressed in detail below]*

*Comments on Differences between the two Risk Assessments (Operational Only)*

*The key risks identified and rated as extreme and high after reconsideration of the mitigation measures are listed below.*

- *Those risks relating to severe weather events and the location of the site to the ocean, sea levels and climate change.*
- *Those risks relating to the incompatible land uses of the port and the proposed residential precinct.*
- *Those risks relating to direct dredging impacts on the environment and secondary consequences on the food chain.*
- *Risks relating to harm on the environment from increased small boat activity and proximity of residential activity.*
- *Risks relating to breakdown of port protection measures curtailing the future activities of the port.*
- *Direct traffic impacts on the community.*
- *Changes to adjacent shorelines.*
- *Introduction of marine pest from overseas boating visitors.*
- *Impact on existing services (in particular health services).*

- *Parkland settlement due to inferior fill.*

**Response:**

The specialist reports in the Supplementary EIS provide detail on the issues identified above. Detailed responses to the issues raised by the TCC have been addressed in the Operational risk register.

**Issue:**

*Of the 48 new extreme risks and 36 new high risks identified, as previously mentioned, that have not had mitigation measure applied (see schedules). These broadly relate to issues such as:*

- *Location and impact of exposure to sea and weather (6)*
- *Degradation of water quality (2)*
- *Sustainable housing (4)*
- *In creased recreational boating impacts (1)*
- *Inadequacy of the EIS process (2)*
- *Breakdown of port protection measures (6)*
- *Incompatible land uses between the port and residential. (8)*
- *Parking issues (3)*
- *Impediments to navigational channels and aids (8)*
- *Ongoing disproportionate maintenance and operation costs (4)*
- *Inadequate infrastructure -- Roads - Water and Sewerage (15)*
- *Environmental harm (2)*
- *Disaster Management and incidence response compounded by Port activities and residential mix (9)*
- *Inadequate communication during the EIS process. (2)*
- *Increased pressure on existing services (Health, Schools etc) (1)*
- *Dredging Issues (7)*
- *Beach Erosion exacerbated (1)*

**Response:**

The specialist reports in the Supplementary EIS provide detail on the issues identified above. Detailed responses to the issues raised by the TCC have been addressed in the Operational risk register.

*Ten (10) additional opportunities were identified in addition the above risks:-*

- *Meeting the demand for water side accommodation and marinas*

- *Provision of Recreational and public space.*
- *Provision of fishing facilities.*
- *Enhancing Townsville's reputation.*
- *Supporting and enhancing Townsville as a maritime service centre.*
- *Provision of construction and long term employment.*
- *Promotion of cruise tourism.*
- *Provision of additional access via a Strand Bridge over Ross Creek during emergencies.*
- *Opportunities to implement energy efficiencies such as chilled water / energy storage for multiple dwelling units.*
- *Opportunity for additional shared car parking for entertainment centre (500 car parks).*

**Response:**

The comments of the Council in relation to opportunities is acknowledged and welcomed.

**Issue:**

*It is obvious the perceptions of the community group that assessed the risks are quite different from that presented by the proponent's consultants. However there is sufficient evidence presented from this difference that would suggest that further consultation could relate to listening to the community view rather than imposing a particular view upon the community.*

**Response:**

The methodology employed to produce the EIS Risk Registers adhered to the requirements Australian Standards, the TOR and industry practice. Qualitative estimates in the analysis were based on specialist reports, interviews and professional judgments.

## 2.8 CHEM Services Submission – Berth 1 Fuel Loading

### 2.8.1 Background

A submission was received from CHEM Services, Department of Emergency Services, dated 9 January 2008 relating to the risks associated with the Townsville Port Berth 1 fuel loading.

## 2.8.2 CHEM Services Response

CHEM Services has provided the following recommendation in regard to Berth 1:

“Recommendation

CHEM Services concludes that the proposal appears to meet the Risk Criteria for Land Use Safety Planning as defined in Hazardous Industry Planning Advisory Paper No. 4 for individual fatality and injury risk surrounding Origin Energy Terminal.

CHEM Services is concerned regarding the potential risk and consequences of Berth 1 operation but has inadequate information to make an assessment in this regard. A full risk assessment is recommended to be conducted on Berth 1 operations as they effect the proposed development.”

*(Extract from letter to Department of Emergency Services dated 9 January 2008 from David Jones, Senior Safety Advisor (Major Hazards), CHEM Services)*

## 2.8.3 Information Available for Berth 1

The following information has been provided by the Port:

- General information on port activities and descriptions of cargoes handled at Berth 1, available in the public domain;
- Port of Townsville Master Plan dated August 2007;
- The Port has advised that a recent risk assessment of Berth 1 activities is not available at this time.

## 2.8.4 Response

Berth 1 is described as:

A dedicated bulk liquids wharf used exclusively by tankers for bulk oil/fuel, gas, and sulphuric acid discharge and by all types of vessels for bunkering.

Source: Townsville Port Authority website, accessed 4Jun08

A number of assumptions, listed below, have been made in formulating a response to CHEM Services.

### Assumptions: All Cargoes

Berth 1 is assumed to be:

- Operating as an Environmentally Relevant Activity (ERA) to EPA requirements;

- Compliant with Dangerous Goods Safety Management Act 2001;
- Compliant with Workplace Health and Safety Act 1995;
- Compliant with Environmental Protection Act 1994;
- Compliant with Transport Operations (Marine Safety) Act 1994.

## Assumptions: Bulk Oil/Fuel and Gas

Berth 1 is assumed to be:

- Defined as 'Operating Plant' under the relevant Queensland legislation, Petroleum and Gas (Production and Safety) Act 2004;
- Operating under a Safety Management System, Safety Management Plan (or Plans) with Annual Safety Reports submitted by the Executive Safety Manager as required by the Petroleum and Gas (Production and Safety) Act 2004, Chapter 9, Part 2 *Safety Management Plans* (including S675 requirement for systematic assessment of risk);
- Operating to the relevant Australian Standards, specifically:
  - AS 1596: The Storage and Handling of LP Gas;
  - AS 1697: Installation and Maintenance of Steel Pipeline System for Gas;
  - AS 2885: Pipelines - Gas and Liquid Petroleum.

## Assumptions: Sulphuric Acid

Berth 1 is assumed to be:

- Operating to the relevant Australian Standards, specifically:
  - AS 1940: The storage and handling of flammable and combustible liquids;
  - AS 3780: The storage and handling of corrosive substances.

## 2.8.5 Conclusion

Each of the relevant legislations, regulations and standards listed above require or recommend a systematic assessment of risk, commonly to AS 4360. It is expected that multiple risk assessments have been conducted considering Berth 1 operations in part and/or whole.

It is critical that a complete risk assessment of Berth 1 operations as they effect the proposed development consider previous risk assessments and the underlying input data and assumptions.

It is expected that the Townsville Port Authority maintains minimum standards according to the relevant legislation, regulations and standards applicable for each cargo.

The level of information available at this time is considered insufficient to conduct a risk assessment on Berth 1 operations as they effect the proposed development. A full risk assessment on Berth 1 will be conducted to the requirements of relevant legislation, regulations and standards when detailed information is available.