



**Final Inquiry Report:  
East Arm Wharf  
Copper Concentrate Incident  
Part 1**



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## Acronyms

AAR	AustralAsia Railway
CCNT	Conservation Commission of the Northern Territory
CEMP	Construction Environmental Management Plan
DCA	Development Consent Authority
DLP	Department of Lands and Planning
DLPE	Department of Lands, Planning and Environment
DPC	Darwin Port Corporation
DRLUSP	Darwin Regional Land Use Structure Plan
DTW	Department of Transport and Works
EADCP	East Arm Development Control Plan
EADG	East Arm Development Group
ECNT	Environment Centre Northern Territory
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Environment Protection Authority
NRETAS	Department of Natural Resources, Environment, the Arts and Sport
OMM	Oriental Minerals – Manganese
OEH	Office of Environment and Heritage
OEMP	Operational Environmental Management Plan
PAN	Pollution Abatement Notice
SEMF	Scientists, Engineers, Managers and Facilitators
SKM	Sinclair Knight Merz
WMPC Act	<i>Waste Management and Pollution Control Act</i>

# Introduction

## The Incident

In April 2010, it was alleged by a port worker that 1 tonne of copper concentrate spilled from a loading chute at East Arm Wharf into Darwin Harbour, and that the incident was not reported as required under the relevant pollution legislation. It was also alleged by a port worker that substantial amounts of copper concentrate dust escaped from the bulk export facility (consisting of a loading mechanism and conveyer belt) on a number of occasions onto the wharf hardstand and into the Harbour.

Copper concentrate is transported from the Prominent Hill mine (owned and operated by Oz Minerals) in South Australia to East Arm by train. It is stored in stockpiles in a shed at East Arm wharf before being loaded onto bulk goods ships, with ship loads of approximately 10,000 tonnes occurring around 13 times per year. The facility is also used to load shipments of iron ore and manganese ore, from various mine sites in the Northern Territory.

## The EPA Inquiry

Immediately following initial reports in the media the EPA received a referral from the Environment Centre NT (ECNT) requesting that the EPA review the incident. Following a meeting with key stakeholders and a brief to the EPA Board on the issue, it was determined the EPA should pursue a formal Inquiry into the matter.

## Terms of Reference

The following terms of reference were approved by the EPA Board on 25 May 2010:

1. Review and analyse the legislative processes that facilitated the East Arm Wharf development and the approval of the bulk loading facility and its current operations;
2. Review the methods and reports of concurrent inquiries that have been undertaken by relevant arms of the Northern Territory Government into the incident to assess their thoroughness, effectiveness and the uptake of recommendations for the prevention of future similar incidents;
3. Using the investigation reports and other information as necessary, critically analyse the effectiveness of the communication channels and links between stakeholders and the effectiveness of Northern Territory Governments' existing internal operations in relation to the management of incidents as demonstrated by the response to the copper concentrate spill;
4. Review existing triggers, criteria and practices in place for environmental incidents (critical incident response), including:
  - 4.1. Triggers for reporting of the copper concentrate incidents at East Arm Wharf;
  - 4.2. Capacity to assess, quantify and minimise or control damage;
  - 4.3. Guidance from regulators currently available; and
  - 4.4. Future needs of relevant stakeholders to achieve prevention, control and effective reporting, assessment, feedback and enforcement.

5. Identify and assess effectiveness of steps put in place since the copper incidents to reduce the likelihood of such incidents occurring in the future;
6. Specifically assess the extent to which the public can be reassured failures in regard to the legislative and other processes involved in the regulating and reporting of environmental incidents at East Arm Wharf will not be repeated;
7. Consider any other matters useful in investigating general provisions for governance and environmental management at East Arm Wharf;
8. Provide advice and recommendations to the government and people of the Northern Territory on the outcomes of the EPA's inquiry.

This document addresses Terms of Reference One, Four, Five and Seven. Part Two of the report (expected to be released in the second half of 2011) will consider the remaining Terms of Reference.

## **Context and Background**

In examining this incident it has been requested that the EPA bear in mind the context within which the East Arm Port's establishment and expansion was taking place. Specifically the interaction of this project with the AustralAsia Railway (AAR) project is considered by the Department of Lands and Planning (DLP) to be critical contextual information. DLP purport that many of the works being assessed were interrelated and issues not addressed in the context of the East Arm Port project planning may have been covered in the AAR project planning.

The EPA acknowledges that this intersection of projects occurred and suggests that failure to join the projects up for assessment of their cumulative impact has resulted in some of the issues underlying the current incident under review. Retrospectively, it is easy to make this suggestion, but it should be noted that the purpose of this Inquiry and report is to identify systemic issues that such a forensic examination affords and that the lack of a strategic assessment option within the Northern Territory Environmental Impact Assessment (EIA) legislation is one of these systemic issues highlighted by the East Arm copper concentrate spill. Were it possible for the assessment regime to look at the entire precinct and its impact and then to look at individual activities within the precinct and their activity-specific concerns, it is possible the loader would never have been used in a manner for which it was never assessed.

# TERM OF REFERENCE 1

**Review and analyse the legislative processes that facilitated the East Arm Wharf Development and the approval of the bulk loading facility and its current operations**

## 1.1 Review of Evidence

The legislative processes facilitating the development of East Arm Wharf and the bulk loading facility involved a number of steps and approvals. In undertaking an Inquiry into the copper concentrate incidents at East Arm, the EPA has identified a number of critical documents recording these steps and the decision-making processes involved. A timeline of these decisions and relevant documents appears in Appendix A. The key information contained in each of these documents and determinations is provided below.

### 1.1.1. *Report on Site Investigation and Testing for Bulk Cargo Facility Darwin East Arm (1968; 1970)*

This report was commissioned by the Commonwealth Government Department of Works to gather information on the physical properties of the East Arm peninsula to determine its suitability for the construction of an embankment for the purposes of a bulk cargo facility. The report was undertaken in 1968, pre-dating Territory self-government, and it was followed in 1970 by a similar report, the East Arm Bulk Cargo Facility Conceptual Design. This second report considered possible designs for a bulk cargo facility and port at East Arm, Darwin, based on the vessel size and design of ore-carrying vessels.

### 1.1.2. *Darwin Regional Land Use Structure Plan (DRLUSP) (1990)*

This planning document provided for the allocation of land at East Arm for a variety of industrial purposes, including a future deepwater port facility. It also introduced the intention of the Northern Territory Government to enhance Darwin's role as a national trade 'bridge' to Asia, with the completion of the railway line from Alice Springs to Darwin.

The DRLUSP also comments on the process for assessment of the impacts and effects of such major development projects, stating that: 'environmental assessment is too often reactionary and without the necessary time, baseline studies or comprehension of the cumulative impacts of continuing development'.<sup>1</sup> The plan proposed itself as a long-term, broad land use plan, appropriate for establishing a 'framework of environmental limits'.<sup>2</sup>

### 1.1.3. *East Arm Port Development Masterplan (1993)*

The purpose of the East Arm Port Development Masterplan was to outline the ultimate vision for the port at East Arm, with a focus on establishing an efficient container port, seen as crucial to the success of the Alice Springs to Darwin rail link. The Masterplan introduces the concept of a staged development process, where

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<sup>1</sup> *Darwin Regional Land Use Structure Plan* (1990), produced by the NT Department of Lands and Housing, p 5.

<sup>2</sup> As above.



demand would dictate the timing with which the next phase was to be constructed. The document sought to ensure future stages of development were not compromised by any decisions made in the initial stages.

It is stated that the Masterplan is to remain a flexible document, which would undoubtedly change its objectives and outcomes in response to changes in shipping and trade trends and patterns in the coming years. Efficiency of the port's operation is highlighted as essential to attracting trade over similar competing facilities within the region.

The 'extent and nature of Darwin Port Authority (now Darwin Port Corporation) ownership and management of the facility'<sup>3</sup> is listed as a key issue for further consideration in the implementation of the Masterplan.

#### 1.1.4. *Darwin Port Expansion – East Arm Draft Environmental Impact Statement and Supplement (1994)*

The Darwin Port Expansion Draft Environmental Impact Statement (EIS) was followed by a four-week period of public consultation.<sup>4</sup> East Arm was highlighted in the EIS as being the only site which met the requirements of a new deepwater port to be located in the Darwin region. It states that the chosen design concept was heavily influenced by the Darwin Port Authority and the shipping industry, and again makes reference to the development occurring in stages, to respond to the growth in specific types of cargoes and port-related industries. The Draft EIS indicates that there is a future intention for the port to be used for bulk exports; however no further details or certainty regarding this plan is provided.

Impacts on the marine environment anticipated as a result of the development are stated to include, 'the potential for discharges of toxic materials as the result of normal or abnormal port activities'.<sup>5</sup> Monitoring programs during the construction and operational phases of the development are recommended in order to ensure the appropriateness of safeguards for unknown impacts unable to be precisely predicted. A number of other measures intended to mitigate the impacts associated with construction of the development are provided. Throughout the report there is generally a strong emphasis on the economic and trade benefits arising from the project.

The Draft EIS Supplement clearly states that the EIA process has been applied to the complete 'ultimate vision' for the port, rather than the initial Stage One development, which was the only proposal in place for East Arm at the time. This was to avoid

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<sup>3</sup> *East Arm Port Development Masterplan (1993)*, prepared by GHD Consultants, p 37.

<sup>4</sup> *Darwin Port Expansion – East Arm: Environmental Assessment Report and Recommendations (Feb, 1994)*, prepared by the Conservation Commission of the Northern Territory, p 2.

<sup>5</sup> *Darwin Port Expansion: East Arm – Draft Environmental Impact Statement (1993)*, prepared by Acer Vaughan Consulting Environmental Engineers for NT Department of Transport and Works, p86.

criticisms that the long-term port development proposals had been ignored in the assessment process.<sup>6</sup>

Issues and concerns raised by various submissions from members of the public, environment groups, industry groups and government agencies included:

- Management of stormwater runoff;
- Economic justification for the proposal;
- Incremental impacts on Harbour;
- Lack of ecological data;
- Government decision on the project;
- Public consultation process inadequate; and
- Monitoring program.

It is noted that the Supplement provides that public consultation, beyond the four week period during which submissions were received, did not include the undertaking of any public information sessions or public consultative meetings. The EIS consultants undertook meetings with specific community and commercial groups selectively, based on which groups they felt had an interest in the harbour and/ or proposal.

#### 1.1.5. *Darwin Port Expansion – East Arm Environmental Assessment Report and Recommendations (1994)*

Following the release of ‘*Draft guidelines for matters to be addressed within an EIS on a proposal to relocate the port of Darwin to East Arm*’ in 1992, the Draft EIS was submitted to the Conservation Commission of the Northern Territory (CCNT) by the Department of Transport and Works (DTW) (the proponent) for CCNT’s review of the proposal titled ‘*Darwin Port Expansion – East Arm*’. The final Environmental Assessment Report and Recommendations was released by CCNT in February 1994.

According to the report, the main elements of the final port were to include: a container terminal, rail container terminal and rail reserve, general port area for livestock and minor bulk cargoes, and a port administration area. There was also a 40-hectare ‘Future Port-Related Usage’ area, reserved for other related activities not yet known or confirmed.<sup>7</sup>

The major environmental issues identified in the Report included:

- Water quality in the Harbour;

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<sup>6</sup> *Darwin Port Expansion: East Arm – Supplement to Draft Environmental Impact Statement (1994)*, prepared by Acer Vaughan Consulting Environmental Engineers for NT Department of Transport and Works, p1-2.

<sup>7</sup> *Darwin Port Expansion – East Arm: Environmental Assessment Report and Recommendations (Feb, 1994)*, prepared by the Conservation Commission of the Northern Territory, p 3.

- Stormwater runoff;
- Modelling and monitoring requirements; and
- Planning and land use concepts for East Arm Peninsula, including environmental assessment and planning approvals for associated developments.<sup>8</sup>

The Report noted that there were a number of gaps, anomalies and inadequate sampling in the data provided by the proponent. Additionally, a number of issues of concern raised in public submissions and held by CCNT had not been addressed, or addressed to a minimal extent.<sup>9</sup>

At the time the EIA was undertaken, there was still considerable uncertainty regarding the final configuration of the port design and structure, and the construction methods to be employed. Due to these uncertainties, the Report emphasised the need for baseline surveys and appropriate modelling and monitoring programs to be established and continued for impacts that could not be predicted in advance.<sup>10</sup>

Other recommendations included:

- a program for surveys of long-term impacts of the port;
- the development and implementation of a plan for the management of stormwater and surface runoff, including the design of drains, traps and separators to treat sediment-laden or contaminated water before release; and
- the development of a plan or code of practice dealing with the management of material spilled outside of storage areas, such as spillages of mineral concentrates during loading and unloading.<sup>11</sup>

A water quality monitoring program was undertaken over a period of two years in accordance with the recommendations provided by CCNT, specifically focussing on the impacts of dredging and increased turbidity on the Harbour and the marine environment. This program included the collection of baseline data and the design of an appropriate study for the frequency and scope of monitoring during and post-dredging operations. The final monitoring report notes the benefits associated with EIS process and the generation of data sets and information that flow from assessment recommendations and programs. Suggestions of further studies to understand the behaviour of resuspended heavy metals in the Harbour are also made.<sup>12</sup>

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<sup>8</sup> As above, p I.

<sup>9</sup> As above, p 6.

<sup>10</sup> As above.

<sup>11</sup> As above, p II-VI.

<sup>12</sup> See *East Arm Port Stage 1 Water Quality Monitoring Program: Report on Setup Phase and Baseline Data Collection (1995)*, and *East Arm Port Stage 2 Water Quality Monitoring Program: Report on Baseline, Dredge Monitoring and Post Dredge Monitoring Programs (1997)*.

1.1.6. *East Arm Peninsula Port Land Use Planning Strategy (1998) and East Arm Development Control Plan (1998)*

The East Arm Peninsula Port Land Use Planning Strategy prepared the way for the East Arm Development Control Plan (EADCP). It provided that all development applications for the East Arm Peninsula were to be assessed by the East Arm Development Group (EADG), consisting of the Chief Executives of DLPE, DTWs, Darwin Port Authority, the Chief Minister's Department and the Department of Asian Relations, Trade and Industry.<sup>13</sup> The Strategy sought to 'provide greater certainty for potential investors as to the government's vision and plans for the East Arm Peninsula' and, 'to provide a land use strategy that enables maximum efficiencies for industry'.<sup>14</sup>

In the development of the Strategy, extensive consultation was undertaken with government agencies, industry groups, and companies to determine their future needs and potential trade opportunities. The public were not included within this consultation process.

The Strategy highlights the intersection between the AAR project and the development of East Arm. While land use objectives were established for the two developments separately, these objectives were largely complimentary, recognising the interdependence of the two projects.<sup>15</sup>

Again, the Strategy focuses on a vision for the region, which includes the assurance that 'all development at East Arm will occur in accordance with best environmental management practices'.<sup>16</sup> This vision was supported by strategic objectives for the Peninsula, including to 'provide sound environmental management' and 'to facilitate well managed staged development'.<sup>17</sup> The key planning principles upon which land uses at the Peninsula were to be allocated included that 'general land resource at EAP (East Arm Peninsular) is to be divided up so as to optimise the benefits in terms of promoting economic development'.<sup>18</sup>

Finally, the document emphasises that final decisions regarding land use allocation and approval at the Peninsula is at the discretion of the EADG and the Northern Territory Government, despite guidance and performance indicators laid out in the Strategy.<sup>19</sup>

The EADCP declared the area of East Arm Peninsula to be zoned 'DV', designating it for the development of major strategic industries including gas-based, road, rail or

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<sup>13</sup> *East Arm Peninsula Port Planning Land Use Strategy (1998)*, prepared by the NT East Arm Development Group, p 2.

<sup>14</sup> As above, p 3.

<sup>15</sup> As above, p 7.

<sup>16</sup> As above, p 14.

<sup>17</sup> As above, p 15.

<sup>18</sup> As above, p 42.

<sup>19</sup> As above, p 53.

port-related industries<sup>20</sup> Prior to the existence of this document, the East Arm Peninsula had not been subject to land use zoning controls and as a result, any development proposed for the area was not subject to usual assessment processes. The EPA has been assured that no work was undertaken during this period and if it had been Ministerial consent would still have been required. The EPA could find no evidence to contradict these assertions.

1.1.7. *Development Permit for services, hardstand and buildings, DPM99/0060 (1999)*

This was the first development permit issued for works at East Arm. The permit was issued to the Department of Transport and Works in December 1999, and was for Stage One of the East Arm facility, involving port services, hardstand and buildings. The conditions of approval did not require the proponent to conduct development activities in accordance with an Environmental Management Plan. The only condition requiring environmental management controls was that areas not occupied by buildings, landscaping or driveways were to be maintained so as to prevent detriment to the local amenity from the emission of dust.<sup>21</sup> It is unclear whether this was a construction or an operational condition, or both. Evidence obtained by the EPA indicates that despite the absence of an EMP, environmental management measures were observed throughout the construction process.

1.1.8. *Darwin Harbour Strategic Plan for Beneficial Uses (2002)*

This plan focuses on the adoption of beneficial uses as identified by the public for Darwin Harbour and seeks to ensure those beneficial uses are maintained despite the development and urban pressures anticipated to increase in the catchment area. The Plan sets a vision that 'the management of Darwin Harbour and its catchment enables development which is in line with the protection of ecosystems and the maintenance of the Harbour's values as a recreational and scenic resource'.<sup>22</sup> The Government first sought to determine values placed upon the Harbour by the Darwin community in 1996.

The Plan addresses a number of issues or threats to maintaining these values, and sets out actions intended to reduce or manage these threats. The first issue identified by the Plan is 'the impact of major and incremental development within the catchment'.<sup>23</sup> The works at East Arm, which were in the construction phase of Stage Two at the time the Plan was finalised, are directly referred to. The concern of cumulative impacts of small developments as a whole within a catchment area is discussed at length, with the recommendation that guidelines to monitor and assess cumulative impacts be developed, and that this was of particular importance in areas where runoff containing contaminants ends up at a single destination.<sup>24</sup> These

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<sup>20</sup> East Arm Control Plan 1998, issued 17 June 1998 by the NT Minister for Lands, Planning and the Environment, Clause 8.

<sup>21</sup> DPM99/0060, issued 20 December 1999, by the NT Development Consent Authority, Department of Lands, Planning and Environment.

<sup>22</sup> *Darwin Harbour Strategic Plan for Beneficial Uses (2002)*, prepared by Connell Wagner for the NT Department of Lands, Planning and Environment, and the Commonwealth Department of Environment and Heritage, p ii.

<sup>23</sup> As above, p 16.

<sup>24</sup> As above, p 17.

'Cumulative Impact Assessment Guidelines' were to be prepared by DLPE in the period 2002 to 2004.<sup>25</sup> DLP have advised that whilst work was conducted at officer level on cumulative impact assessment guidelines, this was never given formal status nor implemented.

A draft monitoring plan is another measure proposed by the Plan to address the environmental management issues raised. The 'occurrence and mitigation of pollution incidents'<sup>26</sup> was highlighted as a primary concern and site-specific monitoring was suggested particularly for industrial areas accommodating stormwater drain inflows into the Harbour, as is the situation at East Arm Wharf.

Brief reference to the legislative framework for dealing with large industrial development projects is made within the Plan, stating that the *Environmental Assessment Act* aims to mitigate the impacts of major projects.<sup>27</sup>

1.1.9. *Development Permit for works involving a container terminal, DP03/0242 (2003)*

This development permit was issued to the Darwin Port Authority (now Darwin Port Corporation) for the purposes of a container terminal, a key element of the AustralAsia Railway operation. The conditions of approval did not require an EMP.<sup>28</sup>

1.1.10. *Determination that no formal assessment required for Bulk Export Facility (2005)*

In March 2005, the Office of Environment and Heritage advised the Minister that formal assessment under the *Environmental Assessment Act* was not required for the DPC proposal to develop land for the purpose of a bulk export facility. The OEH advised that environmental concerns with the proposal could be addressed by an EMP, which was to provide controls and mitigation measures for issues such as soil conservation, sediment control and weed management; dust suppression and monitoring measures; and the creation of potential mosquito breeding sites over the life of the project.<sup>29</sup>

It was noted that an Environmental Management System was in place at DPC, however the OEH had not been able to review a final copy, and had planned to meet with DPC to discuss environmental management issues with the proposal.<sup>30</sup>

Finally, the advice acknowledged that a lack of environmental management procedures or infrastructure at East Arm Port had been identified, particularly that

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<sup>25</sup> As above, p 18.

<sup>26</sup> As above, p 49.

<sup>27</sup> As above, p 17.

<sup>28</sup> DP03/0242, issued 26 September 2003 by the Development Consent Authority, Department of Lands and Planning.

<sup>29</sup> Memorandum 'Notice of Intent – Proposed Bulk Export Facility – East Arm Wharf' to the Acting Minister for the Environment, 14 March 2005, prepared by the NT Office of Environment and Heritage.

<sup>30</sup> As above, p 3.

there were no controls or capture systems in place, such that should a spill occur, spill product could directly enter Darwin Harbour.<sup>31</sup>

1.1.11. *Development Permit for a bulk export facility, DP05/0089 (2005)*

A development permit to allow for the construction of the bulk export facility was issued to DPC in April 2005. Conditions of approval required an EMP prior to the commencement of works, to be approved by the Development Consent Authority upon the advice of the OEH. This was the first time an EMP had been required for works at the port. The EMP was to be reviewed and submitted to the OEH for further approval annually. It was also an approval condition that detriment to local amenity as a result of dust emissions was carefully managed.<sup>32</sup>

1.1.12. *DPC East Arm Bulk Export Facility Interim OEMP (June 2006) and Final OEMP (2007)*

The East Arm bulk export facility was constructed under two separate CEMPs, covering stages one and two of the construction of the facility. The original Interim Operational EMP was approved 7 June 2006. This OEMP is specific to manganese ore operations and outlines the shared responsibilities between company OMM as the operator, and DPC as the owner of the facility. Under this version of the Plan the responsibility for reporting incidents to the regulator is vested in DPC.<sup>33</sup>

It was also a condition of the development permit for the loader that dust emissions were addressed.

Dust emissions have been addressed in the OEMP in Section 6.1 Air Quality, which acknowledges the potential environmental impacts involved in the handling of manganese ore at the port. A Dust Control Plan was to be prepared and implemented, along with a Dust Monitoring Plan.<sup>34</sup> DPC advise that both these documents were prepared. In addition to air quality, the OEMP addresses water quality and waste and hazardous materials.<sup>35</sup>

The Interim OEMP provides that amendments to the plan may be required and will be in the form of supplements, to ultimately provide for the export of bulk products other than manganese ore.<sup>36</sup>

DPC advise that the interim OEMP was superseded in 2007 by the approval of the Final OEMP<sup>37</sup>. Evidence obtained by the EPA confirms that the Final OEMP for the Bulk Export facility was approved by NRETAS. This OEMP is also specific to

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<sup>31</sup> As above, p 2.

<sup>32</sup> DP05/0089, issued 18 April 2005 by the Development Consent Authority, Department of Lands and Planning.

<sup>33</sup> *Bulk Export Facility (OM Manganese Project) Interim Operational Environmental Management Plan*, produced by Darwin Port Corporation (5 June 2006).

<sup>34</sup> As above, p 19.

<sup>35</sup> As above, p 23, 28.

<sup>36</sup> As above, p 6.

<sup>37</sup> Operational Environmental Management Plan, Operational of Bulk Export Facilities, OM Manganese Ltd Stockpiling and Export Operations East Arm, Port of Darwin, (2007)

Manganese and was sent by NRETAS to Darwin Port Corp and OM Manganese limited on 14 June 2007. The EPA was not provided with any evidence that Oz Minerals had been informed of the change or that their use of the loader was subject to this revised OEMP.

During this inquiry EPA contacted OZ Minerals and requested they provide a copy of the OEMP under which they were operating at the time of the incident. Oz Minerals replied and the OEMP attached was their 2008 OEMP<sup>38</sup> as approved by NRETAS (see 1.1.15 below).

There are critical differences between the requirements of all parties under the 2006 Interim plan, the NRETAS approved final 2007 OMM OEMP plan and the OEMP for the copper storage facility submitted by Oz Minerals. The lack of clarity around which document was the authorised reference for the loading of copper concentrate and the associated Environmental impacts was a contributory factor in the confusion that surrounded the copper spill and the related reporting responsibilities

DPC informed the EPA that in 2009 they engaged consultants for the purpose of developing a new Environmental Management System, for all of the sites owned and managed by DPC. This replaces the September 2003 EMS. The new system was operational as of December 2010.<sup>39</sup>

The EPA were also advised by DPC that a supplement to the OEMP for bulk export facility was not prepared to address the commencement of copper concentrate use and handling in relation to the facility (as suggested by the OEMP) because the EMP prepared by the Oz Minerals was considered by DPC to constitute the supplement. DPC have also advised that "DPC did not approve the OZ (then Oxiana) OEMP. It is between NRETAS and OZ".<sup>40</sup>

#### 1.1.13. *Determination that no formal assessment required for Copper Handling Facility (2007)*

In a letter to the DCA dated 29 November 2007, the OEH determined that no formal assessment was required for a copper handling facility, stating that environmental sustainability matters had been addressed in the closed system design and EMP provided by the proponent. The only recommendation was that Oxiana's (now Oz Minerals) integrated management system facilitates continuous improvement.<sup>41</sup>

#### 1.1.14. *Development Permit for copper handling facility, DP07/0655 (2007)*

The permit was issued to Oxiana for the purpose of constructing a copper handling facility, in the form of a storage shed adjacent to the bulk loading mechanism at East

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<sup>38</sup> Letter Reply to request for copy of the OEMP from Mick Wilkes, Executive Director of Operations OZ minerals 2 August 2010.

<sup>39</sup> Email from DPC Environmental Officer to EPA (4 November 2010).

<sup>40</sup> As above.

<sup>41</sup> Letter 'Proposed Development – NTP 5987 General industry workshop for copper handling (East Arm)', to Development Consent Authority (29 November 2007) from Director of Environmental Assessment and Policy, Department of Natural Resources, Environment and the Arts.



Arm Wharf. Conditions of approval required an OEMP to be submitted and approved by the DCA on the advice of the OEH prior to the commencement of use.<sup>42</sup>

Specifically, the DCA provided that the OEMP was to include:

- overall environmental objectives and techniques for their achievement;
- procedures mitigating significant adverse environmental impacts;
- proposed monitoring systems;
- identification of possible risks and response measures to be implemented;
- day to day management requirements; and
- that the facility is designed as a closed system.<sup>43</sup>

Construction and operation was to be undertaken in accordance with the *NT Work Health Act* and *NT Dangerous Goods Act*, and a risk assessment was to be conducted prior to operating the facility.<sup>44</sup>

1.1.15. *Oxiana Operational Environmental Management Plan for the Concentrate Storage Facility (August 2008)*

The development permit under which this OEMP operates is specifically for the copper concentrate storage facility; however the scope of the OEMP extends to include loading operations at East Arm.<sup>45</sup>

DPC advised that they were not involved in the drafting or approval of this OEMP.

The OEMP addresses all of the requirements provided in the development permit above, and has been revised since approval was obtained in 2007. The OEMP includes specific detailed management plans for the following environmental aspects: air quality, spill response, waste management and water management. It also details the extent to which the storage facility operates as a 'closed system',<sup>46</sup> and adds that 'DPC is currently refining the structure of the conveyer to further minimise environmental impacts during its operation [and] this may include fully enclosing or semi-enclosing the shiploader and gallery'.<sup>47</sup>

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<sup>42</sup> DP07/0655, issued 12 December 2007 by the Development Consent Authority, Department of Lands and Planning.

<sup>43</sup> As above, p 2.

<sup>44</sup> As above, p 3.

<sup>45</sup> Prominent Hill Copper-Gold Project – Concentrate Storage Facility Operational Environmental Management Plan (August 2008), produced by Coffey Natural Systems Pty Ltd for Oxiana Prominent Hill Pty Ltd, see p 14.

<sup>46</sup> As above, p 16.

<sup>47</sup> As above, p 14.

## 1.2 Discussion and analysis

This section analyses and assesses the evidence obtained through the above documents and specifically considers any gaps, anomalies, and failures in the legislative processes facilitating the development of East Arm Wharf that contributed to the copper concentrate incidents.

### 1.2.1 *Report on Site Investigation and Testing for Bulk Cargo Facility Darwin East Arm*

As early as 1968, the Commonwealth Government had intentions for the site of East Arm to become a major national transport hub in the form of a deepwater port facility. The Site Investigation Report and the following Bulk Cargo Facility Conceptual Design indicate that the intention was primarily for the facility to be a bulk cargo facility, with iron ore envisaged as a key export, rather than a container port. This intention was revised when the construction of the Alice Springs to Darwin railway line was announced by the Federal Government, and it was realised that Darwin's port would necessarily need to cater primarily for container goods rather than bulk goods.

### 1.2.2 *Darwin Regional Land Use Structure Plan 1990*

The DRLUSP clearly sets the planning and development of the Darwin region with a new agenda, stating that 'Darwin has reached a stage...where major infrastructure elements are required'.<sup>48</sup> The Plan sets out the Government's intentions for land use in accordance with a vision to move Darwin in a new direction, with a focus on industrial expansion and development. Darwin Harbour was to have a prominent role in this transition, and plans for the Harbour included the 'development of a metropolis around a central industrial core'.<sup>49</sup> In real terms, the DRLUSP established the planning mechanisms that were essential for the realisation of the Government's plans for the major port facility at East Arm.

Environmental context is also discussed within the Plan and issues associated with the environmental assessment process of major developments raised. The DRLUSP comments that 'without the early and broadscale planning work, environmental assessment is too often reactionary and without the necessary time, baseline studies or comprehension of the cumulative impacts of continuing development'.<sup>50</sup> The environmental impact assessment legislation in place at the time was already eight years old. This comment indicates that there were certain failures in that system that had already been identified: a lack of long-term strategic planning, inadequate baseline data against which to measure project impacts, an inability to assess cumulative impact, and an often reactionary process, where the pressure to approve projects threatened to compromise the diligence with which the assessment process was carried out. The intention of the DRLUSP was to rectify these issues to a certain extent, particularly in the setting out of a long-term vision for the Darwin Region. Whilst this policy document achieves this broad, visionary objective, the administrative and on-the-ground processes and mechanisms in place to implement this vision failed to ensure these inadequacies were addressed at the appropriate implementation level.

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<sup>48</sup> *Darwin Regional Land Use Structure Plan* (1990), produced by the NT Department of Lands and Housing, p 5.

<sup>49</sup> As above.

<sup>50</sup> As above.

The *Environmental Assessment Act* was revised and redrafted in 1994, however the incident under review reveals that the majority of these issues were not addressed as part of that revision and have not been rectified in the current Act. This concept is explored further in the discussion that follows.

### 1.2.3 *East Arm Port Development Masterplan 1993*

Not unlike the DRLUSP, the East Arm Port Development Masterplan seeks to establish a long-term 'ultimate vision'<sup>51</sup> for the precinct of East Arm. The document highlights the government's aspiration to establish a world class deepwater port facility. The Masterplan highlights the role of the port with particular reference to the AustralAsia Railway, indicating that the intention had changed for the use of the port, from a bulk good port, to a container port. Throughout the Master Plan, the emphasis is clearly on the efficiency required of the facility in order to prove an advantageous competitor over other port facilities in the region.

Another issue highlighted in the Masterplan is that the plan is to be a flexible document.<sup>52</sup> Whilst three stages of the development are outlined, including Stage One which was to service existing trade requirements, Stage Two involving construction of the container port, and Stage Three potentially involving construction of a bulk export facility and ship loading conveyer facility, essentially Stage One was the only stage which could be planned with any certainty, as the subsequent stages required 'futuristic assumptions'<sup>53</sup> about the way in which and the timing within which the port's expansion would occur.

Released in 1993, the Masterplan was the first time that the NT Government had placed in the public domain their intentions for the East Arm port facility and the staged developments that would facilitate its completion. The announcement of the construction of the Alice Springs to Darwin railway provided the context for this release.

The Masterplan draws attention to the role and function of DPC in relation to the port and its facilities,<sup>54</sup> but does not mention the Corporations environmental responsibility for the East Arm site and the need for their management of port activities to be cognisant of environmental impact. Had this additional context for the operations of DPC been clarified at this planning stage, the operational agreements DPC signed in relation to the use of the Port may have included specific consideration for the mitigation of risks to environmental values.

### 1.2.4 *Darwin Port Expansion – East Arm Environmental Assessment*

The land use concept Master Plan for East Arm Peninsula released by the NT Government in 1993 provided a trade-centric vision for the future port. The Master Plan did not include consideration of the environmental values of the Harbour. The Draft EIS which followed similarly emphasised the significance of the role Darwin was

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<sup>51</sup> *East Arm Port Development Masterplan* (1993), prepared by GHD Consultants, p 2.

<sup>52</sup> As above, p 1.

<sup>53</sup> As above, p 2.

<sup>54</sup> As above, p 37.

to play in Australia's trade with the rapidly expanding Asia Pacific region.<sup>55</sup> The Draft EIS begins with a comment on the fulfilment of a long-term economic goal of the NT Government.<sup>56</sup>

One of the major issues identified by CCNT in the final Environmental Assessment Report regarding the development and operation of the new facilities at East Arm was 'planning and land use concepts for East Arm Peninsula, including environmental assessment and planning approvals for associated developments'. Whilst the *Environmental Assessment Act* still failed to cater for the consideration of cumulative impacts, the development was openly presented as a cumulative development.

The Draft EIS makes it clear that the study has been based on the ultimate vision of the port, rather than limiting consideration of specific impacts to Stage One. This was a crucial decision in the context of the approvals that were to follow. The Supplement states that in doing so, the proponent was attempting to pre-empt criticism for ignoring the long term port development proposals. The most severe and adverse implication of this decision was that all future development proposals at the port were able to rely upon this initial EIS study.

The EIS study was expected to consider any possible future uses falling within the Masterplan vision for a port facility. This broad scope for the environmental assessment was erroneous as it was not possible to foresee all future port-related uses likely to arise at East Arm. Failure to require, through the guidelines for the EIS, the reduction of the breadth of the project description, and consequent scope of the EIS, resulted in assumed approvals for work under the EIS at the Port for a number of years following. This broad EIA scope lessened the rigour of environmental scrutiny of the subsequent stages of development.

The *Environmental Assessment Act* contains a very broad definition of 'environment', encompassing both the natural and economic environment. The object of the Act makes it clear that to the greatest extent possible a balance is to be struck somewhere between the objective of economic growth and the objective of protecting natural values. The Environment Minister is tasked with providing advice; the approving Minister is tasked with taking that advice into account<sup>57</sup>. It is the opinion of the EPA that both tasks should have been more robustly facilitated by the quality of advice provided to both Ministers in relation to the EIS for East Arm.

The EIS study for the East Arm Development did not include an expiry or review date. Unlike in other jurisdictions in Australia, the development framework in the Northern Territory does not mandate review or specify the time period of an environmental impact study's validity or applicability. A broadly-termed EIA with no time limits could, in practice, legitimately be used to justify development in subsequent years that could fit within that broad scope.

Failure to specify a review or expiry date for the validity and application of the original EIA study meant that there was no trigger for a further assessment at transition from construction phase to operational phase for a variety of uses at the wharf occurring

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<sup>55</sup> *Darwin Port Expansion: East Arm – Draft Environmental Impact Statement* (1993), prepared by Acer Vaughan Consulting Environmental Engineers for NT Department of Transport and Works, p1.

<sup>56</sup> As above.

<sup>57</sup> Letter of response in consultation with EPA, from Dept Lands and Planning, Dr David Ritchie, Chief Executive, 2011

without further assessment, resulting in a series of staged approvals that led to the inappropriate management of the environmental risks associated with the open-air loading of copper concentrate.

This is not to suggest that a mechanism for revocation of environmental clearance is desirable but rather that a scheduled periodic review of development authorisations should occur to ensure that the approvals are still contextually adequate for the activities presently being undertaken at the site. Such a mechanism would have identified the change in use of the loader at the wharf and assisted in the prevention of the spill.

Not only was the EIA study expected to cover a potential twenty-year period of approvals to follow, it was suggested by CCNT in the final Environmental Assessment Report that the EIA study undertaken by the proponent could have been considerably more comprehensive. Environmental sampling, data collection and analysis were all identified by CCNT as areas that were covered only to a minimal extent and should have been addressed more thoroughly. The port expansion development proposal was of a significant scale, required substantial modification to existing conditions and should have demanded a more extensive assessment than the one that was conducted.

Whilst potential discharge of toxic materials was identified as a key risk in the operational phase of the port, with direct relevance for the copper concentrate spill, the only measure suggested to address this risk in the Draft EIS was 'proper management of port-related activities'.<sup>58</sup> It has been suggested by DLP that whilst the construction phase of the developments were undertaken in accordance with careful environmental management regimes, the operational phase was largely left up to DPC as the owner and operator of the port. Unfortunately, there appears to have been very little consideration of whether DPC was adequately placed or equipped, with reference to company environmental policies, practices, a mandate and/or qualified personnel, to ensure rigorous environmental management in the operational phase of activities approved for East Arm.

It is also noted by the EPA that public participation in the planning and development of the port has been severely lacking. The public were first given the opportunity to comment on the plans for East Arm with the finalisation of the Draft EIS in 1993. This involved a four week period (the minimum statutory time for a public consultation period) during which submissions were received. There is no evidence of proactive consultation with the general public. And so whilst there was superficially an opportunity for the public to be involved this was not facilitated through genuine engagement<sup>59</sup>.

#### 1.2.5 *East Arm Peninsula Port Land Use Planning Strategy and East Arm Development Control Plan 1998*

Whilst the vision for East Arm laid out in the Land Use Strategy states that 'all development will occur in accordance with best environmental management

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<sup>58</sup> As above, p 87.

<sup>59</sup> *Darwin Port Expansion: East Arm Supplement to Draft Environmental Impact Statement 1994*, prepared by Acer Vaughan Consulting Environmental Engineers for NT Department of Transport and Works, p. 12

practices',<sup>60</sup> this intention has not been realised. There was no legislative mechanism in place to give effect to the recommendations provided in the report.

The EPA also notes that in relation to the East Arm Development the consent authority was the Minister for Lands and Planning. The Minister was advised in relation to the exercise of this authority by the East Arm Development Group (EADG). All of the departments involved in the EADG have a strong development and/or commercial focus and the membership did not include any environmental expertise. The EPA suggests that this composition for the main advisory and decision making group for the precinct facilitated significant potential for natural values and environmental impact to be overlooked during decision making regarding land use at East Arm. The EPA further suggests that this potential was realised.

1.2.6 *Development Permit for services, hardstand and buildings/Development Permit for the use of a container terminal*

Neither of the first two development permits issued for East Arm required an EMP as a condition of approval. Presumably, the recommendations made in the original EIS report were relied upon, as both permits were issued to the same proponent, DTWs. The second permit for a container terminal highlights the intention of East Arm Wharf as a container facility, and also explains the strategic commercial context of East Arm, as a major transport link in the AustralAsia Railway operation. This also suggests there was significant economic incentive to approve such uses and development at the port. The permits were issued in a context where Darwin was attempting to establish itself as a major international port facility for trade links between Australia and Asia.

1.2.7 *Darwin Harbour Strategic Plan for Beneficial Uses*

This Strategic Plan marks the first time the NT Government actively sought to engage with the Darwin community on the values the public associated with the Harbour. This engagement process was first initiated in 1996, after the completion of so many critical documents and plans for the development at East Arm. It is suggested that this consultation was far too late in the planning process for the public to have any meaningful involvement in decisions regarding the use of the Harbour. The activities had great potential to harm the community-based values of and aspirations for the Harbour and should have required careful management and meaningful consultation to ensure the protection of those values.

1.2.8 *Determination no formal assessment required for Bulk Export Facility/Development Permit for Bulk Export Facility/DPC's OEMP*

The bulk export facility essentially introduced a new use at the port, where bulk mineral goods would be exported out of East Arm to Asia. The previous assessment had looked at container transport. Whilst the OEHL made a number of specific observations and recommendations regarding environmental management at the port in the context of the new use, their final determination was that formal assessment was not required. The reasons supporting this decision are not apparent from records obtained. Records do confirm that strong recommendations regarding the need for controls to minimise environmental risk were provided instead by OEHL in a memorandum to the Environment Minister relating to the determination.

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<sup>60</sup> *East Arm Peninsula Port Planning Land Use Strategy* (1998), prepared by the NT East Arm Development Group, p 14.

The EPA notes with concern that the advice and recommendations of the OEH to the Minister and DCA have no real statutory weight. There was and still is no obligation upon the Consent authority to implement the OEH's recommendations as conditions of approval. Even where conditions are imposed, and there is a subsequent breach, a direction to remedy and then failure to comply, the only real course of redress is the extreme one of revocation of the development consent. This lack of enforcement options means that in many circumstances non compliance is not penalised. Unlike other jurisdictions, the *Planning Act* does not provide that a development approved can only proceed in accordance with the development permit and conditions. Having made that observation it is important to note that in the current instance, the advice and recommendations were not made conditions of the permit in any case and, consequently, it was not mandated that the DPC's operational environmental management plan for the bulk export facility include measures to address the concerns raised.

The EPA suggests that this anomaly should be addressed through the government's current review of environmental legislation but notes that there must be an opportunity for the proponent or consent authority to test the veracity of the recommendations and reject them with reason as part of the consent process.

Whilst the bulk export facility OEMP states that amendments and variations are likely to be required in the course of operations (such as where the export of bulk materials other than manganese ore is proposed), and these are to be in the form of supplements to the existing plan, as the loader had already obtained development consent, there was no requirement that those supplements be subject to the approval of the OEH, or even be reviewed by the OEH prior to loading of that new mineral commencing, and in fact no real trigger for the preparation of supplements existed. The EPA was advised by DPC that although they were not involved in the preparation or authorisation of the Oz minerals 2008 OEMP they did consider that this was a supplement to their own original OEMP for the operation of the bulk loader.

#### 1.2.9 *Determination no formal assessment required for Copper Handling Facility/Development Permit for copper handling facility*

The proposal for a copper handling facility at the port indicated that this would be the first time copper concentrate would be transported to East Arm via rail and the first occasion on which the NTG could showcase the new export pathway to Asia created by the visionary combination of interstate rail transport and the new wharf. To all intents and purposes this was a proof of concept proposal.

An investigation and options report conducted by the designers of the bulk loading facility (dated January 2010) states clearly that the loader had not been designed for copper concentrate.<sup>61</sup> However, the Oxiana application related to storage shed infrastructure, not the intended use of the bulk loading facility. The loader had already been through an approval and was in operation, the scope of the assessment now before the OEH was limited to considering the storage facility for the concentrate only. There was no opportunity provided for assessment of whether the loading facility was appropriate for the concentrate, or for extra controls to be mandated to mitigate the environmental risks the loading of copper concentrate introduced at East Arm.

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<sup>61</sup> *Darwin Shiploader Dust Control: Investigation and Options Report* (28 January 2010), prepared by Scientists, Engineers, Managers and Facilitators (SEMF) for Darwin Port Corporation, p 2.

In addition to this, the bulk loading facility was owned and situated on land owned by DPC. As the copper handling proposal was submitted by Oz Minerals (then Oxiana), the OEHL were unable to use the opportunity to impose further environmental management conditions upon DPC for use of the loader. This was a critical gap in the process.

Ideally the change in product should have formed the basis for a further consideration of the use of the loader under the Planning Act but the Planning Act does not contain any such obligation. What stands as fact is that the authorised existing uses of the loader were specifically for the loading of manganese ore and iron ore and the loader owned by DPC and situated on DPC owned land was now being used to load copper concentrate without any additional precautionary requirements.

## **1.3 Findings**

The above analysis highlighted a number of systemic issues in the legislative frameworks and processes facilitating development at East Arm. These issues are:

### **1.3.1 Poor integration between environmental protection regimes and planning and land use processes.**

- There is no statutory obligation on the Consent Authority (in this case Minister for Lands and Planning) to implement the recommendations made by the Environmental Assessment agency.
- This lack of statutory obligation has resulted in the consent authorities not including environmental requirements or standards in the conditions of development permits and has resulted in unmanaged risks to the natural values of Darwin Harbour.
- The legislation under which the Environmental Assessment agency operates does not provide statutory authority for the agency to enforce or monitor environmental management recommendations made during the assessment process.
- Where the Consent Authority does include permit conditions that specify the need for a Construction Environmental Management Plan or an Operational Environmental Management Plan, approval of these plans, and consequently the development approval issued by the Authority is not premised on, and can legally proceed without, the approval of the plan by the Environmental Assessment agency.

### **1.3.2 A failure by the legislative planning and development processes to capture and assess cumulative impacts and significant land use changes.**

- The scope of the development proposal to 'expand the port of Darwin to East Arm in Darwin Harbour' was not suitably specific to allow future environmental risks to be adequately identified or planned for by application of the traditional environmental impact statement methodology as undertaken in the Northern Territory. This issue and concern was raised by CCNT in the final Environmental Assessment Report, however it was not revisited or considered in the granting of the staged development approvals that followed.



- There was no legal requirement for a periodic review of the EIA study to ensure contextual relevance and environmental legitimacy of the activities generated by the development and authorised in accordance with the original EIA.
- The Darwin Port Expansion – East Arm Environmental Assessment Report acknowledges that the development was to occur in stages, where demand would dictate when the next stage was initiated and constructed. *The Planning Act* and *Environmental Assessment Act* do not provide for progressive or staged assessments of concept-driven development proposals. Other Australian jurisdictions treat staged developments as a separate and distinct category of development under the relevant legislation, and require subsequent detailed approval for each stage of the development proposed as part of an overall concept plan.

### **1.3.3 The prevailing commercial pressure under which the Darwin Port Corporation carries out its activities.**

- Under its establishing legislation and the charter established by its Board, DPC is required to act in a commercial manner, with functions largely focussed on regulating commercial shipping and promoting trade utilising the port. DPC state that NRETAS has the primary enforcement role under the Waste Management and Pollution Control Act and point out that they do not have statutory powers under the Darwin Port Corporation Act to specifically enforce environmental objectives against users of the port. Further, DPC state that every user of the port has a role to play in the management of the environment at the port. DPC's performance measures in relation to the environment are related to minimising the risk that they will incur commercial liability for the consequences of a realised risk. This is not unlike any other commercial enterprise and it is a justifiable position in a purely commercial context. However, the public's expectation of DPC is that they are a government entity and therefore have an overarching responsibility to act in the public interest. Accordingly, incidents such as this raise an emotional response and result in allegations of betrayal of this interest from the public and the media.
- As the managing authority for commercial shipping in Darwin Harbour, DPC has a significant role to play in the regulation of activities with the greatest potential for adverse environmental impact on the Harbour. This role has created conflict with its commercial imperatives as a government-owned corporation created to promote trade development. Environmental objectives are largely absent from DPC's legislation and charter documents and consequently commercial considerations are given precedence over all others in decision-making. DPC report that they would welcome the declaration of sustainable environmental management objectives for the Harbour by the NT environment agency and would manage their business in line with such objectives. The distinction they make is that they are not the enforcement agency for such objectives other than in a role of ensuring commercial shipping does not result in the objectives being breached. The current incident under consideration demonstrates this through the confusion over environmental responsibilities in relation to the use of the loader and the fact that DPC and OZ minerals were in effect operating under different OEMPs at the time of the incident.
- There is a serious disconnection between the way in which DPC view themselves and how they are viewed by the public. This can only be resolved by the articulation of a clear governance regime for Darwin Harbour and the

overt articulation and funding of management of the Harbour as an environmental as well as commercial asset.

#### **1.3.4 The current decision making paradigm and public participation.**

- In setting aside the area at East Arm for the development of the Port, the NT Government has exercised its imperative to provide a strategic context for future land development. The practical, on-the-ground implementation of that strategic context is, however, a matter for the administrative arm of government to progress. This administrative phase of planning is the point at which appropriate use and mitigation of risks occurs and it is the point at which there have been some systemic failings in relation to East Arm.
- This lack of transparency and public participation has created a significant deficit of public faith in the Government's ability to manage land use planning for the Harbour, and has resulted in a culture of suspicion surrounding development approvals associated with the Harbour. It is acknowledged that the new planning paradigm being pursued by the current Department of Lands and Planning has the potential to be an important step towards re-establishing public faith in the land use administration and development approvals system.
- The publics' and the planning administrators' understanding of the role the environmental assessment process plays in development approval in the Northern Territory, are not the same. This disjunct will result in continued controversy around development decisions.

## TERM OF REFERENCE 4

Review existing triggers, criteria and practices in place for environmental incidents (critical incident response), including:

- 4 (a) Triggers for reporting of the copper concentrate incidents at East Arm Wharf;
- 4 (b) Capacity to assess, quantify and minimise or control damage;
- 4 (c) Guidance from regulators currently available; and
- 4 (d) Future needs of relevant stakeholders to achieve prevention, control and effective reporting, assessment, feedback and enforcement.

### 4.1 Review of Evidence

In undertaking this inquiry into the copper concentrate incidents at East Arm Wharf, the triggers, criteria and practices in place for environmental incidents, specifically at East Arm, included legislative triggers, triggers established under DPC policies and procedures, and triggers under Oz Mineral's EMP and other policies and procedures. These are reviewed below.

#### 4.1(a) Triggers for reporting of the copper concentrate incidents at East Arm Wharf

##### (i) Legislative triggers

###### *Waste Management and Pollution Control Act*

Section 14 of the WMPC Act requires a person conducting an activity where an incident causing or threatening to cause pollution resulting in environmental harm occurs, to notify the Administering Agency (NRETAS) within 24 hours of becoming aware of the incident. Penalties apply for failure to report. 'Incident' is defined to mean an accident, emergency or malfunction, or a deliberate action.<sup>62</sup>

Despite the legal obligation to report incidents, any information included in such a report is not admissible as evidence in any proceedings before a court, except for an offence under this section.<sup>63</sup>

###### *Marine Pollution Act*

Section 50 of the *Marine Pollution Act* requires a ship's master, without delay, to notify an authorised officer of a reportable incident in accordance with the Regulations. The obligation then falls to the ship's owner or the owner's agent, where the ship's master is unable to comply.

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<sup>62</sup> Section 14(5), *Waste Management and Pollution Control Act*.

<sup>63</sup> Section 14(6), *Waste Management and Pollution Control Act*.

'Reportable incident' is defined to mean:

- a) a discharge or probable discharge from a ship of oil or a noxious liquid substance; or
- b) the jettisoning from a ship of a harmful substance that is carried in packaged form, if the discharge or jettisoning occurs while the ship is in coastal waters (within 3 nautical miles of the NT coast).<sup>64</sup>

Section 17 creates a requirement for oil tankers and other large ships to implement an approved shipboard oil pollution emergency plan.

#### *Port By-Laws*

Section 62(3) of the Port By-Laws provides that where any cargo, ballast, ashes or other material falls into an area of a port from a vessel, the master or other person in charge of the vessel or, in any case the owner, must notify the Harbourmaster within 12 hours of the occurrence, and remove the material, disposing of it to the satisfaction of the Harbourmaster. There is no penalty, however, for failure to comply with this provision.

#### *Darwin Port (Handling and Transport of Dangerous Cargoes) By-Laws*

These By-Laws provide for the adoption of Australian Standard AS 3846-2005, which contains a number of reporting triggers for the handling and transport of dangerous cargoes in ports. Triggers include a requirement that port authorities are notified of dangerous cargo shipments approaching the port; and recommendations that emergency response procedures are implemented at ports to prevent possible hazards to human safety and/or the marine environment. The Australian Standards seek to achieve best practice management through the provision of guidelines and standards only. There are no penalties for failure to implement the measures proposed.

#### **(ii) Triggers under Darwin Port Corporation's plans, policies and procedures**

At the time of the incident, DPC understood their operations involving the bulk mineral loader were subject to two separate environmental management plans: the overarching DPC Environmental Management System (EMS)<sup>65</sup> and the DPC East Arm Bulk Export Facility OEMP.<sup>66</sup> The EMS does not address triggers for environmental incident response in any way, and does not address the activities of DPC's clients.

The DPC Bulk Export Facility OEMP provides a number of trigger mechanisms for environmental incident response. Whilst the OEMP is specific to manganese ore operations only, the plan demonstrates the implementation of policies and procedures for mineral product spills and acknowledges that the plan will require revision at the point at which other minerals are loaded at the port.<sup>67</sup> These mechanisms are:

Section 3.2- Environmental Incident Notification requires all environmental incidents to be reported by the OMM Employees or contractors to the OMM manager of commercial operations within 24 hours of the incident occurring, via email or fax. The OMM Commercial manager will:

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<sup>64</sup> Section 50, *Marine Pollution Act*.

<sup>65</sup> Darwin Port Corporation, *Environmental Management System Manual* (September 2003).

<sup>66</sup> Darwin Port Corporation, *East Arm Bulk Export Facility (OM Manganese Project) Operational Environmental Management Plan* (2007).

<sup>67</sup> As above, p 5.

- in the event of a significant spill or emission situation, notify the pollution Hotline as soon as practicable after notification and instigate appropriate Emergency procedures;
- in the event of a significant spill or emission situation, OMM will notify the DPC environmental Officer within 24 hours of the incident occurring ;
- assess appropriateness and effectiveness of the action(s) undertaken and OEMP performance.
- Notify the DPC of all environmental incidents within 72 hours of the incident occurring; and
- Record all environmental incidents, including actions undertaken in the appropriate register.<sup>68</sup>

**(iii) Triggers under Oz Minerals' Environmental Management Plans, policies and procedures**

At the time of the incident Oxiana believed they were operating under Oxiana's (now Oz Minerals) Operational Environmental Management Plan (OEMP) for the copper concentrate storage facility. This document contains a number of triggers regarding environmental incident response. These are:

Section 6.4.1 Environmental Incidents and Non-Conformance Reporting, provides that Oxiana will, in the event of a significant environmental incident (ie, an incident with the potential to cause material environmental harm):

- Notify the NT Pollution Hotline as soon as practicable after the incident is detected and instigate the appropriate Emergency Response Plan procedures;
- Notify the DPC Environmental Officer within 24 hours of the incident occurring;
- Assess the appropriateness and effectiveness of the actions undertaken and the OEMP performance.

In the event of a minor environmental incident, the OEMP provides that Oxiana or their delegate will:

- Notify the DPC within 72 hours of the incident occurring; and
- Record all environmental incidents, including actions undertaken in the appropriate register.<sup>69</sup>

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<sup>68</sup> As above, p 8.

<sup>69</sup> Oxiana Limited, *Prominent Hill Copper-Gold Project – Concentrate Storage Facility Operations Environmental Management Plan* (August 2008), p 34.

Section 6.4.4 Routine Reporting to NRETA and DPC, provides that Oxiana will provide the EHA Division of NRETA and DPC with an annual Environmental Summary Report, containing details of environmental incidents.<sup>70</sup>

The OEMP's Spill Response Plan repeats the reporting commitments of section 6.4.1, for environmental incidents, and states that a representative of company Giacci (stevedores) will be superintendent on behalf of Oxiana with this person's contact details being made available to all relevant authorities.<sup>71</sup>

#### **4.1(b) Capacity to assess, quantify and minimise or control damage**

Evidence relevant to the capacity of stakeholders and systems operating at East Arm to deal with environmental incidents and the associated environmental harm is provided below, and includes environmental incident or spill response plans, and risk assessments regarding the use and operation of the loading facility.

(i) *Oxiana Concentrate Storage Facility Operational Environmental Management Plan: Spill Response Plan*

The plan acknowledges the potential for copper concentrate to spill during handling and loading operations, and states that its purpose is to 'outline the correct procedure for controlling and recovering concentrate and hydrocarbon spills at the Concentrate Storage Facility, to ensure conformance with the Northern Territory legislative requirements and Oxiana Corporate Standards.'

The plan sets a number of environmental objectives relevant to this end, and outlines the spill response procedure, involving spill assessment, control, contain, and clean up measures. Hydrocarbon spills and copper concentrate spills are treated individually, and general clean up procedures have also been provided.<sup>72</sup>

(ii) *Darwin Port Corporation Bulk Export Facility (OM Manganese Project) Operational Environmental Management Plan (2007)*

Section 3 Preventative and Corrective Action of the OEMP addresses the procedures for environmental incidents involving the spill of **manganese ore**. The section states that OMM will be responsible for their operations at East Arm Wharf which may be conducted by a contractor acting on their behalf. In addition they are responsible for conformance monitoring. It does not contain procedures for the clean up of spilt copper concentrate.

(iii) *Darwin Port Corporation Environmental Management System*

This multiple-site document identifies environmental risks and includes an assessment of those risks for all of the sites managed by DPC. The document was drafted and finalised in September 2003, prior to copper concentrate activities commencing at the wharf. For the wharf hardstand areas at East Arm Wharf Precinct, risks identified included:

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<sup>70</sup> As above.

<sup>71</sup> As above, Attachment B.

<sup>72</sup> Oxiana Limited, *Prominent Hill Copper-Gold Project – Concentrate Storage Facility Operations Environmental Management Plan* (August 2008), Attachment B.

- Contamination of waterway and sediments from uncontrolled runoff and inappropriate storage of materials, resulting in spills or leaks;
- The generation of dusts, mists or sprays during loading operations, resulting in the degradation of local air quality and a decrease in amenity;
- Cargoes, products or waste being spilt onto wharf hardstands where they can enter the waterway or be exposed to uncontrolled stormwater flows.<sup>73</sup>

These risks were assessed and found to be of a significant class of risk. Measures to address these risks were then proposed to address these risks.

(iv) *Bulk Loader Review: Qualitative Risk Assessment – Human Health and Environmental Risk (SKM report)*

This report was commissioned by DPC to ‘assess the suitability of the existing infrastructure to handle copper concentrate, with an emphasis on the potential risk posed to human health and environmental receptors from fugitive dust emissions.’<sup>74</sup> It was conducted on 17 April 2009 concurrently with the Bulk Materials Handling Inspection (detailed below). Human health implications have not been addressed in this EPA review. DPC state that the reports by SKM were prepared prior to the commencement of copper concentrate loading.

The QRA identified the following risks to ecological receptors (summarised):

- Copper concentrate material involves concentrations of copper, lead, arsenic, iron, aluminium, sulphur, uranium and silica;
- Spillage and fugitive dust emissions from the loader provide numerous potential sources of fugitive dust emissions to the wider ecological receiving environments, including deposition onsite and offsite in the receiving marine environment;
- Spillage to ground and the absence of stormwater and washdown water treatment and control, provide numerous potential sources of migration and deposition of copper concentrate to the receiving marine and terrestrial environments;
- The marine receiving environment is a high value ecological receptor both in terms of its ecological values and social values to the wider Darwin community.<sup>75</sup>

The report concludes that there is ‘significant risk to the DPC in operating the existing [bulk material handling facility] to handle and export copper concentrate without

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<sup>73</sup> Darwin Port Corporation, *Environmental Management System Manual* (September 2003), Section ‘Environmental Management Programme East Arm Wharf Precinct’, p 2.

<sup>74</sup> *Bulk Loader Review Darwin Port Corporation Ship Loader and Bulk Materials Handling Review: Qualitative Risk Assessment* (17 April 2009), prepared by Sinclair Knight Merz, p 1.

<sup>75</sup> As above, p 1-2.

significant modification to mitigate fugitive dust emissions, control product spillage during loading and capture and treat stormwater runoff.<sup>76</sup>

In response to the risks identified, a number of recommendations were made, including that an EMP for the shipment of copper concentrate be developed based on the findings and that the EMP should be implemented at the earliest opportunity, along with a monitoring program.<sup>77</sup> DPC state that they implemented all practicable measures in conjunction with Oz Mineral and in accordance with advice from SKM.

(vii) *Bulk Loader Review: Bulk Materials Handling Inspection (SKM report)*

This report was commissioned by DPC and carried out simultaneously with the above SKM report on 17 April 2009. It was to identify potential sources for and management of fugitive dust emissions.<sup>78</sup>

Following a site inspection, the report found that the infrastructure possesses multiple potential sources of emissions of copper concentrate to the environment. Potential sources included conveyer spillage (including product loss to ground, water and stormwater contamination) and fugitive dust emissions. The report also found that there were minimal controls in place for managing spillage from the three conveyers at the facility, and that failure to implement controls could result in significant environmental risk and potential liability for DPC.

A three-staged management and mitigation approach was recommended in response to the risks identified, involving short-term, medium-term and long-term modifications to the conveyer loading system.<sup>79</sup>

(viii) *DPC Emergency Procedures*

The *DPC Emergency Procedures* were attached as an appendix to the 2006 OEMP for the OM Manganese Ore operations at East Arm. But when the OEMP was resubmitted in 2007 and was subsequently approved by the Environment Department the Emergency Procedures were not attached as an appendix. However, the plan did still require that OMM familiarise themselves with the Procedures. The DPC Emergency procedures remained in place as a stand alone document until they were recently revised and rewritten (2010). The version in place at the time of the incident was the 2006 version titled, '*Emergency Procedures and Work Instructions for Dangerous Cargoes*', (dated 2005/2006) and relevant provisions of that document are provided below. The DPC Emergency Procedures are provided as Appendix B in this report.

- 'Emergency' is defined within the procedures to include: spills or leaks of substances likely to cause harm to the environment.<sup>80</sup>

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<sup>76</sup> As above, p 2.

<sup>77</sup> As above.

<sup>78</sup> *Darwin Port Corporation Bulk Loader Review: Bulk Materials Handling Inspection* (17 April 2009), prepared by Sinclair Knight Merz, p iv.

<sup>79</sup> As above, p 5.

<sup>80</sup> Darwin Port Corporation, *Emergency Procedures and Work Instructions for Dangerous Cargoes* (2005-6), p iv.



- The procedures identify the major threats to Darwin Harbour, including natural and man made threats. Man made threats identified include incident loading/unloading at all berths, and hazardous materials incidents.<sup>81</sup>
- Six steps to Emergency Response are outlined, including an assessment of the situation where a number of questions are to be posed. One of these questions considers what is at risk – people, property or the environment?<sup>82</sup>
- The East Arm Wharf Facility Emergency Response Plan, contained within the Emergency Procedures provides in Section 1.1 that prevention of an incident is achieved by ensuring that:
  - Engineering design and construction is carried out to mitigate the risk of incidents.
  - Operating procedures are designed and implemented in accordance with safety specifications.
  - All logistical and support operations, including the handling and storage of hazardous substances are carried out to safety specifications.<sup>83</sup>
- The plan outlines the responsibilities for initial response (the stevedore), situation assessment, declaration of the emergency evacuation level, deployment of resources and assistance from external companies and emergency authorities.<sup>84</sup>
- Section 1.5 Training provides that all personnel who are involved in the plan will require training and assessment to ensure that the overall objectives are met.<sup>85</sup>
- Section 4.1 Notification provides that an emergency incident will be reported immediately to the Stevedore by the site radio or mobile phone. This notification will come from personnel, contractors or visitors at the Port Facility.<sup>86</sup>
- A number of procedures for the safe handling and use of a number of hazardous substances is provided within the plan, however as the plan predates the use of copper concentrate at East Arm, copper concentrate is not referred to anywhere within the plan.<sup>87</sup>
- Following the plan is a number of appendices that provide more detailed and specific procedures for certain emergency situations. The spillage of cargo

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<sup>81</sup> As above, p 3.

<sup>82</sup> As above, p 11.

<sup>83</sup> As above, p 20.

<sup>84</sup> As above, p 24-5.

<sup>85</sup> As above, p 20.

<sup>86</sup> As above, p 21.

<sup>87</sup> As above, p 27-36.

materials or hazardous substances is not addressed by any of these specific plans.<sup>88</sup>

#### **4.1(c) Guidance from regulators currently available**

Guidance provided by regulators that is currently made available to Darwin Port Corporation and/or operators at East Arm is predominantly through the environmental assessment process.

There are three environmental assessment decisions relevant to the East Arm incident, which were intended to guide the way in which development took place to mitigate and control the potential for environmental incident events. The recommendations provided by the regulators through these environmental assessment procedures are outlined below.

(i) *Darwin Port Expansion – East Arm: Environmental Assessment Report and Recommendations*

A total of 17 recommendations were made by the Conservation Commission NT (CCNT), following the undertaking of a formal environmental impact assessment process by the proponent. These recommendations were provided in the final *Environmental Assessment Report*.<sup>89</sup> CCNT, or the greater NT Government Environment Department it was a part of, also held the role of regulator under the relevant pollution legislation where environmental harm was caused.

The recommendations providing guidance to the proponent (Darwin Port Corporation) and relevant to the copper concentrate incident include:

*Recommendation 2*

The proponent shall consult with a Project Environmental Control Group convened by the Conservation Commission to facilitate

- implementation of environmental safeguards indicated in the recommendations of this Environmental Assessment Report and in the undertakings included in the EIS;
- preparation, implementation and review of modelling and monitoring programmes; and
- consequential response mechanisms and actions,
- during the construction and early operational stages of the project.<sup>90</sup>

*Recommendation 5*

The proponent shall determine the optimum conditions for treatment and release of decant water to minimise sediment plumes and turbidity.<sup>91</sup>

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<sup>88</sup> As above, p 37.

<sup>89</sup> *Darwin Port Expansion – East Arm: Environmental Assessment Report & Recommendations* (February 1994), produced by the Conservation Commission NT.

<sup>90</sup> As above, p III.

*Recommendation 7*

The proponent shall implement a management plan for erosion, sedimentation and turbidity, prepared in consultation with the PEC Group.<sup>92</sup>

*Recommendation 9*

The proponent shall consult with the PEC Group to develop and implement a plan for the management of stormwater and surface runoff that includes:

- justification for siting outlets from drains to minimise adverse impacts on marine biota; and
- design of drains, traps and separators to treat sediment-laden or contaminated water before release, and a contingency plan for disposal of water requiring treatment off-site.<sup>93</sup>

*Recommendation 10*

The proponent shall consult with the PEC Group to develop and implement a monitoring programme for waste loads from the port, including:

- identification of substances to be analysed;
- identification of threshold concentrations in runoff or in East Arm that will trigger a remedial response; and
- description of responses to prevent further discharge or to mitigate impacts on marine biota should complete cessation of discharge not be possible.<sup>94</sup>

*Recommendation 15*

Before the port becomes operational and begins to service vessels, the proponent shall ensure that...a site specific contingency plan for spills of oil and other hazardous substances is prepared and in place.<sup>95</sup>

(ii) *Determination regarding DPC's Notice of Intent for a Proposed Bulk Export Facility, East Arm Wharf*

In March 2005, the then Department of Natural Resources, Environment and the Arts determined that no formal assessment would be required for DPC's proposal to construct and operate a bulk export facility at East Arm.<sup>96</sup>

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<sup>91</sup> As above.

<sup>92</sup> As above, p IV.

<sup>93</sup> As above.

<sup>94</sup> As above, p IV-V.

<sup>95</sup> As above, p V-VI.

<sup>96</sup> Memorandum to the Acting Minister for the Environment and Heritage from Executive Director, Environment and Heritage Department (14 March 2005).

Accompanying this determination were the following comments and recommendations (relevant to the copper concentrate incident) regarding the development:

- an EMP is required to ensure that soil conservation, sediment control and weed management are appropriately addressed;
- the potential generation of dust is a major issue of the proposal, and dust suppression and monitoring measures should be incorporated into an EMP;
- the importance of management measures addressing the control of sediment and erosion of the site, as well as control of potentially contaminated runoff into Darwin Harbour is stressed.<sup>97</sup>

The corresponding development permit issued by the DCA enforced the requirement (as a condition of approval) for the proponent to submit and operate under an EMP.<sup>98</sup>

(iii) *Determination regarding Oz Minerals' Notice of Intent for a General Industry Workshop for Copper Handling, East Arm Wharf*

In November 2007, the Environmental Assessment and Policy division of NRETA determined that no formal assessment would be required for the proposal from Oz Minerals for a general industry workshop for copper handling at East Arm.<sup>99</sup>

Guidance provided by Environmental Assessment and Policy had little relevance to environmental incident response. The only recommendation was that 'Oxiana's [now Oz Minerals] integrated management system should facilitate continuous improvement'<sup>100</sup>. An EMP for the project had been submitted by the proponent as part of the development application and satisfied the Environmental Assessment division that environmental issues had been adequately addressed.

Again, the DCA enforced a requirement that the proponent carry out the development and operate in accordance with an EMP.<sup>101</sup>

#### **4.1(d) Future needs for relevant stakeholders to achieve prevention, control and effective reporting, assessment, feedback and enforcement**

The future needs for relevant stakeholders at East Arm are highlighted by the Darwin Port Corporation's East Arm Wharf Facilities Masterplan 2030 ('Masterplan 2030'). The discussion and analysis in the following section considers all of the evidence gathered by the EPA and what measures will need to be implemented in order to achieve prevention, control and effective reporting, assessment, feedback and enforcement.

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<sup>97</sup> As above, p 2-3.

<sup>98</sup> Development Permit DP05/0089 (18 April 2005).

<sup>99</sup> Letter to Chairman of the Development Consent Authority from the Director of Environmental Assessment and Policy (29 November 2007).

<sup>100</sup> As above.

<sup>101</sup> Development Permit DP07/0655 (12 December 2007).

Masterplan 2030 displays the 'ultimate development of East Arm Wharf',<sup>102</sup> showing staged developments over the next twenty years. The future needs of East Arm Wharf as a facility regarding similar environmental incident events will be influenced and affected by the following factors:

- The reclamation of a significant amount of land in order to provide for significant expansions in facilities.<sup>103</sup>
- Bulk exports and cargo volumes being transported to the port by road and rail are to increase, leading to the development of additional rail loops, a rail marshalling yard and rail overpass infrastructure, and an alternative main access road to the port.<sup>104</sup>
- Increases in bulk mineral export loads and volumes will create a need for greater capacity at the port for storage space, shiploaders and berth space inside the port.<sup>105</sup>
- Space for traditional trades, such as cattle exports, rig tenders, containerised general cargo and vehicle storage areas will also need to expand due to the competing pressure for space of bulk mineral exports.<sup>106</sup>
- Forecasts indicating strong growth in offshore oil and gas rig services have led to considerable interest in and pressure for the development of a Marine Supply Base in Darwin to service offshore exploration development and operations.<sup>107</sup>
- Masterplan 2030 provides consideration of the port's capacity to handle ships larger than Panamax size, and dredging activities that would be associated with this expansion.<sup>108</sup>

Masterplan 2030 also identifies a number of market sectors utilising the port, which assist in understanding the stakeholders who may have future responsibilities regarding environmental management at the port. Stakeholders are likely to include the following industry and other groups:

- Container and general cargo
- Motor vehicle
- Livestock
- Dry bulk mineral
- Liquid bulk (petroleum products, acid, methanol)

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<sup>102</sup> Darwin Port Corporation, *East Arm Wharf Facilities Masterplan 2030: Land Use Report*, prepared by GHD, p 4.

<sup>103</sup> As above, p 28.

<sup>104</sup> As above, p 6.

<sup>105</sup> As above.

<sup>106</sup> As above.

<sup>107</sup> As above, p 7.

<sup>108</sup> As above.

- Offshore oil and gas rig services
- Naval (Defence)
- Seafoods (fishing and prawning)
- Pearling
- Ferry (local passengers)
- Customs/security (including patrols)
- Recreational (including charters)
- Port operational support (towage line launches, oil spill response and pilots)<sup>109</sup>

## 4.2 Discussion and analysis

### 4.2(a) Triggers for reporting of the copper concentrate incidents at East Arm Wharf

Legislative triggers for reporting of environmental incidents at East Arm are limited in their application. Provisions under the *Marine Pollution Act* and the Port By-Laws primarily operate in situations where an incident involves a pollutant being discharged directly off a vessel. Whilst the *Marine Pollution Act* does establish an offence where a pollutant is discharged into coastal waters during transfer operations (such as loading),<sup>110</sup> the offence is only applicable where the shipmaster's fault can be established, and it is a defence if the incident was the result of a fault in the transfer apparatus, that is, the loading facility.<sup>111</sup>

As the reporting obligations under that Act apply only to an incident, where 'incident' involves the discharge of oil or other noxious liquid substance, or a harmful substance in a packaged form, the copper concentrate incident could not compel statutory notification under this legislation.<sup>112</sup>

The *Waste Management and Pollution Control Act* requires that a person conducting an activity where environmental harm occurs or is likely to occur must notify NRETAS within 24 hours of becoming aware of the incident,<sup>113</sup> NRETAS has confirmed they did not receive a report in relation to the incident that is the subject of this report.

The EPA observes that there were also reporting triggers and procedures under the DPC EMP for the bulk loading facility.

In considering why existing triggers were not employed and unable to be effective in notifying the relevant authorities of the incidents, there are three key issues to be highlighted: i) a lack of clarity regarding what constitutes an incident; ii) a lack of clarity or overlap regarding who

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<sup>109</sup> As above, p 10.

<sup>110</sup> Section 43, *Marine Pollution Act*.

<sup>111</sup> Section 44(b), *Marine Pollution Act*.

<sup>112</sup> Section 50, *Marine Pollution Act*.

<sup>113</sup> Section 14, *Waste Management & Pollution Control Act*.

has responsibility for reporting such incidents, and iii) an absence of the use of reporting triggers as standard and common practice.

It is the environmental incident procedure established by Oz Minerals' OEMP that has direct relevance and application in relation to the copper concentrate incidents. Whilst the OEMP creates two separate procedures for 'significant environmental incidents' and 'minor environmental incidents',<sup>114</sup> the plan fails to define or provide any criteria regarding when an event will be sufficient to trigger the reporting procedures. Additionally, it is not Oz Minerals, but the company's delegate, company Giacci Bros, who is responsible for reporting incidents. The EPA is not aware of the training provided to the Giacci representative regarding their incident-reporting obligations and how they are to determine whether an incident triggers the procedures. An Oz Minerals' representative has only more recently been present on site at East Arm during loading of copper concentrate. As a South Australian-based company, Oz Minerals delegated management of the shipping and loading operations at the port in its entirety to Giacci Bros.

Whilst the DPC East Arm Bulk Export Facility OEMP was approved in accordance with the development permit issued to DPC for the bulk loading facility, the OEMP considers the use of the loader for manganese ore operations only. For this reason, under the OEMP Environmental Incident Notification section, the Manager Commercial operations of company OMM (the manganese ore operator) is assigned primary responsibility for reporting incidents regarding the loader to the regulator.<sup>115</sup>

Whilst the OEMP demonstrates a formalised structure and procedure to be followed for the notification of environmental incidents, the procedure has little relevance and application beyond activities involving the use of the loading facility for manganese ore.<sup>116</sup> The EPA draws attention to the fact that the Copper Concentrate exports had previously been conducted under the 2006 Interim OEMP where the obligation to report to the regulator was with DPC. As previously stated no evidence was provided that the DPC notified Oz Minerals of the change in reporting obligation under the 2007 plan.

#### **4.2(b) Capacity to assess, quantify and minimise or control damage**

The capacity of the relevant stakeholders to assess, quantify and minimise or control damage was largely dependent on the extent to which environmental impacts and incidents of this nature were identified and addressed in appropriate plans guiding the management of copper concentrate activities on site.

Oz Minerals' Spill Response Plan, contained within the OEMP, provides a comprehensive procedure for addressing copper concentrate spills. Again, responsibility for the implementation of the procedure was delegated to a Giacci Bros representative.<sup>117</sup> The OEMP also contains a materials handling data sheet, appropriate for providing instruction on the use and handling of copper concentrate.<sup>118</sup> The EPA notes that there had been a number of

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<sup>114</sup> Oxiana Limited, *Prominent Hill Copper-Gold Project – Concentrate Storage Facility Operations Environmental Management Plan* (August 2008), p 34.

<sup>115</sup> *Darwin Port Corporation East Arm Bulk Export Facility (OM Manganese Project) Interim Operational Environmental Management Plan* (August 2008), p 8.

<sup>116</sup> Letter to EPA Chairman from Darwin Port Corporation Chief Executive Officer, 17 June 2010, p 1.

<sup>117</sup> Oxiana Limited, *Prominent Hill Copper-Gold Project – Concentrate Storage Facility Operations Environmental Management Plan* (August 2008), Attachment B, Spill Response Plan, p 2.

<sup>118</sup> As above, Attachment C.

incidents involving the emission of copper concentrate dust, and that whilst the clean-up procedures provided in the plan were followed, no further changes or actions were taken to prevent the reoccurrence of these emissions. This is despite the fact that the Spill Response Plan states that the 'appropriateness and effectiveness of the actions undertaken and the OEMP performance'<sup>119</sup> will be assessed following a significant environmental incident.

Again, DPC's OEMP for the bulk loading facility was unable to be applied to the copper concentrate incidents, having relevance for manganese ore activities only. DPC's overarching Environmental Management System (EMS), whilst outdated and written prior to copper concentrate use at the port, in identifying the risks likely to be associated with activities at the port, allowed for DPC to be aware of these risks and ensure the plans and procedures of operators at the port adequately addressed these risks. The EPA notes that 'the generation of dusts, mists or sprays during loading operations'<sup>120</sup> was identified within the EMS as a key risk for East Arm.

The extent to which the identified risks in the EMS could be transferred to operators at East Arm and reflected in their corresponding management plans was entirely dependent on clear, effective and proactive communication channels between DPC and Oz Minerals as the operator. Whilst DPC's EMS states that 'tenants are expected to supply relevant documentation cognisant with the level of environmental impact, as considered appropriate by the Corporation',<sup>121</sup> there is no evidence of a formal process that allowed for or ensured DPC reviewed and approved operator EMPs in accordance with identified risks at East Arm. In fact the EPA has been informed by DPC that it had nothing to do with the Oz Minerals EMP. This approval role remained with the Consent Authority. This gap in risk management was critical to the occurrence of the incident and the failure to notify.

DPC's East Arm Wharf Emergency Response Plan was another document that contained recommendations intended to mitigate the occurrence of an environmental incident at East Arm, which had relevance for all stakeholders conducting operations at the wharf. Whilst the procedures are outdated and again were operational prior to the use of copper concentrate at East Arm, the recommendations provided, including that 'engineering design and construction is carried out to mitigate the risk of incidents',<sup>122</sup> highlights the direct relevance of these recommended actions in light of the copper incidents.

The two SKM reports commissioned by DPC in April 2009, undertaken a number of years after the Emergency Response Plan was completed, not surprisingly draw attention to the same issue, that the loader was not in fact designed for the use of copper concentrate.<sup>123</sup> Both documents provide a thorough and comprehensive analysis of the risks and the extent of those risks, associated with the use of the bulk loading facility for copper concentrate. Most importantly, the reports provided a number of recommendations and actions for modification of

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<sup>119</sup> As above, Attachment B, Spill Response Plan, p 4.

<sup>120</sup> Darwin Port Corporation, *Environmental Management System Manual* (September 2003), Section 'Environmental Aspects and Impacts Register East Arm Wharf Precinct', p 2.

<sup>121</sup> Darwin Port Corporation, *Environmental Management System Manual* (September 2003), p 2.

<sup>122</sup> Darwin Port Corporation, *Emergency Procedures and Work Instructions for Dangerous Cargoes* (2005-6), p 20.

<sup>123</sup> As commented in the SEMF Report – *Darwin Shiploader Dust Control: Investigation and Options Report for Darwin Port Corporation* (28 January 2010), p 2, 20.



the infrastructure to control product spillage and address the 'significant risk' posed by continuing use of the loader in the current manner.<sup>124</sup>

What the above discussion and evidence illustrates is that stakeholders operating at the port were sufficiently aware of the risks and impacts associated with the use of the bulk loader for copper concentrate at East Arm. And whilst the Oz Minerals' OEMP provided an adequate and comprehensive procedure should a copper concentrate incident occur, the delay in uptake of the recommendations regarding the prevention of incidents, significantly increased the risk to the environment around the loader. Recommendations specific to engineering and design of infrastructure so as to mitigate impacts from loss of product during loading were not implemented by DPC, nor were clean up procedures outlined in Oz Minerals' OEMP reviewed and reassessed to determine causes and measures necessary to prevent product spillage occurring.

The EPA considers that there is limited incentive to both parties at East Arm to ensure the prevention of incidents because of the perceived deficiencies in and lack of proactive enforcement of the Waste Management and Pollution Control Act. There has never been a prosecution under the Waste Management and Pollution Control Act and there is a corresponding complacency about the management of environmental risk. The Act should be reviewed without delay to ensure that it is an effective tool to encourage sound management of environmental risk.

It is highly possible that this complacency combined with its commercial incentives resulted in the DPC decision to delay the recommended alterations (SEMF 'Darwin Shiploader Dust Control: Investigation and Options Report') to the loading facility.

The EPA has viewed the commercial operating agreement under which Oz Minerals and DPC interacted. Whilst prevented, by issues of commercial confidentiality, from sharing full details of the agreement the EPA acknowledges that the extent of penalties incurable by DPC for interruptions to mineral shipments were significant. In fact they are so significant as to be prohibitive of any DPC initiated interruption and were undoubtedly a contributory factor in the decision by DPC to proceed with loading without observing the recommendations of the SEMF report. It is suggested that in negotiating agreements with multinational or ASX listed companies DPC must seek the assistance of a Senior Council in an established Commercial law firm. Without such advice the contingent liabilities of future agreements are liable to be just as unfavourable and pose an untenable risk to the commercial viability of the DPC and potentially an enormous claim on NT Public funds.

In conclusion the EPA considers that whilst both parties at East Arm had the capacity to assess, quantify and minimise or control damage, the necessary actions to ensure prevention of such incidents were not implemented.

#### **4.2(c) Guidance currently available from regulators**

The final Environmental Assessment Report provided by CCNT<sup>125</sup> thoroughly and comprehensively considered and identified the risks and impacts that had been identified in the Environmental Impact Assessment study. In addition to those issues already identified in the EIA, the Report highlighted a number of gaps in data and additional concerns that had not

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<sup>124</sup> *Bulk Loader Review Darwin Port Corporation Ship Loader and Bulk Materials Handling Review* (17 April 2009), prepared by Sinclair Knight Merz, p 2.

<sup>125</sup> *Darwin Port Expansion – East Arm: Environmental Assessment Report and Recommendations* (February 1994), produced by the Conservation Commission NT.

been considered in the EIA and that were determined by CCNT to be of relevance.<sup>126</sup> The broad scope with which the EIA had been applied, namely to assess environmental impacts associated with any activity or development relating to the use of East Arm as a port facility, meant that identification of all possible impacts was a difficult, if not impossible task. Despite this, the Report provided substantial guidance to the proponent regarding the way in which construction and future development of East Arm should occur.

Whilst adequate detail was provided by CCNT as to how the proponent should manage the issues identified, the recommendations provided lacked binding authority and there was no established or formal process to ensure recommendations were implemented. The onus was entirely upon the proponent to implement the measures suggested. This was especially problematic considering that the first development permit issued for the wharf (for wharf services, hardstand and buildings) did not require an EMP, nor did it provide any environmental control measures as a condition of the approval.

Similarly, the determination by the OEH regarding the bulk loading facility sought to guide and direct the proponent in undertaking the proposed development, despite the fact no formal environmental assessment was to be required. Only the determination by the OEH regarding the development proposal from Oz Minerals for a copper handling facility at the wharf failed to offer any guidance for environmental management of the activities proposed.<sup>127</sup> The reason for this failure is not apparent from the records obtained but the consequences of this failure were increased environmental risks and those risks were realised in April 2011. Documentation provided by the OEH associated with this determination indicates a particularly intense workload at that time, and this is claimed as a mitigating factor in the lack of proactive consideration of the entire activity. The EPA finds this to be further evidence that environmental regulation at the Port was not being actively pursued by the regulator. The legislative role of regulation cannot be mitigated.<sup>128</sup>

Whilst both development permits associated with these determinations required the proponent to operate in accordance with an EMP, there was no formal requirement or process to ensure this plan is endorsed or at least considered by the OEH. This is an oversight in process that significantly impacts the integrity of the development approval and leaves the process open to manipulation by unscrupulous applicants. The EPA considers that this is a significant deficit in the current approvals system and makes suggestions for remedial actions at the end of this report.

It is therefore observed that guidance from regulators in this instance satisfied the literal requirements of the law but was not adequate. The ultimate demonstration of this inadequacy is the occurrence of the incident itself. The OEH was limited in its ability to influence the approval process to ensure risks associated with the proposal were appropriately and adequately addressed. The DCA did not proactively require the involvement of the OEH other than in relation to the OEMP for the copper storage facility. The result of these failings meant that no one put the entire process of copper loading using the existing loader under scrutiny. The environmental volatility and physical properties of copper are entirely different to either manganese or iron ore. The use of an OEMP prepared for use of the loader for either of these products as the basis for clearance to use the loader for loading of copper was not an

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<sup>126</sup> As above, p 6.

<sup>127</sup> Letter to Chairman of the Development Consent Authority from the Director of Environmental Assessment and Policy (29 November 2007).

<sup>128</sup> Ministerial Briefing from Executive Director, Environment, Heritage and the Arts to Minister for Natural Resources, Environment & Heritage (14 December 2007), Attachment A.

adequate way in which to manage the environmental risk. The regulators advice for managing environmental risk failed in this matter.

#### **4.2(d) Future needs for relevant stakeholders to achieve prevention, control and effective reporting, assessment, feedback and enforcement**

DPC's East Arm Wharf Facilities Masterplan 2030 highlights the development and significantly greater uses of the wharf precinct in the next twenty years. The forecast anticipates increases in bulk mineral exports and other products passing through the port, in addition to the new provision of facilities for servicing offshore oil and gas exploration, and the reclamation of land to allow for these expansions, will undoubtedly create unprecedented likelihood of impacts on the marine and terrestrial environments at and surrounding East Arm.

The present review of the copper concentrate incidents at the port can be used to identify for relevant stakeholders actions and measures to achieve prevention, control, effective reporting, assessment, feedback and enforcement. In this regard, the following observations and proposals are made:

- i) The evidence reviewed by the EPA has revealed that prevention and control of future copper concentrate incidents is dependent on the ability and willingness of operators at East Arm, particularly DPC, to implement the recommendations provided at various times by the relevant environmental regulator and independent experts regarding upgrades and/or additions to the existing infrastructure at the wharf.

Relevant recommendations include the need for an effective drainage and capture system built onto the wharf hardstand to allow surface runoff containing contaminants to be captured, treated and disposed of in an appropriate manner;<sup>129</sup> the need for the conveyer system to be altered or replaced so as to make it a closed system to prevent loss of product in dust emissions,<sup>130</sup> and; the need for a comprehensive and detailed EMP addressing specifically the use of the loader for copper concentrate material.<sup>131</sup>

In addition to these recommendations already observed, the EPA notes that there is a need for relevant environmental protection legislation applicable to East Arm to establish a robust penalty mechanism to provide an effective incentive for operators to ensure incidents are prevented and invest in the infrastructure necessary for prevention. It is also imperative that DPC accept accountability for ensuring that environmental management plans are key support documents to any agreement for the use of land or facilities it owns and that appropriate document control and verification protocols are instituted.

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<sup>129</sup> See *Darwin Port Expansion – East Arm: Environmental Assessment Report and Recommendations* (February 1994), produced by the Conservation Commission NT, p 16; Memorandum to the Acting Minister for the Environment and Heritage from Executive Director, Environment and Heritage Department (14 March 2005), p 2.

<sup>130</sup> See *Darwin Shiploader Dust Control: Investigation and Options Report for Darwin Port Corporation* (28 January 2010), prepared by SEMF consultants, p 20.

<sup>131</sup> *Bulk Loader Review Darwin Port Corporation Ship Loader and Bulk Materials Handling Review* (17 April 2009), prepared by Sinclair Knight Merz, p 2.

- ii) In seeking that future environmental incident reporting mechanisms are effective, it has been identified that there may be a lack of clarity amongst personnel on site at East Arm regarding what constitutes an incident and when reporting procedures are to come into play. Training for all subcontractor companies and their staff on these specific issues needs to be provided as part of the East Arm site induction process, which should be overseen by an Oz Minerals representative.

The legal provisions for environmental incident reporting should be strengthened, so as to impose greater penalties for a failure to report and a broader definition of environmental incident, where a dust emission or spill is captured, rather than a reliance on the 'environmental harm' standard for incidents requiring notification. Where an environmental incident is found to have occurred, the onus should be upon the party undertaking the activity to establish that it was not an incident that demanded reporting.

- iii) To facilitate effective assessment and feedback the relevant environmental assessment agency must be able to influence the approval process and review of EMP documentation in a meaningful and enforceable manner. Mechanisms allowing for the outcomes of environmental assessment processes to be imposed as conditions on a development permit, and a requirement that the EMP is endorsed by the environmental assessment agency would address this issue. Additionally, the environmental assessment agency should be equipped with powers appropriate for monitoring and providing feedback on the proponent's compliance with approval conditions and EMP commitments. Mandated periodic site inspections would assist in the development of processes for providing feedback. This change would necessarily be accompanied by a proponent right of question or contest in relation to recommendations made by the environment agency.
- iv) The EPA has identified that there are insufficient legislative provisions and powers allowing appropriate regulatory agencies to compel the compliance with EMP commitments by the proponent. EMPs and the commitments contained within are not legally enforceable documents. Even where they are made conditions of a permit under the, the *Planning Act* there is no penalty where the proponent fails to comply with a condition of their development approval. There are options to direct compliance or to direct remediation or repair but if the proponent still resists the only option available to the Minister is to revoke the development approval. The extremity and severity of consequences of revocation can be disproportionate to the matter in dispute and the EPA is not aware of it having been utilised. A gradation of penalties and the use of accumulative penalties would be an appropriate introduction under a review of the Planning Act and the Waste Management and Pollution Control Act.
- v) Were port activities were to require licensing under the relevant waste management and pollution legislation, the environmental regulatory agency would arguably have sufficiently greater powers to monitor the management of those activities at East Arm. Powers may include inspecting premises, reviewing licences and conditions and adding to or tightening conditions as appropriate.

## 4.3 Findings

### 4.3(a) Triggers for reporting of the copper concentrate incidents at East Arm Wharf

- The legislative triggers for reporting incidents are limited in their application: the definition of 'incident' is very narrow, and there is a requirement that the incident occurs during the 'conduct of an activity'.

- Triggers for reporting were in place under DPC and Oz Minerals' plans, policies and procedures but were not activated.
- A lack of clarity regarding what constitutes an incident, and a lack of clarity or overlap regarding responsibility for reporting may have contributed to the failure to implement these triggers.
- Incident reporting under any of the triggers at East Arm was not accepted as standard and common practice.

#### **4.3(b) Capacity to assess, quantify and minimise or control damage;**

- The capacity of relevant stakeholders at East Arm to assess, quantify and minimise or control damage was literally interpreted and although adequate fell well short of best practice.
- Numerous assessments, risk analyses and reviews had been undertaken at various stages of the development and at various levels, including those by government regulators, the operators themselves and independent experts, providing suitable guidance on avoiding environmental risks.
- The failure or gap in management was the selective uptake of recommendations from these reviews to mitigate risks and prevent incidents.
- The limited incentive, in the form of penalties and offence mechanisms under the relevant legislation, for operators at the port to invest in mitigation controls and infrastructure for the prevention of incidents has contributed to the failure to implement recommendations.

#### **4.3(c) Guidance from regulators currently available**

- Guidance provided by regulators is adequate where a formal EIA process is determined to be necessary and subsequently undertaken.
- There is no requirement that DCA seek the guidance of the Environmental regulator or adopt the recommendations of that group when they do seek guidance.
- The problem is the systemic barriers and inability for governments environmental agency to influence the approvals process in a meaningful way. This could be addressed through the current review of environmental laws across government.

#### **4.3(d) Future needs for relevant stakeholders to achieve prevention, control and effective reporting, assessment, feedback, and enforcement**

- East Arm is forecast to undergo major development and expansion in the next twenty years.
- These planned activities have an unprecedented potential for adverse impacts on Darwin Harbour.
- Prevention and control of future incidents is intrinsically linked to the extent to which recommendations by environmental regulators and independent experts are taken up and implemented.

- Improved clarity in relation to the management of environmental risks arising from activities at East Arm is a key requirement in sustainable use of the Port.

## TERM OF REFERENCE 5

**Identify and assess effectiveness of steps put in place since the copper concentrate incidents to reduce the likelihood of such incidents occurring in the future**

### 5.1 Review of Evidence

Since the copper concentrate incident at East Arm Wharf, a number of actions have been taken and measures put in place by the NT Government, DPC and by the various activity operators at the port, including Oz Minerals, Veolia Environmental Services, Giacci Bros, Patricks Stevedores, and POAGS. These include physical engineering changes, and environmental management actions and procedural changes. These are outlined and described below.

#### 5.1.1 Physical changes

Various physical changes have been implemented by the stakeholders involved in copper concentrate operations at East Arm, both since the incident in January occurred, and prior to the spill. Whilst a number of these actions were implemented prior to the incident to address issues associated with fugitive dust emissions during loading, these cannot be directly attributed to a response to the said incident and for that reason they have not been considered here. Physical changes implemented by Darwin Port Corporation and Veolia Environmental Services since the incident are provided below.

##### *Darwin Port Corporation*

- Installation of a second hatch in the loader chute to facilitate cleaning and inspection, and to allow the discharge snorkel to be in the vertical position for cleaning on smaller vessels;
- Sleeves were inserted into the chute to prevent material build up during loading;
- Installation of a series of water sprays to assist in dust reduction on loading conveyers;
- Installation of Belly trays on the ship loader and incline conveyor
- Installation of Windbreak covers on the ship loader
- Installation of access steps and modification to ladders through out the loading system
- Installation of concrete bunding around the take up towers of the gallery and truck dump conveyors, to capture and contain any residue in the cleaning process.
- Installation of a new cut off drain along the front of the ship loader to capture any water run off.

- Rediversion of the wharf surface stormwater discharge point from the Harbour to Pond F, a sediment pond within the wharf reclamation area.<sup>132</sup>

### ***Veolia Environmental Services***

- Upgrading of the wharf hardstand and bulk loader cleaning equipment to a new higher-specified equipment, involving improvements to hoses and nozzles used to clean the chute, increasing water delivery and subsequently increasing cleaning efficiencies.<sup>133</sup>

## **5.1.2 Procedural changes and environmental management actions**

Procedural changes and environmental management actions implemented by relevant stakeholders to seek to prevent a reoccurrence of the incident are provided below.

### ***Darwin Port Corporation***

#### *Procedures*

- Directed operators to increase and extend the sweeping, vacuuming and wash down activities in order to reduce the dust caused by loading activities;<sup>134</sup>
- Directed that operators ensure that the ship-loader chute nozzle is kept at least one metre within the ship's hold to prevent air gaps which may lead to wind causing dust emissions;<sup>135</sup>
- Implemented strict protocols and developed formal Workplace Instructions with operators and users in relation to cleaning procedures following loader use and the clean up of spills;<sup>136</sup>
- Implemented a monitoring regime for East Arm Wharf, with monitoring to be undertaken every 3 months;<sup>137</sup>
- Voluntary engagement of consultants to update and prepare environmental management systems and procedures specifically addressing East Arm Wharf and the bulk loading facility.<sup>138</sup>
- Implemented a procedure for washing down the hard stand area prior to the wet season
- Implemented Training for Operators in the use of the discharge chute

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<sup>132</sup> Letter from DPC Chief Executive Officer to EPA Chairman, dated 17 June 2010, p 2-3; EPA site visit to East Arm accompanied by DPC Environmental Officer, 3 December 2011.

<sup>133</sup> EPA site visit to East Arm accompanied by DPC Environmental Officer, 3 December 2011.

<sup>134</sup> Letter from DPC Chief Executive Officer to EPA Chairman, dated 17 June 2010, p 2.

<sup>135</sup> As above.

<sup>136</sup> As above.

<sup>137</sup> *Darwin Port Corporation East Arm Wharf Environmental Management Plan* (December 2010), p 51.

<sup>138</sup> Letter from DPC Chief Executive Officer to EPA Chairman, dated 17 June 2010, p 2.



*The East Arm Environmental Management Plan (EMP)* commenced operation in December 2010. There are a number of features within the plan, which relate to the copper concentrate spill and seek to reduce the likelihood of a reoccurrence. These features are described below.

Under the EMP, a Bulk Users Environmental Advisory Group has been established, to:

- Oversee the performance of environmental management at the Port of Darwin from the point of arrival of the bulk commodity to loading and departure of ships from the wharf.
- Undertake high-level reviews of environmental results and reports.
- Collaboratively discuss and facilitate the management and delivery of solutions to identified issues and the continual improvement of overall environmental performance.<sup>139</sup>

### *Environmental Policy*

DPC has revised and rewritten its Environmental Policy.<sup>140</sup> The Environmental Policy document has an important role to play, as the lead authoritative statement on DPC's approach to environmental management across all the sites owned and managed by the Corporation. The DPC Environmental Management System (EMS) and the EMPs for each individual DPC-owned site all flow from the commitments and intentions stated in the Environmental Policy.

The Policy includes seven aspirations, most notably, in relation to the incident, that DPC will:

- Implement risk management techniques to assess impacts of the Corporation's activities and to introduce appropriate mitigation measures.
- Seek to prevent pollution resulting from port activities and services.<sup>141</sup>

### *Review*

The EMP is to be reviewed on an annual basis, whilst the broader EMS is to be reviewed on a biennial basis. Reviews are to include presentations of performance against objectives and targets set out in these documents.<sup>142</sup>

### *Public Access*

The DPC Environmental Policy and the East Arm EMP have been made available to the public via the DPC website.<sup>143</sup>

### *Responsibilities*

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<sup>139</sup> *Darwin Port Corporation East Arm Wharf Environmental Management Plan* (December 2010), p 17.

<sup>140</sup> *Darwin Port Corporation Environmental Policy*, available at <http://www.darwinport.nt.gov.au/environment-and-safety/environmental-policy>.

<sup>141</sup> *Darwin Port Corporation East Arm Wharf Environmental Management Plan* (December 2010), p 8.

<sup>142</sup> As above, p 12, 37.

<sup>143</sup> Available at <http://www.darwinport.nt.gov.au/policies-procedures-and-forms>.

Under the EMP, responsibilities of specific employee positions within DPC have been provided. Additionally, throughout the document the responsibilities attached to certain roles and in relation to specific management activities are listed, covering areas such as incident reporting, implementation of emergency response procedures and more day-to-day management actions.<sup>144</sup>

### *Legal Obligations*

The legal obligations binding DPC in carrying out its activities and providing services at East Arm, have been separated from the primary EMP document and placed within a Legal Register, a document which sits alongside the EMS.<sup>145</sup> This Legal Register provides in detail each of the specific obligations under certain provisions of both Territory and Commonwealth legislation that DPC is required to comply with. It was prepared by legal firm Minter Ellison in 2010, following the incident in January.

### *Monitoring*

Under the EMP, a program for regular monitoring of areas including East Arm and its surrounds has been established. The monitoring program includes air quality, water (seawater, drinking water, wastewater and stormwater), soil and sediment (marine and terrestrial) and noise. Sampling is undertaken on a quarterly basis at sites including on and around East Arm Wharf, East Arm Wharf stockpile, Fort Hill Wharf, Fishermans Wharf and the centre of the Harbour.<sup>146</sup> The first round of sampling was undertaken in September 2010.

In addition to the East Arm EMP, the DPC Access to Port Facilities Policy was revised in October 2010, in response to issues raised by the incident. The Policy now includes a mandatory requirement that users of the bulk loading equipment are licensed stevedores and demonstrate competence in the use of the equipment, and provides that all approvals for access to facilities will be based on a consideration of whether the applicant complies with (or demonstrates compliance with) DPC health, safety and environmental conditions, including DPC's environmental management policies.<sup>147</sup>

A number of formal *Workplace Instructions* were developed following the January incident that sought to rectify the risks highlighted by the incident. These formal Workplace Instructions had not been in operation prior to the incident, and were all finalised in May 2010. They have since been provided for public access on the DPC website.<sup>148</sup> The Workplace Instructions relevant to the copper concentrate spill are listed and briefly described below.

### *Workplace Instruction 2/2010: Cleaning Following Bulk Ore Loading Operations at EAW*

This Instruction addresses occupational health and safety risks associated with the cleaning of the bulk loading facility following use, and it is issued in accordance with the Workplace Health and Safety legislation. It outlines the specific areas and/or surfaces of the loading infrastructure that are to be completely cleaned of mineral material.

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<sup>144</sup> Darwin Port Corporation *East Arm Wharf Environmental Management Plan* (December 2010), p 11-16.

<sup>145</sup> As above, p 10.

<sup>146</sup> As above, p 51.

<sup>147</sup> Darwin Port Corporation, *Access to Port Facilities Policy* (October 2009), available at [http://www.darwinport.nt.gov.au/sites/default/files/documents/policies/access\\_port\\_facilities\\_102010.pdf](http://www.darwinport.nt.gov.au/sites/default/files/documents/policies/access_port_facilities_102010.pdf).

<sup>148</sup> Available at <http://www.darwinport.nt.gov.au/policies-procedures-and-forms>.

It was issued to Territory Resources, OM Manganese, Oz Minerals, Patricks Stevedores, P&O Stevedores, Veolia Environmental Services and DPC Cargo.<sup>149</sup>

*Workplace Instruction 5/2010: Safety Guards on Bulk Ore Handling Equipment at East Arm Wharf*

This Instruction was drafted as a response to issues associated with the failure to replace safety guards removed for cleaning and/or maintenance work on loading infrastructure. A mandatory requirement that a walk through inspection is undertaken prior to the equipment being started is imposed.

The Instruction was issued to Territory Resources, OM Manganese, Patricks Stevedores, P&O Stevedores, Veolia Environmental Services, Freightlink, DPC Cargo and DPC Engineering.<sup>150</sup>

*Workplace Instruction 8/2010: Prestart and Post Operations Clean at Rail Dump Bulk Conveyer System*

This Instruction imposes the following requirements to ensure all due care is taken prior to starting operation of the conveyer system and during clean up of spilled product following operations:

- i) the handover of the rail dump to and from the exporters contractor must be documented;
- ii) the Standard Operating Procedure attached to the Instruction must be adhered to; and
- iii) the checklist also attached to the Instruction must be completed upon conclusion of operation.

Patricks Stevedores, P&O Stevedores, DPC Cargo and DPC Maintenance were issued with this Instruction.<sup>151</sup>

*Workplace Instruction 10/2010: Oz Minerals Copper Concentrate Storage Facility East Arm Wharf*

This Instruction was drafted as a direct response to the PAN issued to DPC for contaminated stormwater being discharged into Darwin Harbour in April 2010. It followed an inspection of

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<sup>149</sup> *Workplace Instruction 2/2010: Cleaning Following Bulk Ore Loading Operations at EAW* (6 May 2010), produced by DPC, available at [http://www.darwinport.nt.gov.au/sites/default/files/documents/workplace\\_instructions/workplace\\_instruction\\_02\\_10.pdf](http://www.darwinport.nt.gov.au/sites/default/files/documents/workplace_instructions/workplace_instruction_02_10.pdf).

<sup>150</sup> *Workplace Instruction 5/2010: Safety Guards on Bulk Ore Handling Equipment at EAW* (6 May 2010), produced by DPC, available at [http://www.darwinport.nt.gov.au/sites/default/files/documents/workplace\\_instructions/workplace\\_instruction\\_05\\_10.pdf](http://www.darwinport.nt.gov.au/sites/default/files/documents/workplace_instructions/workplace_instruction_05_10.pdf).

<sup>151</sup> *Workplace Instruction 8/2010: Pre-Start and Post Operations Clean at Rail Dump Bulk Conveyer System* (12 May 2010), produced by DPC, available at [http://www.darwinport.nt.gov.au/sites/default/files/documents/workplace\\_instructions/worplace\\_instruction\\_081\\_0.pdf](http://www.darwinport.nt.gov.au/sites/default/files/documents/workplace_instructions/worplace_instruction_081_0.pdf)

the East Arm site to determine areas of risk, during which the copper concentrate storage shed was noted.

The Instruction was issued directly to Giacci Bros and required that the company immediately take a number of steps to prevent the movement of copper export product into stormwater drainage areas, and to rectify and remove export material already within the drainage system. The Instruction was also issued to Oz Minerals and DPC Cargo.<sup>152</sup>

### **Veolia Environmental Services**

In consultation with DPC, Giacci Bros, and POAGS, cleaning procedures were altered so that the bulk loader discharge chute and boom tray is cleaned into the vessel hull prior to the vessel departing the wharf, to prevent any discharge into the Harbour.<sup>153</sup>

## **5.2 Discussion and analysis**

This section of the report seeks to evaluate the effectiveness of the steps put in place since the incidents to consider whether in fact the likelihood of a reoccurrence has been reduced.

### **5.2.1 Physical changes**

A number of physical engineering changes were implemented on the loader and at East Arm in the time between the incident occurring and the administering agency becoming aware of the incident, with the aim of reducing the likelihood of a reoccurrence. Evidence obtained from NRETAS and from DPC suggests that fugitive dust emissions during loading and cleaning procedures have been significantly rectified by these changes.

Clearly, the parties involved had concerns regarding the emission of copper concentrate dust during loading. The fact that DPC commissioned the SEMF report, Darwin Shiploader Dust Control: Investigation and Options Report,<sup>154</sup> shortly following the incident (report dated 28 January 2010) demonstrates an intention to rectify existing issues to some extent and subsequently reduce the likelihood of the incident reoccurring.

Evidence obtained from both DPC and NRETAS suggests that the changes have been effective and i) significantly reduced the amount of copper concentrate being retained or getting built up within the loader, chute and conveyer belt; ii) reduced the amount of copper concentrate material not being captured by cleaning procedures; and, iii) prevented the discharge of contaminated stormwater from the wharf hardstand surface and loading machinery directly into Darwin Harbour.

Upon a site inspection by EPA officers, it was noted however, that there is currently no truck wash down facility and that the lack of such a facility results in significant tracking of mineral material along the wharf surface and out of the wharf loading area into surrounding streets. Currently, truck operators conduct their own wash down procedures and capture the waste

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<sup>152</sup> *Workplace Instruction 10/2010: Oz Minerals Copper Concentrate Storage Facility - East Arm Wharf* (27 May 2010), produced by DPC, available at [http://www.darwinport.nt.gov.au/sites/default/files/documents/workplace\\_instructions/Workplace%20Instruction%2010-2010.pdf](http://www.darwinport.nt.gov.au/sites/default/files/documents/workplace_instructions/Workplace%20Instruction%2010-2010.pdf).

<sup>153</sup> Letter from DPC Chief Executive Officer to EPA Chairman, dated 17 June 2010, p 3.

<sup>154</sup> *Darwin Shiploader Dust Control: Investigation and Options Report* (28 January 2010), prepared by Scientists, Engineers, Managers and Facilitators (SEMF) for Darwin Port Corporation.

water for incorporation into material to be exported, or for disposal at their own arrangement. DPC have undertaken costing of such a facility but it is yet to be constructed. The provision of sufficient space for the turning circle of triple carriage vehicles has been one difficulty in developing a design for the washdown facility.<sup>155</sup> The EPA strongly recommends that this issue be addressed by DPC as owner and operator of the facilities in the immediate future.

Whilst physical changes appear to have been effective in preventing a reoccurrence of the incident, this does not detract from the findings and recommendations made in the SEMF report regarding the proper use of the loader. The SEMF report makes it clear that the 'shiploader was originally designed to handle iron ore and manganese and the copper concentrate is a new product'.<sup>156</sup> In line with this statement, the report's final long-term recommendations for the loading of copper concentrate at East Arm included to construct an alternative shiploader, particularly where dusty products were to be loaded more frequently.<sup>157</sup> Whilst there are no immediate plans for copper concentrate loads to increase, the EPA notes that there is currently no commitment from DPC to replace or reconstruct the loader. DPC report that a number of long-term options are still being considered. Presently, DPC plans are to enclose the front of the gallery section of the loader using specifically designed tarpaulins which are able to be removed for cleaning processes. The EPA strongly recommends that where DPC plans for copper concentrate and other environmentally harmful bulk minerals to be increasingly handled at East Arm Wharf, these long term recommendations be implemented prior to any increase in loads passing through the port.

Finally, it is noted that physical changes had been made to the bulk loader to prevent the incident reoccurring, prior to NRETAS being notified of the incident. The physical changes to the stormwater system at East Arm (involving the diversion of contaminated stormwater to Pond F) and the identification of contaminated stormwater entering the Harbour however, only occurred upon the launch of a formal investigation into the initial copper concentrate spill by NRETAS and the subsequent pollution abatement notice (PAN) issued to DPC for the discharge of contaminated stormwater. Had this investigation not been initiated and the PAN not issued, it is uncertain whether DPC would have acted to prevent a reoccurrence of the discharge of contaminated stormwater. For this reason, the EPA draws attention to the importance of the role of regulators in eliciting compliance through active enforcement and in securing effective physical measures to reduce the likelihood of certain incidents reoccurring. Active enforcement removes the risk of economic and operational expediencies being placed before environmental risk in the decision making process.

### **5.2.2 Procedural changes and environmental management actions**

The occurrence of the copper concentrate spill at East Arm and the media attention prompted by the incident have resulted in a number of positive changes in relation to environmental management systems and procedures at the Wharf. One such positive outcome was the development and implementation by DPC of an East Arm Wharf-specific environmental management plan (EMP), one of which had never been in operation prior to this time. Whilst DPC had previously sought to delegate environmental management responsibilities to the mineral operators of the facilities at the Wharf,<sup>158</sup> the new EMP signals recognition by DPC of

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<sup>155</sup> EPA officer site visit to East Arm Wharf, 3 December 2010, accompanied by DPC Environmental Officer.

<sup>156</sup> *Darwin Shiploader Dust Control: Investigation and Options Report* (28 January 2010), prepared by Scientists, Engineers, Managers and Facilitators (SEMF) for Darwin Port Corporation, p 2.

<sup>157</sup> As above, p 21.

<sup>158</sup> Letter from DPC Chief Executive Officer to EPA Chairman, dated 17 June 2010, p 1.

their responsibilities for environmental protection and management relating to the activities undertaken at East Arm. As the owner and manager of the bulk loading facility, the EPA strongly asserts that DPC does in fact have significant obligations for environmental management at East Arm, despite the lack of reference to such responsibilities under their establishing legislation. This issue is addressed elsewhere.

A review and analysis of the newly implemented EMP reveals a number of positive features. The establishment of a Bulk Users Environmental Advisory Committee, with the primary role of reviewing and advising on the processes surrounding specifically the loading of bulk minerals at East Arm is one such feature that specifically addresses the cause of the copper concentrate spill. Whilst there is no detail on the composition, meetings or out-working of the group, such as the methods and forms through which advice will be provided, the formation of the group has potential to ensure any future environmental harm issues associated with loading of hazardous materials is quickly identified and rectified. The EPA recommends that formal arrangements and a schedule for meetings of this group and the advice it is to produce be determined as soon as possible.

Similarly, the EPA commends the revised version of the DPC Environmental Policy, particularly its acknowledgement of the environmental responsibilities of DPC in relation to seeking to prevent pollution resulting from port activities. Where all other management plans and programs are based on this mandate, again, it is believed there is significant potential for the revised environmental management systems to effectively reduce the likelihood of an incident reoccurrence.

The making available of the East Arm EMP and DPC Environmental Policy statement on DPC's website is also an improvement in the public accountability of DPC's activities and operations at East Arm Wharf and will assist public confidence that measures and controls being implemented are addressing the initial causes of the incident.

The development of a monitoring program for East Arm by consultants Coffey Environments (under the EMP), is another significant step in securing positive environmental outcomes and reducing the likelihood of a reoccurrence of the incident. The implementation of a monitoring program will ensure a greater understanding of the marine environment of the Harbour at East Arm and make it easier to identify changes in that environment resulting from environmentally harmful activities at the Wharf. The EPA recommends that the results of sampling also be made publicly available, to improve the transparency with which DPC carries out its activities.

Revision of existing policies, such as the DPC Access to Port Facilities Policy, to require operators and service providers at East Arm to demonstrate compliance with DPC environmental management policies, combined with the drafting of new formal Workplace Instructions addressing risks that contributed to the copper concentrate spill, are believed by the EPA to be further effective measures to reduce the likelihood of a reoccurrence of the incident. The availability of these documents to the public via the DPC website again improves accountability in DPC's actions and decisions. The implementation of such Instructions and policies will, however, require ongoing monitoring to ensure their successful mitigation of risk.

The EPA particularly notes the consideration of these revised policies and Work Instructions in consultation with all parties involved in the copper concentrate loading activities at East Arm.<sup>159</sup> Such a cooperative approach does not appear to have been effectively implemented previously and it is upheld by the EPA as crucial to addressing the causes of the incident.

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<sup>159</sup> Letter from DPC Chief Executive Officer to EPA Chairman, dated 17 June 2010, p 2-5.

Investigations into the incident revealed systemic issues and flaws in the apportionment of responsibility between parties and this appears to have been a key contributing factor to the incident. For this reason, the EPA encourages a review of the DPC Act to provide for statutory EMPs and the adoption of this consultative approach for all future decision-making regarding activities at the Wharf. The use of statutorily required EMPs will formalise the chain of responsibility in relation to activities at the Port. It is noted that the effectiveness of new procedures will be assisted by the ongoing training and education of relevant employees, and the careful monitoring of the operation of the EMPs. The EPA strongly advocates cooperation amongst operators and owners at East Arm and sees it as essential in the implementation of controls and measures by various stakeholders aimed at reducing the likelihood of a reoccurrence of the incident.

Despite the positive changes discussed above, the commitments made in the DPC EMP, EMS and Environmental Policy are in no way binding on the Corporation and for that reason, the EPA cautions the administering agencies regulating DPC from relying on the existence of these documents alone. Whilst these documents may indicate a committed and thorough approach to environmental management at East Arm, it is the implementation of the measures and controls within, and their demonstrated effectiveness that is crucial. This effectiveness can only be observed through a rigorous program of monitoring, aimed at compliance and enforcement in relation to the relevant legislation. This is an essential role that can only be undertaken by the administering agency.

Similarly, as there is no binding obligation on DPC to ensure the measures and aspirations expressed in the EMP and Environmental Policy are realised or fulfilled, the EPA strongly recommends that the establishing legislation of DPC, the *Darwin Port Corporation Act*, be reconsidered and amended to reflect a requirement that all decision-making undertaken in relation to activities at East Arm consider the environmental implications of that decision, and take into account the principles of ecologically sustainable development (ESD). It is the only through the inclusion of such a provision in the legislation that a commitment to environmental protection in the context of port activities can be upheld and enforced, helping to reduce the likelihood of a reoccurrence of the incident.

### 5.3 Findings

- Physical and procedural changes implemented at East Arm Wharf in relation to loading have significantly reduced factors and risks contributing to the copper concentrate spill, however, a long-term solution to the dust emissions from the bulk loading infrastructure at East Arm (as recommended by SEMF consultants) is yet to be resolved.
- A key contributing factor to the incident was the uncertainty surrounding the apportionment of responsibility for activities at the Wharf. This has been addressed through the adoption of a cooperative approach to loading activities and responsibilities at East Arm, including an acceptance by DPC of certain environmental protection obligations in relation to activities undertaken at the port but would be improved further by the inclusion of a requirement for a statutory EMP in a reviewed DPC Act.
- Commitments made in the DPC Environmental Policy, Environmental Management System and Environmental Management Plan for East Arm are not legally binding on the Corporation. It is only an amendment to DPC's establishing legislation that can ensure commitments to environmental protection at East Arm can be upheld and enforced. This is crucial in seeking to reduce the likelihood of a reoccurrence.
- The new and revised policies, plans and programs implemented in response to the incident, whilst indicating strong commitments to environmental protection, will only be

effective in mitigating the risks involved if they are carefully monitored and reviewed at regular intervals. This is a role that is appropriately carried out by the regulating authority.

- The role played by NRETAS in initiating a formal investigation into the copper concentrate spill at East Arm by NRETAS brought to light environmental risks that otherwise may not have been identified. This highlights the crucial role NRETAS have to play in regulating, monitoring and enforcing effective management of environmentally harmful activities. The fact that the current incident was revealed by a whistleblower to the media rather than discovered by the regulator conducting audits and inspections shows a lack of vigilance in regulation. The EPA notes improved vigilance since the incident and will maintain a watching brief to ensure that the vigilance is maintained.
- The public accountability of DPC's activities and the plans and procedures managing those activities has been improved through the provision of these documents on the DPC website.
- The establishment of a monitoring program for sites at and surrounding East Arm Wharf is a positive step in securing reliable and scientifically sound background data on environmental conditions within the Harbour and will allow for the early identification of issues associated with environmental harm where they arise.



## TERM OF REFERENCE 7

**Consider any other matters useful in investigating general provisions for governance and environmental management at East Arm Wharf.**

### 7.1 Review of Evidence

The EPA notes that in accordance with the East Arm Wharf Facilities Masterplan 2030: Land Use Report ('the Masterplan'), there are significant plans for the expansion of the facilities at East Arm. The Masterplan outlines a number of additional facilities and elements that are to be developed at the East Arm precinct in the following twenty years.<sup>160</sup> Facilities are likely to include:

- An additional rail loop on the wharf hardstand;
- Filling and reclamation of additional land for container and bulk mineral storage space;
- Development of a Marine Supply Base;
- Possible alterations and dredging associated with increasing the channel depth and capacity of the wharf key line.<sup>161</sup>

In mirroring the multiple-developments-over-considerable-time situation that occurred in the early to mid 1990s regarding the construction and approval of the existing East Arm Wharf and facilities, the EPA expresses considerable concern that a failure to undertake a rigorous assessment process for all of the works foreshadowed by the Masterplan will lead to similar deficiencies in environmental management regimes and controls, resulting in a significant increase in environmental risk, in the way in which the proposed developments at East Arm are approved and carried out.

The EPA takes this opportunity, following a review of the Masterplan, to express the following specific concerns regarding the works proposed:

#### *7.1.1 The breadth of the scope for proposed works at East Arm*

The scope of the works intended for East Arm, whilst dependent on and responsive to trade and economic growth,<sup>162</sup> is extensive, and comprised of numerous elements of varying size, nature, and location all within the East Arm precinct. Undoubtedly, the impacts associated with each of these elements, will also be varied and in many cases impacts will be unable to be determined until other certain stages of the expansion have commenced or been completed.

The fact that all elements are intended for a relatively contained area and over a considerable amount of time is of concern, in that the impacts of one element or stage will be highly likely to alter and influence the impacts resulting from remaining elements and stages. Within the existing environmental impact assessment legal framework, there is no established process for consideration of cumulative impact, and for this reason, the EPA argues that each element of the East Arm Wharf's expansion demands individual assessment or that provision is made

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<sup>160</sup> Darwin Port Corporation, *East Arm Wharf Facilities Masterplan 2030: Land Use Report*, p 4.

<sup>161</sup> As above, p 6-7.

<sup>162</sup> As above, p 14.

by review of the EIA Act for the assessment to be cumulative and approvals for each stage are considered in light of the impacts on environment by each stage and at each stage.

#### *7.1.2 Adaptive management and cumulative impacts*

In addition to the above point, the EPA is concerned that adaptive management principles be adopted for the construction and operation of each of the proposed stages. The inability of existing environmental assessment frameworks to consider cumulative impacts requires that the construction of expansion works undergo continuous review and monitoring to ensure impacts have been accounted for. Some level of assessment and measurement of changes in conditions should be carried out following the completion of each individual stage of the intended facilities' construction, and only once impacts are determined to be of a satisfactory and not unprecedented or unplanned nature should the next stage or element be approached.

Management plans will undoubtedly need to be revised and strategies for construction and operation altered, as impacts arise at each stage.

#### *7.1.3 Pre-environmental assessment commencement of works*

The EPA is also concerned that where there is sudden and significant demand for a particular development to be constructed, current laws provide for environmental approvals to be circumvented and special allowances made to enable the NT Government to secure an investment opportunity. The NT Government must guard against any potential attempt by a project proponent to circumvent the proper environmental assessment processes in order to commence works to meet unrealistic supply and demand deadlines. Having said this it is acknowledged that the objects of the Environmental Assessment Act include to balance economic and natural values and consequently it is desirable that options for improved responsiveness to opportunities are explored. These options should then be incorporated into approval processes rather than used to circumvent due process.

#### *7.1.4 Management of future environmental risks*

Considering the trade and vessel forecasts outlined in the Masterplan,<sup>163</sup> there is particular concern that arrangements for the assessment and management of the future environmental impacts and risks that will result from increased activities, throughput and traffic at the port, are considered. This should include i) measures for the on-going management of cumulative impacts from increased levels of operational and accidental discharges of air and water/runoff emissions that will result from the expansion of East Arm; and ii) measures for the ongoing management of the increased risk of major environmental incidents that will also result from proposed works. Environmental monitoring, reporting and adaptive management programs will all need to be employed to address these future risks

#### *7.1.5 Operational environmental management responsibilities*

One of the key concerns held by the EPA is the operational environmental management of the facilities to be constructed in accordance with the Masterplan. This is particularly emphasised in light of the various proponents often involved in such works, such as DPI, Department of Lands and Planning (DLP), Darwin Port Corporation (DPC), Land Development Corporation (LDC), and Department of the Chief Minister (DCM).

Previous environmental incidents and issues at the port revealed a significant gap in environmental management responsibilities, and whilst the DPC-revised EMS and new East

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<sup>163</sup> As above.

Arm EMP have addressed these issues to some extent, it is crucial that in the early stages of planning for such expansion works, the entities and individual personnel responsible for undertaking monitoring of environmental conditions and enforcing any EMPs drafted for the new facilities are determined. It is currently unclear whether it is DPC who will take on the additional role of management of proposed developments, or another entity, or whether environmental management duties for the operational phase of the intended facilities may be outsourced.

It is noted that there is currently only one member of DPC personnel with an environmental management background and expertise who is charged with ensuring compliance with EMPs and the overarching EMS. With the addition of many new facilities in accordance with the Masterplan 2030, it does not seem feasible that this one staff member will have the capacity to ensure robust and effective environmental management is implemented across all sites.

#### 7.1.6 *Dredging impacts and hydrology*

The EPA expresses concerns regarding the uncertainties surrounding the amount of dredging to be imposed on the Harbour marine environment and the subsequent impacts on Harbour hydrology and tidal flows.<sup>164</sup> Considering the sensitivities of the adjacent mangrove ecosystem, even where mangroves are not being removed or cleared, there will be significant impacts and changes to tidal flows as a result of heavy dredging in the Harbour. How these uncertainties will be dealt with so as to mitigate associated impacts should be addressed in detail in any project proposal.

#### 7.1.7 *Climate change*

Climate change has been identified in a number of NRETAS policy documents as one of the key issues in assessing and undertaking future developments in the Northern Territory.<sup>165</sup> The EPA wishes to see climate change adaptation planning against current NT benchmarks for future sea-level rise and storm surge events. The issue of greenhouse gas emissions mitigation, considering the role of the port as a major international transport hub, should also be addressed in any expansion proposal.

#### 7.1.8 *Status of the East Arm Masterplan*

The EPA notes that the Masterplan document has no statutory planning authority and is a strategic land use document only. It has not been established or drafted under any particular piece of legislation that allows for a development outlined in it to circumvent the proper planning and environmental approval processes. Whilst the Masterplan outlines the vision for land to be set aside for the East Arm Expansion,<sup>166</sup> and land use controls zone the area in question as DV Development,<sup>167</sup> Ministerial consent informed by environmental advice is still required for any proposals to expand the existing East Arm facilities under the NT planning and environmental assessment frameworks.<sup>168</sup>

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<sup>164</sup> As above, p 7.

<sup>165</sup> See for example the *NT Climate Change Policy*, produced by the Department of Natural Resources, Environment, the Arts and Sport, available at <http://www.greeningnt.nt.gov.au/climate/policy.html>.

<sup>166</sup> Darwin Port Corporation, *East Arm Wharf Facilities Masterplan 2030: Land Use Report*, p 4.

<sup>167</sup> As above, p 11.

<sup>168</sup> In accordance with the *East Arm Development Control Plan 1998*.

## EPA Recommendations

At the conclusion of its investigation into matters under Terms of Reference 1, 4, 5 and 7 for its Inquiry into the copper concentrate incident at East Arm Wharf, the EPA recommends that government:

1. Develop and publicly release specific Sustainability objectives for Darwin Harbour against which development proposals should be assessed.
2. Legislate for and implement systems that ensure environmental conditions crucial to the mitigation of adverse impacts on these objectives are supported by robust enforcement regimes including annual audits at high risk sites such as Ports.
3. Establish a general responsibility for environmental sustainability as part of the functions of the Darwin Port Corporation.
4. Establish a specific responsibility for environmental safety and minimising the adverse impacts of activities undertaken by Darwin Port Corporation on the environment as part of the functions of the Darwin Port Corporation.
5. Establish clear responsibility for the preparation and implementation of an environmental management plan by Darwin Port Corporation in order to manage risks to the environment. In this regard, specific provisions should be included within the *Darwin Port Corporation Act* to require the preparation and implementation of an environmental safety and management plan by Darwin Port Corporation. These provisions should include requirements for independent third-party certification of the management plan and auditing of compliance. These provisions should also establish clear accountability to the Minister for Ports and Transport in respect of the preparation and effective implementation of an environmental management plan.
6. Provisions for the preparation and implementation of an environmental management plan by Darwin Port Corporation should specifically address the issue of chain of responsibility for third party operators of port facilities. These provisions should ensure the extension of responsibility for environmental safety and effective implementation of an environmental management plan to third party operators.
7. Establish a specific responsibility for environmental safety and management as a function of the Darwin Port Corporation Board. Environmental safety and risk management are issues for the management of environmental and commercial risk, as well as due diligence by the Darwin Port Corporation. This should be explicitly recognised in the functions of the Board in order to ensure the safe, effective and efficient management of risk by the Corporation.
8. Require that annual reporting by the Darwin Port Corporation include reporting on environmental performance.
9. Remedy loopholes in the *Environmental Assessment Act* by :

- a. Establishing a process for the assessment of staged developments with opportunities for the consideration of cumulative environmental impacts.
  - b. Implementing an expiry and review mechanism to ensure that environmental impact assessment studies are still contextually appropriate and are not resulting in the authorisation of erroneous activities.
10. Require that the responsibility, criteria and details of the legal duty to report are:
    - a. Included in all operational agreements signed by DPC
    - b. Explicitly communicated in training to all operators and contractors at East Arm.
    - c. Clearly articulated in relation to the stage of operation where there is a shift in legal responsibility.
  11. Review and further strengthen the offence mechanisms under the relevant pollution legislation so as to provide an effective economic incentive to proponents and operators of high-risk activities to minimise environmental risk.
  12. Review environmental legislation to reduce the reliance on the standard of environmental harm as the trigger for incidents requiring reporting.
  13. Implement recommendations for the upgrade or replacement of the loading infrastructure as provided in the SEMF report prior to any planned increase in copper concentrate or other hazardous bulk mineral loads commencing.
  14. Establish a truck washdown facility at East Arm Wharf as a matter of urgency.
  15. Convene regular meetings of the Bulk Users Advisory Group and formalise arrangements for the provision of advice by the group to DPC and other stakeholders.
  16. Require the results of environmental sampling undertaken at and surrounding East Arm be made publicly available on the DPC website.
  17. Implement an adaptive review process for environmental management plans associated with the construction and operation of various phases and elements of works associated with expanding East Arm.
  18. Authorising Ministers should Insist that environmental assessment is conducted in a robust manner and considered as part of every project approval.
  19. Ensure that operational environmental management responsibilities are considered and allocated at the time of development consent.
  20. Require that all future proposals for development and operations at East Arm Wharf include consideration of climate change and sea level rise.

## APPENDIX A

### Timeline of Approvals and Legislative Processes Facilitating East Arm & the Bulk Loading Facility

Date	Event/Approval/Assessment	Decision-maker/Proponent	Relevant legislative provision	Document/Record
1992	Draft guidelines for matters to be addressed in EIS for proposal to relocate Darwin Port to East Arm prepared	CCNT	Section 7(2)(c), <i>Environmental Assessment Act</i>	Referred to in the Darwin Port Expansion – East Arm EA Report
1993	Land use concept plan for East Arm Peninsula adopted, providing for port and rail development and related industries	NT Government	NT Planning Scheme, <i>Planning Act</i>	Referred to in the Darwin Port Expansion – East Arm EA Report
01/02/93	Determination that EIS to be prepared	Minister for Conservation	Section 7(2)(b), <i>Environmental Assessment Act</i>	Referred to in the Darwin Port Expansion – East Arm EA Report
12/11/93	Public review period commenced for Draft EIS (public review period closed 10/12/93)	Department of Transport & Works	Section 7(2)(d), <i>Environmental Assessment Act</i>	Referred to in the Darwin Port Expansion – East Arm EA Report
07/01/94	Supplement to the Draft EIS provided to government	Department of Transport & Works	Section 7(2), <i>Environmental Assessment Act</i>	Referred to in the Darwin Port Expansion – East Arm EA Report
Feb 1994	Darwin Port Expansion – East Arm Environmental Assessment Report & Recommendations	CCNT (Environment Protection Unit)	Section 7(2)(g), <i>Environmental Assessment Act</i>	Assessment Report 19: Darwin Port Expansion – East Arm, Environmental Assessment Report & Recommendations
1998	<i>East Arm Development Control Plan 1998</i> approved, declaring Zone DV over the port area	Department of Infrastructure, Planning & Environment	Part 4 of repealed Planning Act, preserved under Section 156, current <i>Planning Act (1999)</i>	Referred to in NOI for Proposed Expansion Works at East Arm, June 2009
20/12/99	Development permit for the purpose of services, hardstand and buildings issued by Department of Lands, Planning & Environment	Department of Transport & Works	Section 54, <i>Planning Act</i>	DPM99/0060
Sept 2003	DPC Environmental Management System completed	DPC	N/A	DPC Environmental Management System September 2003
26/09/03	Development permit to use and develop land for the purpose of a container terminal	Darwin Port Authority	Section 54, <i>Planning Act</i>	DP03/0242
16/02/05	NOI submitted for the construction and operation of the Darwin Port – East Arm Bulk Export Facility	DPC	Clause 6, <i>Environmental Assessment Administrative Procedures</i>	East Arm Bulk Export Facility Notice of Intent, 16 February 2005
14/03/05	Determination that no formal assessment is required for the Bulk Export Facility at East Arm, and recommendations regarding	Acting Minister for Environment & Heritage	Clause 8(2)(b) <i>Environmental Assessment Administrative Procedures</i>	<ul style="list-style-type: none"> <li>Memorandum from Environment &amp; Heritage recommending no formal assessment required &amp;</li> </ul>

	conditions of approval			<p>making appropriate recommendations</p> <ul style="list-style-type: none"> <li>Letter from Acting Minister for Environment &amp; Heritage informing proponent of determination</li> </ul>
18/04/05	Development permit to use and develop land for the purpose of a bulk export facility	DPC	Section 54, <i>Planning Act</i>	DP05/0089
2005	Bulk Export Facility Constructed under two separate approved CEMPs	Department of Infrastructure, Planning & Environment	Section 55, <i>Planning Act</i>	Phase 1 CEMP for the East Arm Bulk Export Facility (14/04/05) and Phase 2 CEMP (19/05/05)
05/06/06	Final OEMP for Bulk Export Facility (OM Manganese Project) completed	DPC	Section 55, <i>Planning Act</i>	Darwin Port Corporation – East Arm Bulk Export Facility (OM Manganese Project) Interim OEMP (05/06/06)
11/05/07	Revised version of OEMP including manganese ore stockpiling arrangements for Bulk Export Facility approved	NRETAS	N/A	Letter from DPC to EPA response to request for information (20/08/10)
22/10/07	NOI submitted by Oxiana (now Oz Minerals) for construction of a copper concentrate storage facility at East Arm	Oxiana Ltd (now Oz Minerals)	Clause 6, <i>Environmental Assessment Administrative Procedures</i>	Referred to in information provided by NRETAS in response to request by EPA regarding the copper concentrate incidents, dated 24/04/10
29/11/07	Determination that no formal environmental assessment required for copper concentrate storage facility	Minister for Natural Resources, Environment & Heritage	Clause 8(2)(b) <i>Environmental Assessment Administrative Procedures</i>	<ul style="list-style-type: none"> <li>Ministerial briefing to Minister for Natural Resources, Environment &amp; Heritage listing NOIs not requiring assessment for Nov 2007</li> <li>Letter from Environmental Assessment Division to DCA stating copper concentrate storage facility did not require formal assessment</li> </ul>
12/12/07	Development permit to use and develop land for the purpose of a copper handling facility	Oxiana Ltd (now Oz Minerals)	Section 54, <i>Planning Act</i>	DP07/0655
Jan 2008	Copper concentrate storage facility OEMP completed	Oxiana Ltd (now Oz Minerals)	Section 55, <i>Planning Act</i>	OEMP Prominent Hill Copper-Gold Project – Concentrate Storage Facility
Jan 2008	Lease allowing occupation of part of NT Portion 5987 granted to Oz Minerals	Oz Minerals/DPC	N/A	Referred to in Oxiana Ltd OEMP for the Copper Concentrate Storage Facility
20/02/09	Bulk Handling Facility Operating Agreement formed	Oz Minerals/DPC	N/A	Bulk Handling Facility Operating Agreement

**Acronyms**

CCNT – Conservation Commission Northern Territory

DCA – Development Consent Authority

DPC – Darwin Port Corporation

EA – Environmental Assessment

EPA – Environment Protection Authority

EMP – Environmental Management Plan

CEMP – Construction Environmental Management Plan

OEMP – Operational Environmental Management Plan

NOI – Notice of Intent

NRETAS – Department of Natural Resources, Environment, the Arts and Sport



**Appendix B: Darwin Port Corporation comments and requested amendments  
Final Inquiry Report East Arm Wharf Copper Concentrate Incident (April 2010)**

	<b>Location in report</b>	<b>Comment</b>
1.	Page 22, 1.2.5 Paragraph 2	We object to the suggestion of bias in decision making of the East Arm Development Group. We are unaware of, and would strongly argue against, any suggestion of bias. We respectfully suggest that the EPA is referring here to 'perceived bias' rather than 'actual bias'. We recognise that perceived bias is a matter for the Group to address. However we refute any suggestion that there has been actual bias. We are not aware of any evidence to suggest this is the case and ask that the EPA provide details of any such evidence.
2.	Page 23, 1.2.9 Paragraph 2	We query the basis for the statement that it is "recognised as one of the major contributory factors" leading to the copper concentrate entering the harbour. There is no evidence to suggest that, had an application for development approval been made, any further measures would have been required. Without the benefit of hindsight it is quite possible that the existing measures proposed by DPC would have been considered adequate.
3.	Page 25, 1.3.4 Dot Point 2	DPC is not aware of any significant deficit of public faith in relation to the harbour. In the absence of concrete evidence that this is the case we suggest that it is more appropriate to suggest that there is <b>potential</b> for a lack of faith/suspicion.
4.	Page 30, (iv) Bulk Loader Review (SKM)	We note that the reports prepared by SKM were prepared prior to the commencement of copper concentrate loading. We ask that this point be included in the report.
5.	Page 31, Paragraph 1 & 4	This does not address the extent to which the recommendation within the SKM reports were implemented. In not stating this, it can be inferred that DPC did not implement the recommendations. This is not the case, DPC implemented all practicable measures, in conjunction with Oz Minerals and in accordance with advice from SKM.
6.	Page 37, 4.2(a) Paragraph 4	This paragraph is incorrect insofar as it suggests that the OMM OEMP is relevant to the current circumstances. The OMM OEMP does not apply to the loading of copper concentrate. Further, there is no reporting obligation for DPC under that document - OMM has assumed that obligation as operator of the facility. As such, we request this paragraph be amended.
7.	Page 39, Paragraph 3	We query the statement that there is a lack of clarity or overlap regarding who has responsibility for reporting such incidents. As far as DPC is concerned there is no lack of clarity. It is the person undertaking the activity that is obliged to report under the WMPLA. The EMP's further make it clear that the facility operators are responsible for reporting. If this statement is a

	<b>Location in report</b>	<b>Comment</b>
		reference to internal uncertainties within Oz Minerals and its staff then the statement should clarify this.
8.	Page 39 Paragraph 4	<p>We query the intent of this paragraph. The implication is that protestations of innocence on the part of DPC are misfounded. DPC did understand that it was Oz Minerals that would be responsible for reporting. Given Oz Minerals' failure to report in the circumstances, DPC has now reviewed its procedures to ensure that such a breakdown does not occur again.</p> <p>This paragraph would be more accurate if it alternatively read "for this reason, and the fact Oz Minerals were operating under an approved OEMP, DPC have indicated that they believed any required reporting to NRETAS would be carried out by Oz Minerals. DPC has confirmed amendments to its internal policies to avoid this situation recurring."</p>
9.	Page 40 Paragraph 3	This paragraph is not accurate. DPC had input into, and reviewed Oz Minerals' OEMP. Further Oz Minerals were fully aware of the outcomes of the SKM reports and the risks identified in those reports. The OEMP was prepared with those risks in mind. We are available to answer any questions on the process that was adopted that you may have. In light of this information we request this paragraph be reconsidered.
10.	Page 41 Paragraph 3	This paragraph refers to the SKM report and the recommendations within that report. However, there is no confirmation (here or anywhere else in the report) of the extent to which these recommendations were adopted. The implication is, of course, that they were not adopted. This is not accurate as the recommendations were extensively adopted.
11.	Page 41 Paragraph 3	This paragraph is inaccurate as recommendations within the SKM report were adopted.
12.	Page 41, Paragraph 2	We are concerned at the statement that there is limited incentive to ensure prevention of incidents. This conclusion is not supported by any evidence and is overly simplistic. Quite apart from any penalties under the legislation, an environmental incident is very costly from the perspective of clean-up, use of internal resources and consultants fees. Further there is a reputational risk which is a significant concern for business, particularly a public corporation such as DPC.
13.	Page 43, 4.2(d) Paragraph 4	The EPA details various recommendations that are made in the various reports regarding operation of the port. However, there is no confirmation (here or elsewhere in the report) of the extent to which these recommendations have been implemented. The implication is that they have not been

	<b>Location in report</b>	<b>Comment</b>
		<p>implemented. In particular we note that:</p> <ul style="list-style-type: none"> <li>a. alterations have been made to the drainage system and AURECON is in the process of preparing a long term strategy for the management and upgrade of the stormwater system on Ease Arm Wharf;</li> <li>b. the conveyer system has been largely enclosed; and</li> <li>c. Oz Minerals does have a comprehensive OEMP in relation to its use of the loader.</li> </ul>
14.	Page 44 sub- paragraph (iii)	We query the conclusions in this paragraph. The EPA does not appear to have presented any evidence or discussed any alternative options or recommendations.
15.	Page 44 Subparagraph (iv)	We disagree with the conclusions in this paragraph regarding the enforceability of conditions of development approval. Section 75 of the Planning Act provides that where a permit is required for development, the development must be in accordance with the permit. If the permit has conditions placed on it then a failure to comply with the conditions means the development has not been carried out in accordance with the permit. This is an offence and there are enforcement options set out in s. 76. On this basis we do not consider that the conclusions in this paragraph can be supported.
16.	Page 45, 4.3(b), Dot point 3	As discussed in previous comments, the vast majority of recommendations were taken up and implemented. Where alternative management options were utilised, this followed extensive consideration and consultation with relevant consultants and Oz Minerals. We would be happy to provide further detail in this regard.
17.	Page 54, 5.2.2 Paragraph 1	The second sentence in this paragraph refers to the implementation of the East Arm Wharf EMP being a response to the media pressure following the incidents. This statement is misleading as Coffey had been engaged to prepare the EMP prior to the incident. Accordingly its preparation cannot be said to be purely in response to the incident.
18.	Page 54 Paragraph 4	We confirm that DPC has published its environmental documentation on its website for a number of years. As such this is less an improvement than an ongoing commitment to accountability on DPC's behalf.
19.	Page 55, 5.3, Dot point 2	We disagree that there was any uncertainty on the part of DPC or Oz Minerals as to who was to have responsibility for various actions on the wharf. However, DPC agrees that the systems now in place will ensure no ambiguity in the future.
20.	Page 55, 5.3 Dot point 3	We do not agree with the conclusions of the second sentence in this paragraph. DPC believes the WMPCA adequately

	<b>Location in report</b>	<b>Comment</b>
		addresses environmental risk and that a further layer of environmental regulation is not appropriate. DPC is concerned that port users may be reluctant to use Darwin Port if there are different and additional environmental hurdles to overcome than would be required at other port facilities.
21.	Page 55, 5.3 Dot point 4	As previously stated, progress was being made by DPC in these areas prior to the incidents.
22.	Page 55, 5.3 Dot point 5	As previously stated, publishing of these documents on the DPC website is not a new occurrence.
23.	Page 57, 7.1.1 Paragraph 2	<p>We do not agree with the conclusion that the further development of East Arm Wharf is of 'extreme concern'. We agree that robust consideration of management options is required and the approval process will be critical. However, DPC has already commenced work on ensuring infrastructure is appropriate for such expansion.</p> <p>DPC is committed to ensuring good environmental outcomes along with commercial outcomes for the Territory. We consider the use of 'extreme' to be emotive and unwarranted in the circumstances.</p>
24.	Page 58, 7.1.3	We query the inclusion of this paragraph. It appears to go beyond the scope of this investigation and instead to be a general policy statement. It does not appear to be a conclusion supported by the investigation. DPC is concerned that it could be interpreted as a suggestion that DPC has sought to circumvent the proper environmental assessment processes. This has never been its intention and we are not aware of any circumstances that would support such an assertion. DPC is concerned about the effect on DPC's reputation that such a statement might have. Thus we request that its conclusion be reviewed.
25.	Page 60 Recommendations	<p>We make the following general statements in relation to the recommendations in relation to legislative change:</p> <ul style="list-style-type: none"> <li>• DPC will support a robust review of the relevant environmental legislative regime that involves all relevant stakeholders and considers all available solutions</li> <li>• DPC would be wary of supporting a measures based legislative regime as opposed to the existing outcomes based regime under the WMPCA. DPC is concerned that a highly prescriptive regime would not be flexible enough to address changing circumstances, risks and opportunities</li> <li>• DPC would be wary of supporting any second layer of environmental regulation over the WMPCA as there is a</li> </ul>

	<b>Location in report</b>	<b>Comment</b>
		<p>risk that port users may be discouraged from using Darwin Port</p> <ul style="list-style-type: none"> <li>• DPC would be wary of supporting a regime that imposed similar enforcement powers and obligations on DPC to those held by NRETAS. In DPC's view this would increase ambiguity and uncertainty which is not the intention of any such amendments.</li> </ul>
26.	Page 60 Reccomendation 7	The DPC Board is an "advisory board" and therefore placing environmental responsibility on them goes beyond the scope of their role. If any such amendment were to be made it would have to be limited to the inclusion of sustainability as a factor for consideration in s.27B(3).
27.	Page 61, Recommendation 10	It is not clear to DPC how it is proposed that this recommendation be implemented.