

**Final Inquiry Report:
East Arm Wharf
Copper Concentrate Incident
Part 2**



www.epa.nt.gov.au


November 2012

Environment Protection Authority
GPO Box 569
Darwin NT 0801

Ph: 8999 3747

E: epa@nt.gov.au

W: www.epa.nt.gov.au



Acronyms

At the time of completing this report, NT Government Department names had changed. This report has used the names of Departments as they existed at 24 August 2012.

DPC	Darwin Port Corporation
ECNT	Environment Centre Northern Territory
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Environment Protection Authority
NRETAS	Department of Natural Resources, Environment, the Arts and Sport
OML	Oz Minerals Limited
PAN	Pollution Abatement Notice
SEMF	Scientists, Engineers, Managers and Facilitators
<i>WMPC Act</i>	Waste Management and Pollution Control Act



Introduction

Incident and referral

On 17 April 2010 the Environment Protection Authority (EPA) received a request from the Environment Centre NT (ECNT) seeking an inquiry into allegations reported in the media that copper concentrate had been spilled during loading of the bulk ore ship loading facility (“ship loader”) at East Arm Wharf in Darwin Harbour. The media alleged that substantial amounts of copper concentrate were spilled onto the wharf hard stand, where dust posed a hazard to human health and directly into the water where it constituted aquatic pollution, further alleging that the spill had not been reported under the relevant pollution legislation.¹

The EPA is empowered under the *Environment Protection Authority Act* to conduct inquiries for the purpose of advising the Minister, business and the community about ecologically sustainable development in the Territory. In response to the allegations reported in the media and the request from the ECNT in May 2010 the EPA established an inquiry. The primary matter of interest to the EPA was the coordination and effectiveness of NT Government agency responses in dealing with this potential environmental incident. The full Terms of Reference for the inquiry are in Appendix A.

The findings of the first part of the inquiry (covering Terms of Reference 1,4,5,7 and 8) was completed in March 2011 and released to the public. The present EPA report (Part 2) concludes this Inquiry and addresses Terms of Reference 2, 3 and 6:

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 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 Government's existing internal operations in relation to the management of incidents as demonstrated by the response to the copper concentrate spill.
6. Specifically assess the extent to which the public can be reassured that failures in regard to the legislative and other processes involved in the regulating and reporting of environmental incidents at East Arm Port will not be repeated.

It was not possible for the EPA to report on these Terms of Reference until after a Department of Natural Resources, Environment, The Arts and Sport (NRETAS) investigation and a related prosecution action was completed at the end of 2011.

Note: This report refers to NT Government departments by their titles at the time of events described in this report. Where NRETAS is referred to in this report it is in relation to the Environment Division's responsibility for enforcing compliance with the *Waste Management and Pollution Control Act* and *Water Act*.

¹ N Adlam, *Spill threatens to poison harbour*, Northern Territory News, 17 April 2010.

Context of inquiry

Copper concentrate- source and properties

The copper concentrate referred to in this report was transported by train to East Arm from the Prominent Hill Mine, owned and operated by Oz Minerals Limited, which is located in South Australia. On reaching East Arm the copper concentrate was stockpiled in a shed until it was loaded onto a ship by the ship loader, which consists of a conveyer belt and portable loading mechanism with a chute. At East Arm Wharf approximately 10,000 tonnes of copper concentrate was loaded onto ships by the loading facility around 13 times per year, until the end of December 2011. The ship loader is also used to load shipments of iron ore and manganese ore from various mine sites around the Northern Territory (NT).

Copper concentrate is a concentrated form of the raw copper mineral which is used to produce copper. The copper concentrate from Prominent Hill Mine contains 30 to 60 per cent copper and a mix of other materials – sulphur, iron, silica, lead, aluminium oxide and less than 0.0080 per cent uranium.² The Department of Health advises that Oz Minerals' copper concentrate is exempt from the application of the *Code of Practice for the Safe Transport of Radioactive Material (2008)* as it is below the maximum exempt level of 0.077 per cent uranium content.³ However, it is classified as an 'environmentally hazardous substance' under the *Australian Code for the Transport of Dangerous Goods by Road and Rail (7th edition)*.⁴ These are substances which, being more or less water soluble, present a hazard to the aquatic environment. Certain tests are conducted to determine that a substance meets the elements of the classification of aquatic toxicity and bioaccumulation. The tests provide evidence of toxicity in aquatic organisms ranging from mortality to adverse impact on growth and development, long-term survival and reproductive ability. The composition of the copper concentrate and the extent of its dilution in water affects its actual toxicity with respect to aquatic organisms.

East Arm Wharf operator and users

Darwin Port Corporation (DPC) owns East Arm Wharf, other wharves in Darwin Harbour and buildings and infrastructure associated with the wharves. DPC also owns and maintains the ship loader at East Arm Wharf which is operated by various contactors. DPC is a government business division of the Northern Territory, operating under establishing legislation⁵ and By-Laws which afford it a high degree of independence; although it is under the general and financial administration of the Minister for Transport and is an NT government agency under the *Financial Management Act*.

Oz Minerals Limited (OML) owns and operates Prominent Hill copper-gold mine in South Australia. From April 2009 to December 2011 OML transported copper concentrate by rail to a purpose built storage shed at East Arm Wharf for subsequent loading onto bulk goods ships.

Giacci Bros Pty Ltd (Giacci), a company specialising in transporting mined ore, had a contractual arrangement with Oz Minerals to transport the copper concentrate from Prominent

² Coffey Natural Systems Pty Ltd, *Oz Minerals concentrate storage facility: baseline monitoring report*, appendix 6, 'Material safety data sheet - copper concentrate (Prominent Hill)', report prepared for Oz Minerals, March 2009.

³ Department of Health, correspondence with EPA, 9 November 2012.

⁴ National Transport Commission, *Australian code for the transport of dangerous goods by road and rail*, 7th edition, NTC, Melbourne, 2011, pp.129-138.

⁵ DPC is established and operates under the *Darwin Port Corporation Act*.

Hill mine and load it onto ships at East Arm Wharf. Giacci in turn subcontracted some operations associated with the ship loading to other companies, POAGS and Veolia.

POAGS Pty Ltd (POAGS) was subcontracted by Giacci to operate the ship loader and was therefore in charge of getting the copper concentrate from the storage shed into the ship hold. POAGS formally took control of the ship loader from DPC prior to loading and returned it to DPC after loading, cleaning and inspection.

Veolia Environmental Services (Veolia) was subcontracted by Giacci to undertake cleaning of the ship loader, specifically the loading chute and boom tray, following its use and before loaded ships departed their berth at East Arm Wharf.

Relevant Legislation

Two pieces of NT environmental legislation, the *Waste Management and Pollution Control (WMPC) Act* and the *Water Act*, administered by NRETAS, are directly relevant to this report (Part 2). There is a range of Territory and Federal environmental legislation that applies more broadly to the DPC and port operators discussed in Part 1 but outside of the scope of Part 2.

Actions Taken by and Findings of NRETAS

On 17 April 2010, in response to the media reports, NRETAS initiated an investigation to ascertain whether the activities of DPC or any company using East Arm Wharf had resulted in, or had the potential to result in, pollution that would warrant prosecution under the *WMPC Act* or the *Water Act* which it administers.⁶

In the course of NRETAS' investigation three different types of incidents were identified at East Arm Wharf and were further investigated. These were:

- spills of copper concentrate during ship loading
- instances of fugitive dust during ship loading
- contamination of stormwater, with mineral product from the wharf hard stand, draining to Darwin Harbour

NRETAS established an investigation team comprising departmental Investigating Officers authorised under the *WMPC Act* to undertake the investigations and provide findings and related advice to relevant NRETAS executive staff. Additional staff assisted in aspects of the investigation. Actions undertaken by the investigation team to support its investigation included:

- Observing and auditing a ship being loaded with copper concentrate to identify whether environmental obligations were being fulfilled (24-25 April 2010).
- Engaging the Australian Institute of Marine Science (AIMS) to undertake water, sediment and stormwater sampling to assess the impacts on water quality as a result of copper concentrate loading onto the ship (sampling undertaken on 24,25 & 29 April and 5 May 2010).
- Writing to DPC requesting information and evidence (letters of 20 April 2010 & 1 November 2010).
- Assessing the information provided by DPC (letters of 29 April 2010 & 6 December 2010).

⁶ NRETAS, Investigation Report: bulk ship loading at East Arm Wharf and incidents involving spills, dusting and stormwater contamination, report prepared by NRETAS environmental investigation team, 2011.

The investigation team identified four specific spillage incidents,. The reasons for their occurrence and the action taken in response are summarised in Table 1. A chronology of events related to the NRETAS investigation is at Appendix B.

Table 1. Details of incidents identified by the NRETAS investigation team.

Incident	Action taken by NRETAS	Findings
<p><i>Incident 1 - 18 June 2009</i></p> <p>Approximately 200kg of copper concentrate fell from the spill trays during ship loading due to a blockage in the ship loader chute. The incident was recorded in an internal DPC reporting system as an Environmental Incident Notification. The incident was not reported to NRETAS at the time of occurrence. NRETAS' awareness of the incident arose from media reports.</p>	<p>Issued Pollution Abatement Notices (PAN) to DPC and OML on 23 April 2010 in relation to incidents 1,2 and 3.</p>	<ul style="list-style-type: none"> • The cause of the spill was due to setting the loading chute at an angle that was too high relative to the boom. • It was likely that some copper concentrate would have entered Darwin Harbour waters, however the incident had been effectively investigated and resolved.⁷ • POAGS had put procedures in place to ensure the correct boom angle was maintained while the bulk loader was operating. In addition, a minimum size criterion was set for ships loading copper concentrate, permitting the chute to be kept relatively vertical for loading and cleaning. • There was no evidence of material or serious harm to the environment.
<p><i>Incident 2 —13 January 2010</i></p> <p>An undefined amount of copper concentrate fell from the loading chute of the ship loader in the harbour, three days after loading of the ship <i>Ikan Tamban</i>. By this time the ship loader had been cleaned by Veolia and control formally handed back to DPC.</p> <p><i>Incident 2 (cont.)</i></p>	<p>Issued PANs.</p>	<ul style="list-style-type: none"> • It was not possible to attribute the spill to a single entity, as it was likely to be the result of a combination of factors and events involving DPC and multiple contractors operating on behalf of OML. • Veolia purchased higher specified equipment for cleaning the chute. DPC modified the ship loader to incorporate an additional hatch to facilitate cleaning. • There was no evidence of material or serious harm to the environment.

⁷ NRETAS, 'Investigation Report: Bulk Ship loading at East Arm Wharf and incidents involving spills, dusting and stormwater contamination', p.7.

Incident	Action taken by NRETAS	Findings
<p>A witness reported the incident to DPC and completed an internal Environmental Incident Notification. The incident was not reported to NRETAS at the time of occurrence. As with incident 1, NRETAS was initially aware of the incident through media reports.</p>		
<p><i>Incident 3 – 10 July 2009, 14 November 2009, 24 November 2009 & 1 February 2010.</i></p> <p>Fugitive dust emissions from the ship loader were reported to DPC on the above dates. These had been the subject of internal complaints by wharf workers concerned about health risks.</p>	<p>Issued PANs.</p> <p>Worker health and safety allegations were referred to NT WorkSafe for investigation.</p> <p>Note: NT WorkSafe monitoring of site found no evidence of ongoing risk to human health.</p>	<ul style="list-style-type: none"> • The loading of copper concentrate and other ores using a partially open conveyor results in fugitive dust emissions at the loading site. • Given the work undertaken by NT WorkSafe, no further steps were taken by NRETAS regarding the possible nuisance caused by the dust.
<p><i>Incident 4 – 25 April 2010</i></p> <p>It rained at the wharf while the NRETAS investigation officers were conducting an on-site audit. They observed red-coloured stormwater running into the sea during and after the rain shower.</p>	<p>Investigators instructed AIMS, which was conducting its sampling for NRETAS at the time of the incident, to take samples from the stormwater plume.</p> <p>Issued PAN to DPC on 24 May 2010.</p> <p>Prosecuted DPC for contravening section 83(3) of the <i>WMPC Act</i> (causing material environmental harm).</p>	<ul style="list-style-type: none"> • The pipe discharging the stormwater into the harbour waters was owned by DPC. • DPC intentionally polluted the environment, where material environmental harm resulted.⁸

⁸ Northern Territory of Australia, Complaint made under the *Justices Act*, signed by JWG Grant, Chief Executive Officer of the Department of Natural Resources, Environment, The Arts and Sport, 11 April 2011.

Issue of PANs by NRETAS

At the commencement of the investigation, NRETAS' knowledge of the copper concentrate spill and dust emission incidents (incidents 1 to 3) was based on media reports concerning past, undated, incidents. On 23 April 2010 NRETAS issued a Pollution Abatement Notice (PAN) to both DPC and OML. The PANs stated the Chief Executive Officer had reason to believe that incidents in 2009 and 2010 had resulted in quantities of copper concentrate dust escaping the ship loader.

The PAN to DPC asserted the incidents occurred while the ship loader *"was in the possession or control, and/or was the responsibility of the Darwin Port Corporation"*.⁹ The PAN to OML asserted the incidents occurred while the copper concentrate *"was in the possession or control, and/or was the responsibility of, Oz Minerals Ltd"*.¹⁰ Both PANs required the respective organisations to,

"...immediately take steps to ensure that in future no loading of copper concentrate onto ships is undertaken at the premises unless there are adequate measures in place to avoid a repetition of the events...such as would entail a breach of section 83(4) or 83(5), or a failure to comply with section 12(1) of the [WMPC] Act."

After reaching its findings in relation to incidents 1 to 3, NRETAS revoked the PANs.

On 24 May 2010 NRETAS issued a PAN to DPC giving notice that DPC may have committed offences against the WMPC Act with respect to the stormwater, as preliminary test results of marine water taken from the plume showed contamination with copper, zinc and cobalt *"substantially in excess of the Australian and New Zealand Water Quality Guidelines for Fresh and Marine Water Quality trigger levels."*¹¹

The PAN asserted that DPC is responsible for the operation and maintenance of the stormwater drain and outlet from which the plume emerged, and ordered DPC to:

"take all reasonable measures to ensure...that any runoff water discharged from the premises into Darwin Harbour does not contain contaminants at levels that exceeded the Australian and New Zealand Water Quality Guidelines for Fresh and Marine Water Quality."

AIMS findings

The AIMS report, commissioned by NRETAS, concluded that the scientific evidence established levels of copper and zinc in the stormwater discharge that could be considered to

⁹ Northern Territory Government, 'Pollution Abatement Notice', issued pursuant to section 77 of the *Waste Management and Pollution Control Act*, issued to Darwin Port Corporation, 23 April 2010.

¹⁰ Northern Territory Government, 'Pollution Abatement Notice', issued pursuant to section 77 of the *Waste Management and Pollution Control Act*, issued to Oz Minerals Limited, 23 April 2010.

¹¹ Australian Institute of Marine Science, 'Investigation of Copper Concentrate Load out at East Arm Port: Water and sediment quality', June 2010.

cause environmental harm.¹² The AIMS report assessed levels of contaminants according to benchmarks established by the Australian and New Zealand Environment Conservation Council and Agriculture and Research Management Council of Australia and New Zealand (ANZECC) *Guidelines for Fresh and Marine Water Quality*. These guidelines provide generally accepted trigger values for a range of toxicants in freshwater, coastal and marine environments, including copper and zinc, which if exceeded increase the risk of impact. Trigger values are based on the “protection level” of a water body, which AIMS considered the water in the vicinity of East Arm Wharf should be regarded as moderately disturbed, since the activities of a commercial wharf will affect water quality. The ANZECC guidelines specify the protection level for moderately disturbed water to be 95 per cent, as opposed to the highest level of protection of 99 per cent which is required for pristine or near pristine environments or those with high conservation value. The AIMS study found that levels of copper and zinc in the stormwater plume exceeded trigger values for metals in seawater at 95 per cent protection levels.

AIMS advised that the dissolved metals in water are potentially bio-available (readily available for ingestion by filter feeding marine organisms) and the particulate (i.e. undissolved) metals may also be digested or taken up by organisms in the water. AIMS identified the extent of the contamination was confined to a small area of the stormwater plume which extended approximately 100 metres from the end of the stormwater drain at the eastern end of the wharf and concluded that the risk of harm to, or potential adverse effect on, the environment outside the plume area was negligible.

NRETAS relied on the AIMS findings in prosecuting DPC for polluting harbour waters with contaminated stormwater.

Investigation of options for improved regulation at East Arm Wharf

In addition to investigating the copper concentrate incidents, NRETAS' had a further objective, namely to: “*identify options for improved regulation at East Arm Wharf to reduce the likelihood of such incidents occurring in the future*”.¹³ Actions taken by the investigation team for this purpose included:

- Reviewing the history and background of approvals for the East Arm Wharf, including the environmental assessment process for the wharf, the development approval for the ship loader and its change in use from lump iron ore to copper concentrate.
- Assessing compliance by port users with Environmental Management Plans (EMPs).
- Identifying deficiencies in regulatory processes and discussing options for improved management.
- Making recommendations for ongoing environmental management of the East Arm Port, monitoring of Darwin Harbour and improvements in the regulatory process.

Recommendations arising from NRETAS investigation

The NRETAS investigation team made one recommendation specific to the copper concentrate incidents. This was for NRETAS to implement a Compliance Plan under Part 7 of the *WMPC Act*, to commit DPC to a phased improvement in environmental performance.¹⁴

¹² Australian Institute of Marine Science, ‘Investigation of Copper Concentrate Load out at East Arm Port: Water and sediment quality’, June 2010.

¹³ NRETAS, letter to EPA, 3 October 2011.

¹⁴ NRETAS, ‘Investigation Report’, p.21.

The recommendation covered incidents 1 to 3 but not incident 4 (see Table 1), as the investigation of the potentially contaminated stormwater draining into Darwin Harbour had not been completed when the investigation team delivered its report to the NRETAS executive.

The NRETAS investigation team also made three recommendations aimed at improving environmental regulation at East Arm Wharf:

- increased scientific monitoring in Darwin Harbour including the establishment of a coordinated, best practice program of scientific monitoring;¹⁵
- development of a stakeholder awareness program to inform business and other users of Darwin Harbour of their general environmental responsibilities, noting the additional benefit of building relationships with stakeholders while improving environmental knowledge;¹⁶
- improvements to a number of areas *via* legislative amendments.

The details and uptake of these recommendations are discussed under Term of Reference 2 below.

Concluding actions by NRETAS

NRETAS concluded its investigation of the stormwater plume incident on 11 April 2011, when it launched prosecution action against DPC for intentionally polluting the environment. Prosecution was completed on 6 September 2011 when DPC pleaded guilty to causing an environmental nuisance, an offence under the *WMPC Act*, and was fined \$19,000.

NRETAS also undertook measures to improve its own internal regulatory processes. These included:

- reviewing the Compliance Policy;
- conducting an internal workshop to identify the lessons learnt during the investigation and prosecution processes;
- developing an investigation manual for use in investigating significant incidents likely to result in prosecution; and
- developing procedures for enforcing minor offences under the infringement notice provision in the *Waste Management and Pollution Control Regulations*.

Implementation of EPA's recommendations from Part 1 Inquiry Report

In Part 1 of the report, EPA made a series of recommendations, some of which have subsequently been acted upon and others not. The current status of these recommendations is summarised in Appendix C.

¹⁵ NRETAS Investigation Report, p.21.

¹⁶ NRETAS Investigation Report, p.21.

TERM OF REFERENCE 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 prevention of future similar incidents.

Thoroughness and effectiveness of NRETAS' investigation

The focus of the NRETAS investigation was on both enforcing compliance with the environmental legislation while continuing to improve the environmental regulatory system. The EPA finds the actions by NRETAS were thorough and appropriate

On becoming aware, via allegations in the media, of the spillage and dusting of copper concentrate at the East Arm Wharf, NRETAS immediately initiated a compliance investigation and took appropriate enforcement action to achieve compliance with the relevant environmental legislation.

NRETAS appropriately obtained expert scientific evidence on the effectiveness of risk management and the potential impacts of spills on the environment arising from ship loading of copper concentrate at East Arm Wharf. Witness statements were obtained as evidence along with detailed information and statements from DPC. At the conclusion of the investigation, NRETAS was able to make evidence-based decisions in relation to matters of compliance with both the *WMPC Act* and the *Water Act* by the owners and operators at the East Arm Wharf.

NRETAS referred the dust emission incidents to NT WorkSafe. NRETAS' action was appropriate, as the issues associated with dusting were primarily worker health and safety issues. Pursuing this matter in relation to environmental legislation would most likely have been ineffective as it would have been difficult to determine if the dustings in the past had caused harm to the natural environment.

During the course of the investigations NRETAS became aware of limitations of the environmental regulatory system, and set about identifying improvements to reduce the risk of similar incidents occurring in the future. For example, they identified risks of potentially contaminated stormwater run-off entering Darwin Harbour in 2005 but issues remained unresolved by the time of the investigation in 2010. The fact that stormwater landing on the wharf flowed directly into the harbour was raised by the Environment Minister in 2005 when the development proposal for the ship loader was under consideration.¹⁷ The wharf was designed for quick run-off of surface water into the harbour at a time when the wharf was intended to be used for container ships. It was not designed with consideration for containment of spilled, potentially environmentally harmful, product from bulk loading operations onto the hard stand.

Following approval of the construction of the ship loader in 2005, there was a history of engagement by NRETAS staff with DPC regarding stormwater management at the East Arm Wharf. Since 2006, meetings, including inspections and directions to DPC and port users, had raised the issue of inadequate stormwater management at the site, but there was no

¹⁷ NRETAS, Investigation Report, p.13.

resolution of the problem. During this time the ship loader had been used for manganese, iron ore and, from 2009 onward, copper concentrate exports, with the potential for product to escape from the bulk loader onto the hardstand and be washed into the Darwin Harbour. There is no evidence that these discussions resulted in DPC changing its stormwater management and specifically diverting it to prevent direct flow into the sea. This matter is discussed further under Term of Reference 3.

Measures available to NRETAS to address this issue include the compliance measures contained in the *WMPC Act*, which may be applied in specific circumstances to prevent or remedy pollution causing environmental harm. Options include PANs, infringement notices, directions and performance agreements.¹⁸ In addition to these legislative measures, the NRETAS Compliance Policy and Compliance Guidelines identify cooperative actions available, ranging from education, to the provision of information, to formal and informal advice and to warning letters.

Despite discussion between NRETAS and DPC about water management, no resolution or implementation occurred (Also see Term of Reference 3). NRETAS reported issuing directions but did not use any legislative compliance measure between 2006 and April 2010 to rectify what it regarded as inadequate stormwater management at East Arm Wharf.¹⁹ When NRETAS issued the PANs on 24 May 2010 it still considered the stormwater management to be inadequate. It was not until the PAN was issued that DPC took action to divert the stormwater to a retention pond and sealed the drain leading into the harbour.²⁰ DPC has subsequently engaged a consultant to develop a stormwater drainage strategy for the East Arm Wharf.²¹

Given the length of time in which NRETAS was aware of the inadequacy of stormwater management on the wharf, the EPA considers that NRETAS could have more effectively used available compliance measures over the four years prior to the incidents becoming public. In particular, NRETAS could have considered an escalating scale of response to reinforce its message to DPC. Unfortunately NRETAS' Compliance Policy does not provide clear guidance in using compliance measures in this way. NRETAS also missed the opportunity to utilise a compliance measure which could have put in place a timeframe for upgrading the stormwater system.

Uptake by NRETAS of investigators' recommendations

Recommendation 1 - Implement a legislative compliance tool

The NRETAS investigation team recommended NRETAS negotiate with DPC to revoke the PANs in place in relation to the copper concentrate spill and dusting incidents (incidents 1 to 3), commensurate with DPC volunteering to enter into a compliance plan, which would commit DPC to a phased improvement in environmental performance.²² A compliance plan would enable infrastructure and monitoring at East Arm Wharf and the surrounding precinct to be monitored until upgraded to appropriate contemporary environmental standards.

NRETAS did not take up this recommendation because OML and DPC had made good progress in addressing the issues identified in the PANs regarding the first three incidents. In

¹⁸ A list of the enforcement measures available under the *WMPC Act* may be viewed at Appendix D.

¹⁹ NRETAS, Investigation Report, p.15.

²⁰ NRETAS, letter to EPA, 3 October 2011.

²¹ DPC, letter to EPA, 5 December 2011.

²² NRETAS, Investigation Report, p.19.

addition, NRETAS obtained \$0.8 million per annum from the government for additional compliance officers. This enabled NRETAS to conduct more proactive compliance monitoring of activities at the wharf, including auditing of one ship loading event each month.²³

The EPA considers that the decision of NRETAS not to implement further compliance measures was reasonable in light of the positive assessment of remedial action taken by DPC and port users to address the non-compliance issues. The more proactive approach to compliance monitoring at East Arm Wharf to be undertaken by NRETAS is also a positive step forward in terms of the desired outcome of encouraging compliance with environmental legislation.

Recommendation 2- Increase scientific monitoring in Darwin Harbour

NRETAS' investigation was impeded in making a determination of environmental harm by the lack of baseline data, lack of consistency in sampling locations and lack of transparency and cooperation in information sharing of monitoring data among port users.²⁴ It highlighted the need for improved baseline data on the state of health of the Darwin Harbour, especially given the rapid expansion and intensification of uses in Darwin Harbour and its coastline by mining, gas and petroleum industries.

In response to this recommendation, the NT Government also provided additional resources (\$0.8 million per year) for enhanced monitoring in Darwin Harbour and proposed a Darwin Harbour Integrated Monitoring and Research Program, which aims to draw together existing monitoring and research undertaken by various stakeholders into an integrated program.

The EPA endorses this government initiative in the expectation that increasing resources allocated to monitoring activities is a crucial first step in improving the ability of NRETAS to encourage and where needed, enforce improved compliance with environmental legislation. The proposed integrated monitoring initiative has the potential to greatly improve understanding of the health of Darwin Harbour and provide objective science-based tools for more effective environmental planning and decision making. The EPA notes, however, that there have been no public announcements about progress with design or implementation, which appears to have been slow.

Recommendation 3- Increase stakeholder awareness of general environmental duties

The NRETAS investigation team concluded that businesses and other users of the port were not sufficiently aware of their statutory environmental duties, especially those set out in the *WMPC Act*. An educational program would have a two-fold benefit of increasing awareness and building relationships between NRETAS and port users.

To address this recommendation NRETAS:

- increased its regulatory capacity, as a result of the additional funding allocated for new compliance officers, to assist in increasing awareness among stakeholders at East Arm Wharf
- proposed a communication strategy for the Pollution Response Line (not yet implemented)
- consulted the community about proposed amendments to the *WMPC Act*, and
- communicated success, and relied on general media coverage surrounding the DPC

²³ NRETAS, letter to EPA, 3 October 2011.

²⁴ NRETAS Investigation Report, p.17.

prosecution.

NRETAS has not committed to a specific, targeted, educational program to raise awareness among stakeholders at the port of their general environmental duties. NRETAS may have difficulty determining whether the above mentioned actions will have the desired effect of increasing awareness among Darwin Port users and more generally other industries and businesses with the potential to pollute the environment. It would be prudent for NRETAS to formally monitor the extent of awareness among port users and if levels of awareness are not satisfactory, implement targeted communications aimed at strengthening people's awareness of their environmental duties under the *WMPC Act*. Development and consultation with industry and other port users on the design and implementation of the proposed integrated monitoring system would provide focus for a coherent communication plan.

Recommendation 4- Legislative amendments

- Ability of NRETAS to require Environmental Management Plans

The NRETAS investigation team identified a lack of integration between the *Environmental Assessment Act*, the *WMPC Act* and the *Planning Act*, which has resulted in development approvals failing to incorporate appropriate environmental operating conditions. They suggested the establishment of a set of enforceable conditions in the development phase of projects including the reporting of environmental data that can be reviewed regularly.

It has been common practice for NRETAS to request Environmental Management Plans in cases where a development has a number of environmental issues requiring management but the issues are not significant enough to require formal assessment under the *Environmental Assessment Act*. However, there are no enabling provisions under the *Environmental Assessment Act* or the *WMPC Act*, to require preparation or approval of these plans. While NRETAS may request the Development Consent Authority to require an Environmental Management Plan as a condition of a Development Permit, NRETAS is inhibited from doing so by concerns that requiring a condition and being able to enforce them may be outside the present scope of the *Planning Act*.

Environmental management at East Arm Wharf has been largely self-monitored in the absence of any specific regulatory requirements. Environmental Management Plans of DPC and port users in place at East Arm Wharf are not legally enforceable, nor does NRETAS have any power to review or require updates to the plans. The NRETAS investigation team considered this has inhibited NRETAS' ability to oversee environmental management at the wharf.

The investigation team recommended the establishment of a set of enforceable conditions including the reporting of environmental data that is reviewed regularly. They suggested amending the *Environmental Assessment Act* to enable the Administering Agency to require, review, update or modify and enforce Environmental Management Plans as part of an environmental impact assessment process, even where formal assessment under the Act is not required. This will assist in moving from a largely self-monitoring system at East Arm Wharf to one in which NRETAS can review wharf activities.

- Use of compliance tools in *WMPC Act*

Compliance tools available to NRETAS under the *WMPC Act* have not been utilised to date, at least partly as a result of the limited number of activities requiring approval and licensing under the *WMPC Act* and the minimal number of environmental protection objectives implemented. For example, the Minister can only require a compliance plan if a person is or will be unable to comply with a gazetted environmental protection objective or a provision of

the Regulations. To date, only one environmental protection objective has been gazetted.²⁵ Failure to make full use of the tools available has constrained NRETAS' ability to utilise compliance plans.

- Requirement under *WMPC Act* to prove environmental harm

The NRETAS investigation team noted that a focus in the *WMPC Act* on material or serious environmental harm as a precursor for most enforcement responses and the criminal nature of such offences, has inhibited the regulator's ability to take enforcement action in response to environmental incidents. This is largely due to the difficulty in establishing the requisite degree of harm to a criminal burden of proof.

NRETAS communicated its findings to the NT Government, which subsequently committed to specific amendments to the *WMPC Act* to address issues identified during the investigation, as well as broader reviews of that Act and the *Environmental Assessment Act*.²⁶ The amendments were anticipated to be progressed in 2012 and involved increased penalties for environmental offences made under amendments to the *Environmental Offences and Penalties Act* in 2010.

Proposed amendments to the *WMPC Act* were released for public comment and the EPA endorsed the proposals in its submission to the Territory Government, while anticipating a further round of amendments in the broader review of the Act.

Proposed amendments to the *Environmental Assessment Act* have not yet been released for review. The EPA generally endorses the amendments recommended by the NRETAS investigation team. However, it also recognises that the ability of the regulator to monitor activities at East Arm Wharf and other similar facilities is affected not only by the powers provided to it by the legislation, but also by the resources available to it. Expanding NRETAS' powers to conduct auditing and review activities risks being cosmetic rather than effective unless the significance of the problem being addressed can be quantified and resources allocated to it accordingly.

Concluding actions by NRETAS

NRETAS made the decision to prosecute DPC over the stormwater plume incident without awaiting conclusions of its then ongoing internal investigation. However, considerable legal advice was sought regarding the evidence required to establish an offence under the *WMPC Act* and the decision to prosecute was guided by NRETAS' Compliance Policy and the Director of Public Prosecutions Guidelines.²⁷ NRETAS concluded that a prosecution in relation to the stormwater plume incident was in the public interest.

The decision to prosecute was an option open to NRETAS through legislation, policy and procedure. The agency has been proactive in taking steps to ensure lessons learnt from the process are not lost, through the measures outlined above. Overall, as a consequence of its experience with the copper concentrate incidents at East Arm Wharf, NRETAS can be expected to be better prepared to respond to other environmental incidents of this nature if or when they occur.

²⁵ This is the Environment Protection (National Pollution Control Inventory) Objective.

²⁶ NRETAS, letter to EPA, 3 October 2011.

²⁷ NRETAS, letter to EPA, 25 January 2012.

EPA Recommendation 1: That the proposed amendment to the *Waste Management and Pollution Control Act* are progressed by government to clarify responsibilities of the Darwin Port Corporation, port users and others, and to improve useability of the legislation for effective compliance responses.

EPA Recommendation 2: That monitoring programs in Darwin Harbour support improved understanding of the health of the harbour and, *inter alia*, provide baseline data sufficient to inform meaningful assessments of environmental harm.

Concluding comments

The EPA concluded that NRETAS was thorough and effective in investigating the copper concentrate incident, in restoring compliance with environmental legislation, in rebuilding public confidence, and in providing valuable advice to government, which has in turn initiated legislative amendments and allocated more resources for environmental monitoring. NRETAS has recognised gaps in the environmental regulation regime and taken action to overcome them. Perhaps more important, the case history has given NRETAS valuable experience that can be expected to be applied in the event of future incidents on smaller or larger scales.

TERM OF REFERENCE 3

Using the inquiry reports and other information as necessary critically analyse the effectiveness of the communication channels and links between stakeholders and the effectiveness of the Northern Territory Government's existing internal operations in relation to the management of incidents as demonstrated by the response to the copper concentrate spill.

Effectiveness of communication and links between NRETAS, DPC and port users

NRETAS – Communication with stakeholders to support and enforce compliance

Prior to the NRETAS investigations into the copper concentrate spills and dusting incidents, NRETAS relied heavily on business and the community to report pollution incidents likely to adversely affect the environment. NRETAS had limited resources and had not conducted compliance monitoring of activities at East Arm Wharf in relation to responsibilities under the *WMPC Act*. No licences are required under the *WMPC Act* in relation to DPCs operations, and there were no regular communications, established communication channels or any other form of reporting between NRETAS and DPC or other port users.

DPC had sought advice from NRETAS on how to best manage water runoff, but was under no obligation to implement according to that advice. As discussed in Part 1 of the inquiry report, the EPA considers that NRETAS placed too much reliance on somewhat ambiguous incident reporting obligations under the *WMPC Act*. As a consequence, NRETAS only became aware of the copper concentrate problems months after the incidents had occurred.

With the benefit of hindsight, NRETAS could have been more effective in directly communicating its roles and responsibilities with respect to regulation of the *WMPC Act* and the *Water Act* to the DPC, and possibly other operators at East Arm Wharf.

Prior to the NRETAS investigation the focus of DPC in managing East Arm Wharf was on productivity and safety of workers. Environmental management was not the key priority it has

now become.²⁸ As a government business division, it appears DPC had an expectation that it could request environmental management advice somewhat informally from NRETAS, another government organisation. DPC reports it was frustrated by what it considered to be a lack of clarity by NRETAS about its requirements (e.g. guidelines or standards) for water runoff at East Arm Wharf.²⁹ The environmental incidents at East Arm Wharf have highlighted a need for greater clarity around the roles and responsibilities of government agencies, in relation to regulatory responsibilities and expectations by regulated bodies of being able to gain assistance from the regulator.

Communication between NRETAS and DPC became formalised during the investigation of the copper concentrate incidents at East Arm Wharf. NRETAS' issue of PANs demonstrated its preparedness to issue directions to DPC and OML in order to obtain compliance with environmental legislation. NRETAS then formally sought and obtained written information and evidence from DPC, which enabled it to identify and reach conclusions on the four environmental incidents (Table 1) involving copper concentrate. Letters between the two agencies, provided to the EPA, indicate that NRETAS obtained the full cooperation of DPC in the investigation, notwithstanding DPC's assertions that it was not the responsible body with respect to the copper concentrate incidents. The EPA considers that NRETAS' communications were effective at this point and obtained the desired result of securing compliance.

Communications with the Public

The public has increasingly become a stakeholder in environmental incidents, locally, nationally and internationally, and that NRETAS should be publicly accountable for the effectiveness and efficiency of its regulatory response is now well accepted. Historically, NRETAS and its predecessors were not subject to as much public interest and scrutiny, and provided limited information to the public on regulatory activities.

In April 2010, following the initial reports of the copper concentrate incidents, NRETAS wisely established a website to provide public information on its environmental investigations. The website contains environmental test data results and some of the reports obtained by NRETAS in the course of its investigations. The website provides links to media releases and was used to update the public on the copper concentrate spill investigation and the progress of the stormwater contamination and pollution of Darwin Harbour prosecution.

Facilitating public access to information about environmental investigations was a positive initiative. It informs people interested in specific incidents, and supports increasing transparency in governance, and ultimately assists the public to better understand the role and processes of environmental regulation, along with their strengths and weaknesses. Such approaches could be frequently applied to a wider range of environmental issues.

DPC and OML – Duty to notify NRETAS of pollution incidents

As neither DPC nor OML was required to hold licences under the environmental legislation, their only obligation to communicate with NRETAS was in respect of their environmental duty, under the *WMPC Act*, to notify NRETAS of incidents causing or threatening to cause pollution resulting in material or serious environmental harm. This duty is contained in Section 14 of the *WMPC Act*, which requires a person conducting an activity where:

- an incident occurs in the conduct of an activity; and

²⁸ Meeting with DPC, 7 November 2012.

²⁹ Meeting at DPC, 7 November 2012

- the incident causes, or is threatening or may threaten to cause, pollution resulting in material environmental harm or serious environmental harm,

to notify the Administering Agency (in this case NRETAS) as soon as practicable (and within 24 hours) after first becoming aware of the incident. Penalties apply for non-compliance with this section of the Act.

In Part 1 of the EPA inquiry report commented on the non-reporting of the copper concentrate incidents and noted that there were three key problems:

- i) a lack of clarity regarding what constitutes an incident;
- ii) a lack of clarity or overlap regarding who has responsibility for reporting; and
- iii) an absence of the use of reporting triggers as standard and common practice.³⁰

These issues are partially addressed in the proposed amendments to the *WMPC Act*³¹, namely to replace section 14 with new clauses which would:

- Clarify who must report an incident, specifying that persons required to report an incident would include any person who may be involved in an activity, either undertaking it, providing the equipment for it, or because it is occurring on land under their control.
- Remove the existing requirement that the incident causes or threatens to cause pollution resulting in material or serious environmental harm and replace it with a requirement to report irrespective of whether or not environmental harm has occurred.
- Establish failure to report as an offence, unless the pollution is trivial or negligible in nature.

The EPA supports the amendment to the *WMPC Act* to provide clarity to owners and operators of land and equipment about the need to report pollution incidents, and in the interests of common sense and efficiency, for regulators, owners and operators, to make a distinction between significant and insignificant forms of pollution. However, it also recognises that the administrative guidelines for establishing “negligible” or “trivial” pollution will be of utmost importance.

DPC – Communication with port users to meet its statutory responsibility

DPC has a responsibility under the *Darwin Port Corporation Act* for the control and management of East Arm Wharf. This statutory responsibility requires that DPC communicate to port users its requirements to ensure the safe and sustainable management of the port. DPC does this through various mechanisms such as lease agreements, licensing of stevedores and workplace instructions.

However, the copper concentrate incidents revealed shortcomings in DPC’s awareness and control of port users’ activities. Examples of this include:

- DPC’s acknowledgement that it was not fully informed about the actions OML had taken in response to the copper concentrate spill and dusting incidents.³²

³⁰ EPA, Final Inquiry Report: East Arm Wharf Copper Concentrate Incident Part 1, pp.36-37.

³¹ Legislative Assembly of the Northern Territory, *Waste Management and Pollution Control Act Amendment Bill 2012*, available at <http://www.nretas.nt.gov.au/environment-protection/legislation/management/proposed-amendments-to-the-waste-management-and-pollution-control-act>, viewed 30 July 2012.

³² DPC, letter to NRETAS, 29 April 2010.

- DPC's lack of knowledge of the extent to which OML had implemented recommendations made by consultants to remedy the shortcomings of the bulk loader for loading of copper concentrate.³³
- DPC's lack of knowledge of the extent of environmental monitoring being conducted by OML and lack of coordination or sharing of sampling results.³⁴

Clearly many positive outcomes have resulted from the various responses to the incidents at the East Arm Wharf, which have helped owners, operators' and regulators, and ultimately improved DPC's environmental management role at East Arm Wharf. DPC actions have included:

- reviewing and revising DPC's Environmental Management System for all the wharves under DPC's control;
- developing a Legal Register to identify actions required to remain compliant with all relevant legislation;
- developing an Environmental Management Plan for East Arm Wharf (and subsequently other wharfs owned by DPC);
- incorporating the East Arm Wharf Environmental Management Plan, where possible, into the operational Development Permits and to encourage port operators to use the plan as a point of reference;
- creating a Bulk User Environmental Advisory Group to discuss, update and coordinate activities between DPC and users of the ship loader facility; and
- building environmental management into contracts with subcontractors on the wharf and providing inductions sessions for new DPC staff and staff of subcontractors.

These actions demonstrate real and tangible progress in improving environmental management outcomes at East Arm Wharf, and the inclusion of environmental management as a key business objective. There are still issues associated with water management at East Arm Wharf, including establishing a wash-down bay for trucks and completing the stormwater management system in accordance with the recommendations of the consultants (Aurecon) DPC engaged to develop their East Arm Wharf drainage strategy.³⁵

DPC – Public accountability

As a government agency, DPC is publicly accountable for its actions. However, until 2011 DPC's public statements regarding its environmental management of the Darwin Port area were generally limited to recognition that it had an environmental management system.³⁶

Following the copper concentrate incidents, DPC's 2010-11 Annual Report provided much more information than previous annual reports on corporation's environmental responsibilities and performance, including identifying outstanding issues. The report provides information about DPC's response to the copper concentrate incidents and how it had addressed issues

³³ DPC, letter to NRETAS, 6 December 2010.

³⁴ DPC, email to EPA, 3 February 2012.

³⁵ Aurecon Australia Pty Ltd, *East Arm Wharf Drainage Strategy: issues, options and guideline recommendations*, report prepared for the Department of Construction & Infrastructure and Darwin Port Corporation, June 2011.

³⁶ Public statements of DPC's environmental management are contained in its Annual Reports, which may be viewed at: <http://www.darwinport.nt.gov.au/media-and-publications>, viewed 30 July 2012.

relating to the bulk loader and the stormwater drainage system.³⁷

Furthermore DPC has expanded the information available on its website regarding environmental management and provided public access to the Environmental Management Plan for East Arm Wharf and other wharves under DPC ownership.³⁸

DPC has also committed to making its environmental sampling program results publicly available, via the Darwin Harbour Integrated Monitoring and Research Program.³⁹

These actions by DPC demonstrate improved awareness and understanding of, and commitment to, the organisation's environmental management responsibilities at East Arm Wharf.

EPA Recommendation 3: That the environmental regulator continue to build public awareness and understanding of individual and corporate responsibilities with respect to management and reporting of environmental incidents.

EPA Recommendation 4: That the Darwin Port Corporation continue to build its public communications about environmental management at East Arm Wharf.

Effectiveness of NRETAS' internal operations

The evidence before the EPA indicates that NRETAS' internal operations, as demonstrated by its response to the copper concentrate incidents was largely effective.⁴⁰ The EPA concluded that NRETAS:

- acted in accordance with its legislation and internal delegations
- identified appropriate objectives for the investigation
- devised and followed a methodology suitable for the purpose of the investigation
- established and met a reasonable timeframe for the investigation
- identified and obtained information from most relevant stakeholders
- took steps to avoid duplication of effort with NT WorkSafe.

The EPA understands that NRETAS conducted an internal review of the investigation to identify what it could do better in the future. It identified the need for an investigation manual to provide better direction for officers conducting an investigation that may lead to prosecution.

Concluding comments

The importance of effective communication, based on a clear understanding of the role and responsibilities of the regulator and regulated, is perhaps the most important lesson arising

³⁷ DPC, Annual Report 2010-11, <http://www.darwinport.nt.gov.au/media-and-publications>, viewed 30 July 2012.

³⁸ DPC website: <http://www.darwinport.nt.gov.au/environment-and-safety>, viewed 30 July 2012.

³⁹ DPC, letter to EPA, 3 February 2012.

⁴⁰ The evidence relied on consisted of NRETAS' Investigation Report and correspondence between NRETAS and the EPA and NRETAS and DPC cited in this report and Part One.

from NRETAS' investigation of the copper concentrate incidents. Both NRETAS and DPC gained important insights into how better communication – with each other, with port users and with the public – would enhance environmental management and public accountability.

TERM OF REFERENCE 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 Port will not be repeated.

There can be no guarantee that environmental incidents of the nature discussed in this report will not happen again, because risk and uncertainty can be minimised but not eliminated from the operations of East Arm Wharf. The EPA's comments and recommendations in this report and in the Part 1 of its inquiry have highlighted a range of ways in which the legislation may be or has been strengthened and a number of other processes which may or are being improved. These include:

- Continuous improvement of environmental regulation and compliance enforcement processes.
- The timely application of appropriate regulatory tools to encourage compliance with environmental legislation.
- Active compliance monitoring at East Arm Wharf.
- Improved baseline data to assist in compliance monitoring and enforcement at East Arm Wharf.
- Strengthening environmental legislation to support effective compliance responses.
- Improving the robustness of the environmental assessment process to ensure environmental risks at the wharf are identified and addressed prior to approval of proposals.
- Increasing public awareness of the role and responsibility of the environmental regulator and sharing of information where practical.
- Ensuring clarity of reporting obligations by persons with a general environmental duty.
- Better integration of land use planning, development and environmental protection processes to improve environmental outcomes at the wharf.
- Clarifying responsibilities of owners and operators of land and facilities to reduce risks created when individuals and business are uncertain about the matters about which they may be held accountable.

There have been significant improvements in a range of areas since the copper concentrate incidents came to the attention of NRETAS. NRETAS' decision to conduct a compliance investigation was in many respects a catalyst for change. The investigation prompted DPC to take action to prevent stormwater run-off from East Arm Wharf from polluting Darwin Harbour waters. It also prompted NRETAS to review the effectiveness of the regulatory regime and this led to proposals to improve the legislation as well as to enhance the compliance response.

Conclusion

This EPA report has reviewed the investigations undertaken by the regulatory authority,

NRETAS, into the copper concentrate incidents, in order to assess the thoroughness and effectiveness of NRETAS' response to protect the environment. The EPA also considered the effectiveness of communications among stakeholders.

Overall, NRETAS' investigation achieved its objectives, not only to determine if there had been any non-compliance with environmental legislation at East Arm Wharf, but also to identify areas for improvement in the NT's environmental regulation at East Arm Wharf. Significantly, NRETAS' investigation resulted in action to address the pollution of Darwin Harbour waters by the stormwater run-off from the wharf. Increased resourcing to NRETAS for compliance officers and for research activity in Darwin Harbour are also expected to enhance environmental monitoring and to improve collective environmental management performance.

DPC gained an improved understanding of its own environmental management responsibilities at East Arm Wharf, and it tightened its internal processes to better enable it and other port users to comply with their environmental duties and obligations. DPC has improved its stormwater management and continues to work on further improvements.

Proposed amendments to the *WMPC Act*, if enacted, will increase the onus on all persons aware of a pollution incident likely to threaten the environment to act upon it. This will improve the operational practicality of this key piece of NT environmental legislation.

If all the lessons from the NRETAS investigation are taken up, through amendments in the legislation and changes in policy and procedures, the environmental regulatory system in the Territory will be significantly enhanced. It indicates clearly that there are many advantages in subjecting potentially threatening issues, such as the copper concentrate incident, to thorough examination and critical review.

However, we note that many of the essential responses to these incidents have been administrative and so depend on internal agency processes that can change or fall into disuse without reference to the public or Parliament. As we have noted, some additional steps are needed to ensure the durability of improvements.

Terms of Reference for EPA Inquiry into East Arm Wharf Copper Concentrate Incidents

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.

APPENDIX B

Chronology of events in relation to copper concentrate incidents and NRETAS investigation

DATE	EVENT
18/6/09	Spill of approximately 200kg of copper concentrate from spill trays due to a blockage in the chute. Rectified by POAGS. No notification made to NRETAS. (Incident 1)
13/1/10	Spill of copper concentrate from chute 3 days after loading onto Ikan Tamban completed. Rectified by Veolia. No notification made to NRETAS. (Incident 2)
10/7/09 14/11/09 24/11/09 1/2/10	Multiple incidents of fugitive dust emissions during loading of copper concentrate. No notification made to NRETAS. Work safety concerns investigated by NT WorkSafe. (Incident 3)
17/4/10	Media article alleging pollution in harbour from copper concentrate spills.
21/4/10	Chief Executive of NRETAS signs Pollution Abatement Notice to be issued to Oz Minerals regarding fugitive emissions of copper concentrate dust in late 2009 and early 2010 and escape of concentrate from loading chute into harbour in late 2009. Served on Oz Minerals on 23/4/10.
23/4/10	Chief Executive of NRETAS signs Pollution Abatement Notice to be issued to DPC regarding fugitive emissions of copper concentrate dust in late 2009 and early 2010 and escape of concentrate from loading chute into harbour in late 2009. Served on DPC on same day.
24/4/10	NRETAS compliance officers conduct 2 day on-site inspection. AIMS conducts water, sediment and stormwater sampling for NRETAS.
25/4/10	NRETAS compliance officers observe stormwater contamination resulting

	<p>from a rain event during ship loading. (Incident 4)</p> <p>Chief Executive of NRETAS signs Pollution Abatement Notice to be issued to DPC regarding contaminated stormwater entering harbour observed on this day.</p>
24/5/10	<p>Chief Executive of NRETAS signs Pollution Abatement Notice to be issued to DPC regarding discharge of stormwater from East Arm Wharf into harbour containing contaminants copper, zinc and cobalt. Served on DPC on same day.</p>
23/6/10	<p>Release on NRETAS website of Australian Institute of Marine Science report commissioned by NRETAS.</p>
12/4/11	<p>Summons issued to Darwin Port Corporation alleging DPC “did intentionally pollute the environment, where material environmental harm resulted and the Darwin Port Corporation knew, or ought reasonably be expected to know, that serious or material environmental harm would or might result from the pollution, contrary to section 83(3) of the <i>Waste Management and Pollution Control Act</i>.</p>
6/11/11	<p>Darwin Port Corporation convicted of the offence of environmental nuisance under the <i>Waste Management and Pollution Control Act</i>.</p>

APPENDIX C

Actions taken in relation to EPA recommendations from Part 1 Inquiry Report

Recommendations from Part 1 Report	Actions at November 2012.
1. Develop and publicly release specific sustainability objectives for Darwin Harbour against which development proposals should be assessed.	No specific action taken against this recommendation
2. Legislate for and implement systems that ensure environmental conditions crucial to the mitigation of adverse impacts on sustainability objectives are supported by robust enforcement regimes including annual audits at high risk sites such as ports.	No specific action taken against this recommendation
3. Establish a general responsibility for environmental sustainability as part of the functions of the Darwin Port Corporation.	A general responsibility for environmental sustainability has not been specified as a function of DPC in the <i>Darwin Port Corporation Act</i> , however, it is implied in DPC's Environmental Management System and the East Arm, Fort Hill and Stokes Hill Environmental Management Plans. The DPC's Environmental Policy also recognises the need to be "environmentally sustainable".
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.	See comments against recommendation 3 above.
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 <i>Darwin Port Corporation Act</i> 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.	<p>No provisions have been included in the <i>Darwin Port Corporation Act</i>.</p> <p>DPC has prepared and is implementing environmental management plans for East Arm Wharf, Fort Hill Wharf and Stokes Hill Wharf. Third party certification and auditing in relation to these has not been established to date.</p>

<p>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.</p>	<p>DPC now requires, through its licences and leases issued to port users, that they comply with DPC environmental management plans and other environmental requirements. The DPC environmental management plans place obligations upon port users.</p>
<p>7. Establish a specific responsibility for environmental safety and management as a function of the Darwin Port Corporation Advisory 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.</p>	<p>The recommendation was made in the context of the review of the <i>Darwin Port Corporation Act</i>. The Act is still under review.</p>
<p>8. Require that annual reporting by the Darwin Port Corporation include reporting on environmental performance.</p>	<p>DPC has reported its environmental performance in past two annual reports (2010-11 & 2011-12).</p>
<p>9. Remedy loopholes in the <i>Environmental Assessment Act</i> by :</p> <ul style="list-style-type: none"> 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. 	<p>The <i>Environmental Assessment Act</i> is currently under review by government.</p>
<p>10. Require that the responsibility, criteria and details of the legal duty to report are:</p> <ul style="list-style-type: none"> a. Included in all operational agreements signed by DPC. b. Explicitly communicated in training to all operators and contractors at East Arm. 	<ul style="list-style-type: none"> a. This requirement has been included in the Environmental Incident Reporting section of DPC EMP's. Licences and Leases issued to port users require them to comply with the DPC EMP. b. The DPC East Arm site compulsory entry induction advises all safety and environmental incidents are to be reported to DPC.

<p>c. Clearly articulated in relation to the stage of operation where there is a shift in legal responsibility.</p>	<p>c. DPC has advised that it now has a better understanding of who is “conducting the activity” and therefore who is legally obligated to report incidents. DPC has on a number of occasions advised port users that the incident they were involved in needs to be reported in accordance with section 14 of the <i>WMPC Act</i>. DPC has also notified the pollution watch hotline of these incidents to ensure the notification is made in a timely manner irrespective of whether DPC had any obligation to report.</p>
<p>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.</p>	<p>Penalties for offences were increased via changes to the <i>Environmental Offences and Penalties Act</i> in 2010. The <i>Waste Management and Pollution Control Amendment Bill 2012</i> also seek to further strengthen penalties.</p>
<p>12. Review environmental legislation to reduce the reliance on the standard of environmental harm as the trigger for incidents requiring reporting.</p>	<p>The <i>Waste Management and Pollution Control Amendment Bill 2012</i> contains a proposal to amend section 14 to require reporting of pollution incidents, irrespective of whether ‘environmental harm’ has, or may have, occurred.</p>
<p>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.</p> <p>Note: SEMF refers to the <i>Darwin Ship loader Dust Control: Investigation and Options Report</i> (28 January 2010), prepared by Scientists, Engineers, Managers and Facilitators (SEMF) for Darwin Port Corporation.</p>	<p>Mostly implemented. DPC did not replace ship loader but has developed a containerised bulk mineral system by modifying the container crane to enable containers to be rotated and tipped into the vessel. This reduces the risk of spillage and dust emissions.</p> <p>No copper concentrate has been exported since March 2012.</p>
<p>14. Establish a truck wash down facility at East Arm Wharf as a matter of urgency.</p>	<p>DPC has budget allocation for a truck wash down facility. The development of the Marine Supply Base created uncertainty of land available to site a wash bay and hence has caused delays. DPC is also currently in the process of purchasing an industrial grade portable wash bay. A truck wheel wash currently exists at the Territory Resources’ stockpile.</p>
<p>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.</p>	<p>Bulk Users Advisory Group meetings are held quarterly and include representatives of key stakeholders. Relevant advice/information is included in DPC’s East Arm Wharf EMP.</p>

<p>16. Require the results of environmental sampling undertaken at and surrounding East Arm be made publicly available on the DPC website.</p>	<p>The Environmental Monitoring around East Arm has not been made publicly available on the DPC website. Since the release of the Part 1 Report, the DPC has become involved with the Darwin Harbour Integrated Monitoring and Research Program (DHIMRP) and has supported the results of environmental sampling be released publicly through the DHIMRP. Although this is a different mechanism for sharing of results of environmental sampling the EPA endorses DPC's approach.</p>
<p>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.</p>	<p>No formal action specific to this recommendation has been taken. The Department of Lands and Planning (Now DLPE) has been the lead NTG department with the East Arm Wharf Expansion. The infrastructure works at East Arm Wharf are subject to both the requirements of the NT <i>Environmental Assessment Act</i> and the Commonwealth <i>Environment Protection and Biodiversity Conservation Act</i> approval.</p>
<p>18. Authorising Ministers should insist that environmental assessment is conducted in a robust manner and considered as part of every project approval.</p>	<p>The <i>NT Environment Protection Authority Bill 2012</i> strengthens assessment decisions by requiring the authorising Minister to table, in the Legislative Assembly, the reasons for their decision if that decision is contrary to the assessment report prepared by the NT EPA.</p> <p>The <i>Environmental Assessment Act</i> is currently under review.</p>
<p>19. Ensure that operational environmental management responsibilities are considered and allocated at the time of development consent.</p>	<p>Not formally adopted but see actions against recommendation 3.</p>
<p>20. Require that all future proposals for development and operations at East Arm Wharf include consideration of climate change and sea level rise.</p>	<p>No specific action taken against this recommendation. DPC has conducted some calculations on sea level rise using the Antarctic Climate & Ecosystems Cooperative Research Centre's sea level rise calculator. Specific consideration and changes to projects has not occurred in relation to sea level rise.</p>

APPENDIX D

Environmental protection and enforcement measures in WMPC Act and Water Act

The *WMPC Act* contains three types of enforcement tools, described by NRETAS as benchmark tools, control mechanisms and management mechanisms.

- The benchmark tool prescribed by the Act is the establishment of Environment Protection Objectives (EPO), which can be set covering areas such as air, water and soil quality or any type or class of contaminant, waste or activity. EPOs must be declared by the Minister. To date, very little use has been made of this regulatory tool.
- Control mechanisms are used to prevent or apply sanctions for inappropriate practice. Licensing and environmental approvals for activities with a high environmental risk are control mechanisms aimed at preventing pollution. The number of activities which require licensing under the WMPCA are currently very limited and do not include activities at ports. NRETAS may also issue a pollution abatement notice (PAN), if it believes a person has committed or may commit an environmental offence or breached their environmental duty to prevent pollution. The prosecution by NRETAS of offences under the Act is the ultimate control mechanism. To date, this option has only been used once by NRETAS – this was the prosecution of DPC in relation to one of the incidents the subject of the EPA inquiry.
- Management mechanisms are directed at encouraging improvement in environmental performance and aim to minimise the need to apply sanctions. The legislated mechanisms are environmental audits, codes of practice, compliance and improvement plans, best practice licensing and performance agreements. To date these mechanisms have been little used by NRETAS.

Table 2: Environmental protection and enforcement measures in WMPC Act

Legislative tools	Purpose and operation
Code of Practice WMPC Act Part 3	Codes of practice may be established that specify ways in the general environmental duty specified in section 12 may be complied with in relation to an activity, action, contaminant or waste. No codes of practice have been gazetted to date.
Environment protection objectives (EPO) WMPC Act Part 4.	EPOs establish the principles on which- <ul style="list-style-type: none"> (a) environmental quality is to be maintained, enhanced, managed or protected; (b) pollution, or environmental harm resulting from pollution, is to be assessed, prevented, reduced, controlled, rectified or

	<p>cleaned up; and</p> <p>(c) effective waste management is to be implemented or evaluated.⁴¹</p> <p>EPOs set standards for a specified environmental issue and may specify offences for failure to meet the standards.</p> <p>To date one EPO has been established in the Territory.⁴²</p>
<p>Approvals and licences</p> <p>WMPC Act Part 5.</p>	<p>These allow for specific conditions to be imposed on activities with a high environmental risk. Schedule 2 of the Act identifies activities requiring an approval or licence. Breach of conditions of approval or licence is an offence under the Act. A licence may be suspended or cancelled for a breach of the Act or risk or pollution resulting in material or serious environmental harm.</p>
<p>Environmental audits</p> <p>WMPC Act Part 6</p>	<p>An environmental audit may be required or voluntarily proposed, to evaluate a system, process or action with the potential to cause environmental harm. Failure to conduct the audit or to provide correct information is an offence.</p>
<p>Compliance plans</p> <p>WMPC Act Part 7</p>	<p>The purpose of a compliance plan is to enable a person who is unable to comply with a provision of the Regulations or an EPO to enter into an agreement to implement improvements in a staged manner to obtain compliance at the conclusion of the program. Compliance plans may be required or voluntary and once in place the person cannot be prosecuted. Compliance plans can only be required of persons required to hold a licence, issued with a pollution abatement notice or who has submitted an environmental audit. It is an offence to contravene a compliance plan.</p>
<p>Performance agreements</p> <p>WMPC Act Part 8</p>	<p>The Minister may enter into an agreement with a person who is conducting an activity that causes, or is likely to cause, pollution resulting in environmental harm or that generates waste. It may specify that the Territory will provide assistance in relation to the performance. The agreement has the force of a binding contract.</p>
<p>Enforcement by authorised officers</p> <p>WMPC Act Part 10, Division 1</p>	<p>This section empowers enforcement officers to issue directions to persons to take certain actions within a specified timeframe to prevent or mitigate pollution and environmental harm.</p>
<p>Pollution abatement notices (PAN)</p> <p>WMPC Act Part 10, Division 2</p>	<p>May be issued to a person believed to have committed or to be likely to commit a general environmental offence under s.83, or has breached their general environmental duty under s.12, or to the owner or occupier of the land that is polluted. It is an offence not to comply with the PAN.</p>

⁴¹ WMPC Act, section 15.

⁴² The *Environment Protection (National Pollutant Inventory) Objective* was enacted as law in 2004.

<p>Infringement notices</p> <p>WMPC Act Part 11, Division 1</p>	<p>The Act specifies that an offence against certain specific sections of the Act is a regulatory offence. Under the Regulations, an infringement notice may be served on the offender. Fines are recoverable by the agency under the <i>Fines and Penalties (Recovery) Act</i>.</p>
<p>Criminal proceedings</p> <p>WMPC Act Part 11, Division 3</p>	<p>A complaint for an offence against this Act may be brought within 12 months of the Administering Agency becoming aware of the commission of the offence.</p>
<p>Court orders & forfeiture</p> <p>WMPC Act Part 11 Division 3</p>	<p>Where a person is found guilty of an offence against the Act, the court may make orders that require the offender to take certain action to prevent the offence occurring again, or to make good any environmental damage resulting from the offence. The court may also order forfeiture of an article used in relation to the commission of the offence.</p>
<p>Direct action & recovery of costs</p> <p>WMPC Act Part 12, Division 1</p>	<p>The Act permits the Territory to arrange to have works carried out to prevent pollution or rectify environmental harm caused by a person and to obtain the cost of the works from the person whose action or failure caused the pollution or harm.</p>

The *Water Act* has fewer enforcement tools than the WMPCA:

- The benchmark tool prescribed by the Act is the establishment of beneficial water uses, quality standards, criteria or objectives applying to water or a class of water. A Beneficial Uses declaration may be made over an area of water to assist in the protection and management of the water for a range of human uses or to maintain the health of aquatic ecosystems. The Darwin Harbour and marine reaches of rivers and creeks was the subject of one of the first Beneficial Use Declarations, made in 1996 to protect water quality for environmental and cultural reasons as well as for aquaculture.
- Control mechanisms are licensing, emergency powers to control pollution and ultimately, prosecution of offences under the Act. No prosecutions have taken place to date.
- The *Water Act* has no statutory management mechanisms.