

Submission
No 24

INQUIRY INTO KOORAGANG ISLAND ORICA CHEMICAL LEAK

Organisation: Department of Planning and Infrastructure
Date received: 10/11/2011



Mr Robert Borsak MLC
Committee Chair
Parliament House, Macquarie Street
SYDNEY NSW 2000

Dear Mr Borsak

Inquiry into Orica Kooragang Island chemical leak

I refer to your letter, dated 13 October 2011, inviting the Department of Planning and Infrastructure (the Department) to make a submission to the inquiry into the Orica Kooragang Island chemical leak. The Department's submission focuses on those terms of reference relevant to the Department's functions.

As I indicated to Mr Brendan O'Reilly during his inquiry into the matter, it is important to note that during significant incidents at 'Major Hazards Facilities' such as that which occurred at the Orica facility on Kooragang Island, Workcover NSW, the Office of Environment and Heritage, and Fire and Rescue NSW are the key operational authorities in terms of incident management. The Department does however have a responsibility to regulate the construction and operation of the facility in accordance with the Minister's planning approval(s).

In relation to the specific terms of reference, the following comments are provided.

Relevant Terms of Reference

b) the New South Wales Government's response following the incident, including:

(i) The Department's timeline of events in reference to the incident and reporting:

- On 8 August 2011 an incident occurred at the Orica site that involved an airborne release of sodium chromate solution from a vent stack in the ammonia plant at Orica Ammonium Nitrate facility. This resulted in a diluted aqueous solution of sodium chromate dispersing as far as Stockton. The duration of the release is considered to be approximately 15-20 minutes.
- Condition 51 of the project approval (08_0129) requires Orica to notify the Department *as soon as practicable* following an incident, which has actual or potential significant off-site impact on people and the biophysical environment associated with the approved project. In addition, incidents are to be notified '*within 24 hours*' under the 1998 consent (DA2/98) which also applies to part of the site.

- Orica left a message with the Department at 9:30 am on 12 August 2011, some days after the incident. The Department contacted the company the same day requesting detailed information regarding the incident.

(ii) Actions of the Department once notified of the incident:

- As noted previously, the Department does not have an operational role in response to such incidents.
- On 15 August 2011 Orica submitted an 'Interim Incident Report' in response to the information request made earlier by the Department.
- On 7 September 2011, the Department received the Final Incident Report titled, 'Investigation into release of Chromium VI at Orica's Kooragang Island Ammonia Plant', dated 1 September 2011.
- The Department has reviewed the report with a view to understanding if there are any actions that need to be taken in relation to the incident and compliance with the Minister's approval(s).
- The Department is currently finalising its consideration regarding the late notification of the incident in accordance with its 'Breach management Guidelines'.
- An 'Interagency Start-Up Committee' was established following the incident, and the Department provides technical advice to the Committee.
- The Committee is chaired by the Office of Environment and Heritage (OEH) and the Chair of the Committee will decide when the notice that prevents Orica from operating should be lifted.

(iii) Actions of the Minister for Planning and Infrastructure (the Minister) and ministerial staff once notified of the incident:

- The Minister for Planning and Infrastructure, the Hon Brad Hazzard has been briefed regarding the incident, however, as described earlier, neither the Minister nor the Department have an operational role in the management of such an incident.

c) Final report of the inquiry into the chemical leak at the Orica site being conducted by Brendan O'Reilly:

- The Department has reviewed the findings of the O'Reilly report and does not consider that there are any recommendations that relate to the functions of the Department nor any actions required to be undertaken by the Department in response to the report.
- However, the Department would like to provide some clarification in relation to the O'Reilly report and the comments made in the report regarding the application of State Environmental Planning Policy (SEPP) No 33 and hazards-related conditions of approval. SEPP 33 is a planning instrument which sets out matters that must be considered by a consent authority in the assessment of a potentially hazardous industrial development. The consent authority may and usually does, impose hazards-related conditions of consent, to ensure the development is designed and operated in a way that does not pose a significant risk to the surrounding locality.

- Further, conditions of consent requiring notification of incidents may require notification to the local Council and/or the Department, depending on who is the consent authority.

d) Any other related matters arising from these terms or reference:

- I have attached a copy of the Department's submission to the O'Reilly inquiry which includes a background brief regarding the site and a summary of the Department's role in relation to Major Hazards Facilities such as Orica Kooragang Island.
- In addition, you should be aware that on 3 May 2011 the Department received a modification application from Orica seeking approval to amend the layout of the approved Ammonium Nitrate Expansion Project at Kooragang Island.
- The modification application has been publically available on the Department's website since that time and the Department has received 5 submissions in relation to the proposal, including one from an adjoining landowner.
- Orica has responded to all of the submissions received and its response to the submissions is also available on the Department's website.
- However, the Department has requested further detailed information regarding the Preliminary Hazards Analysis (PHA) for the proposal, and is currently waiting for Orica's response.
- The Department will continue to assess the application in consultation with the key Government authorities.
- The Department considers however that, in light of the serious incident that occurred at the plant on 8 August 2011, the application should not be determined until the current 'shut down' notice is lifted from Orica's Environment Protection Licence.

I trust this information assists. Should you have any further enquiries about this matter, I have arranged for Chris Wilson, Executive Director – Major Projects Assessment to assist. Mr Wilson can be contacted on telephone number 9228 6192.

Yours sincerely

Director General

4/11/2011



Office of the Director General

Mr Brendan O'Reilly

11/16249

Dear Mr O'Reilly

Re: Independent Inquiry into Orica Kooragang Island Incident of 8 August 2011

I refer to the above mentioned Inquiry and our recent discussions on the matter in which you raise a number of questions regarding the incident and my department's role. Please find below and attached the department's response.

It is important to note that during significant incidents at 'Major Hazards Facilities' such as that which occurred at the Orica facility on Kooragang Island, Workcover NSW, the Office of Environment and Heritage, and Fire and Rescue NSW are the key operational authorities in terms of incident management. The Department of Planning and Infrastructure does not have an operational role.

Orica does however have responsibilities under both its 1998 consent and the more recent 2009 project approval relating to the reporting of incidents at the plant. The incidents are to be notified either 'within 24 hours' (as required under the 1998 consent) or as 'soon as practicable' (as required under the 2009 approval). The department received a phone message from Orica's Project Development Manager on the morning of 12 August 2011. The department is currently considering its statutory response in relation to the adequacy of Orica's initial notification. Orica has provided a preliminary incident report consistent with its responsibilities which is attached for your information.

With regard to the Environment Protection Licence (EPL) for the facility, the Office of Environment and Heritage is the authority which administers this licence. OEHL will be able to advise you regarding the terms of the licence, review periods and the like.

As requested, I have attached a short summary of the planning assessment framework for a 'Major Hazards Facility' such as Orica's Kooragang Island plant which helps explain the relationship between planning consents, EPL and Workcover regulations.

I trust this information assists. Should you have any further enquiries about this matter, I have arranged for Chris Wilson, Executive Director – Major Projects Assessment to assist. Mr Wilson can be contacted on telephone number 9228 6192.

Yours sincerely

Director General

7/9/2011

Framework for the Assessment of Major Hazards Facilities

Background to the Orica, Kooragang Island Site

The site is located at 15 Greenleaf Rd, Kooragang Island (Lot 3 DP 234288) (see maps at Attachment A). The facility is surrounded by industrial landuses and the nearest residential area is located around 500 m east of the site in the suburb of Stockton.

The facility commenced operation in 1969 under the control of Eastern Nitrogen. In 1988 the Eastern Nitrogen plant merged with Greenleaf Fertiliser and came under the control of ICI Australia and later, Incitec. Orica became the owner of the site in mid 2000s.

The following upgrades of the site have been approved:

- 1987: DA 379/87 for expansion, approved by Newcastle City Council;
- 1994: DA 685/93 for development of an anhydrous ammonia packaging and aqua ammonia plant, approved by Newcastle City Council;
- 1998: DA 2/98 for upgrade of the ammonium nitrate plant, including construction of new acid plant and installation of additional product storage; and
- 2009: MP 08_0129 for ammonium nitrate facility expansion, including upgrade of the existing ammonia plant, new nitric acid plant, new ammonium nitrate plant, and upgrade and reorganisation of the storage capacity. Currently Orica has finalised the ammonia plant upgrade.

Planning Assessment Process

Large scale industry projects over certain production and/or investment thresholds have for many years been assessed by the NSW State Government. At the outset of the assessment process, the Director General (of the Department of Planning and Infrastructure) prepares environmental assessment requirements which outline the key issues that a Proponent must address in its environmental assessment of the project. Examples of Director General Requirements, including those relating to Orica's 2009 approval can be found on the Department's website, www.planning.nsw.gov.au.

Proponents are required to consult with community, relevant Councils and State agencies in the preparation of the project documentation. Once there is sufficient information, the Director General publicly exhibits the Environmental Assessment / EIS for a minimum of 30 days and invites submissions on the proposal.

The Proponent considers submissions and often provides a response to issues raised. The Director General closely considers all the necessary documentation and then finalises his assessment of the proposal and provides a report to the Minister or his delegate. The Minister may either approve or disapprove the carrying out of the project, and determines the conditions that apply to the carrying out of the project.

Large scale industry projects, and in particular, 'Major Hazards Facilities' require other approvals apart from development consent. These include:

- a licence under the *Protection of the Environment and Operations Act*; and
- registration as a Major Hazards Facility by WorkCover under the *Occupational Health and Safety Act 2000*.

Environment Protection Licence

The *Protection of the Environment Operations Act 1997* establishes the NSW environmental regulatory framework, and includes a licensing requirement for certain activities. Environment protection licences are a central means to control the localised, cumulative and acute impacts of pollution in NSW. The licence must be consistent with the planning approval.

Regulation of 'Major Hazard Facilities'

Separate to the planning approval process for developments which are potentially hazardous, known as 'Major Hazard Facilities', it has been recognised worldwide that stringent additional assessment and management controls are needed.

In NSW the regulatory framework for Major Hazard Facilities is established under the *Occupational Health and Safety Regulation 2001* and is regulated by WorkCover NSW using a whole of Government approach, which considers both on-site and off-site impacts.

Risks from Major Hazard Facilities are assessed and managed by a team with members, including officers from WorkCover NSW, the Department of Infrastructure and Planning, the Office of Environment and Heritage, the NSW Police and Fire & Rescue NSW.

The relationship between the planning approval and other approvals for Major Hazard Facilities is shown diagrammatically below at Figure 1.

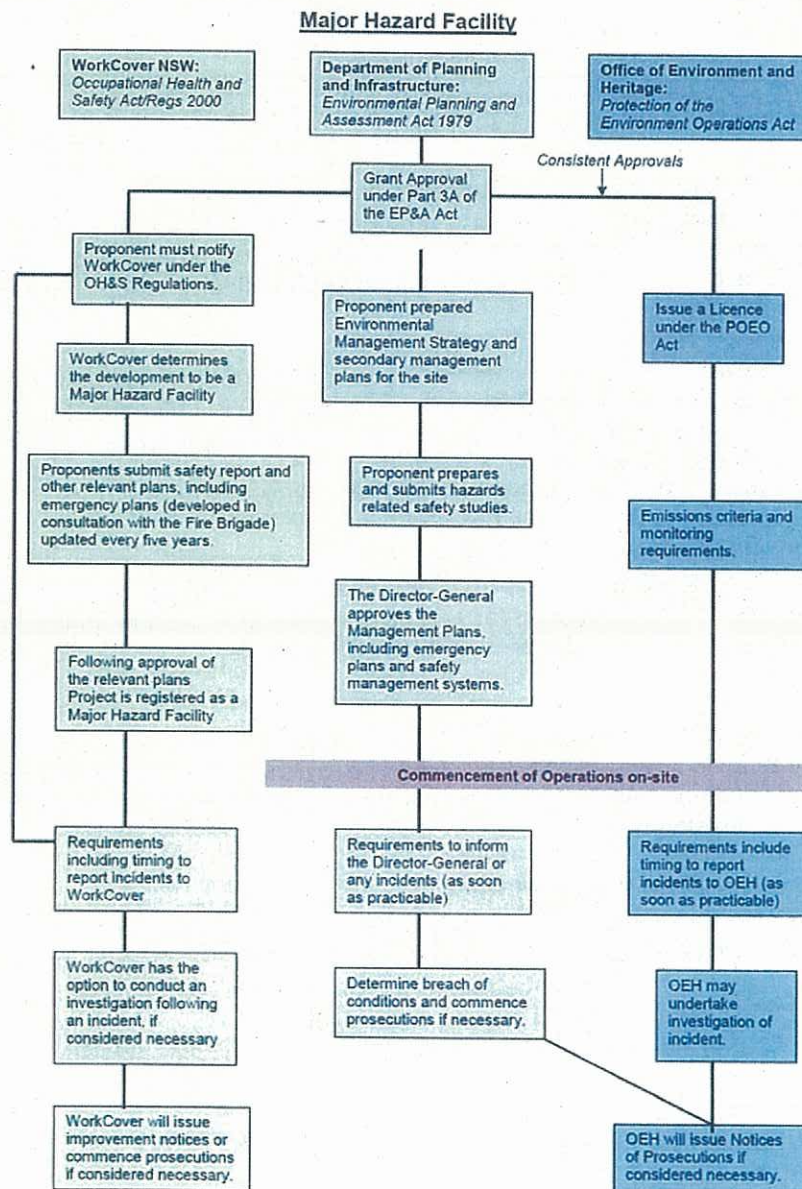


Figure 1: Relationship between development consent and other approvals for Major Hazard Facilities

Hazards and Risks

The orderly development of industry and the protection of community safety necessitate the assessment of hazards and risks as part of the planning assessment process. Whilst hazards and risks are not the only issue considered by the Minister for Planning and Infrastructure in determining an application, it is one of the key issues in the assessment process. The Department of Planning & Infrastructure has formulated and implemented risk assessment and land use safety planning processes that take into account both the technical and the broader locational safety aspects of potentially hazardous industry. These processes are components of the environmental impact assessment procedures under the *Environmental Planning and Assessment Act 1979*.

State Environmental Planning Policy (SEPP) No 33: Hazardous and Offensive Development (SEPP33)

Certain activities may involve handling, storing or processing a range of substances which in the absence of locational, technical or operational controls may create an off-site risk or offence to people, property or the environment. Such activities would be defined as 'potentially hazardous' or 'potentially offensive'.

SEPP 33 presents a systematic approach to the assessment of development proposals for potentially hazardous and offensive industry and storage. SEPP 33 applies to any proposal which falls under the policy definition of "potentially hazardous industry" or "potentially offensive industry".

Potentially hazardous industry means a development for the purposes of any industry which, if the development were to operate without employing any measures to reduce or minimise its impact, would pose a significant risk in relation human health, life or property, or the biophysical environment in the locality. Orica's Kooragang Island facility clearly meets the definition of a potentially hazardous facility.

For development proposals classified as 'potentially hazardous industry' the policy establishes a comprehensive test by way of a preliminary hazard analysis (PHA) to determine the risk to people, property and the environment at the proposed location and in the presence of controls. Should such risk exceed the criteria of acceptability, the development is classified as 'hazardous industry' and may not be permissible within most industrial zonings in NSW.

Potentially offensive industry means a development for the purposes of an industry which, if the development were to operate without employing any measures to reduce or minimise its impact, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land.

For developments identified as 'potentially offensive industry', the minimum test for such developments is meeting the requirements for licensing by the OEH. If a development cannot obtain the necessary pollution control licences then it may be classified as 'offensive industry', and may not be permissible development.

Planning Assessment of Hazards and Risk

The Department has also developed an integrated assessment and safety assurance process for development proposals, which are potentially hazardous. The integrated process comprises:

- a preliminary hazard analysis undertaken to support the development application by demonstrating that risk levels do not preclude approval;
- a hazard and operability study, fire safety study, emergency plan and an updated hazard analysis;
- a construction safety study;
- implementation of a safety management system; and
- regular independent hazard audits.

The process is shown diagrammatically below at Figure 2.

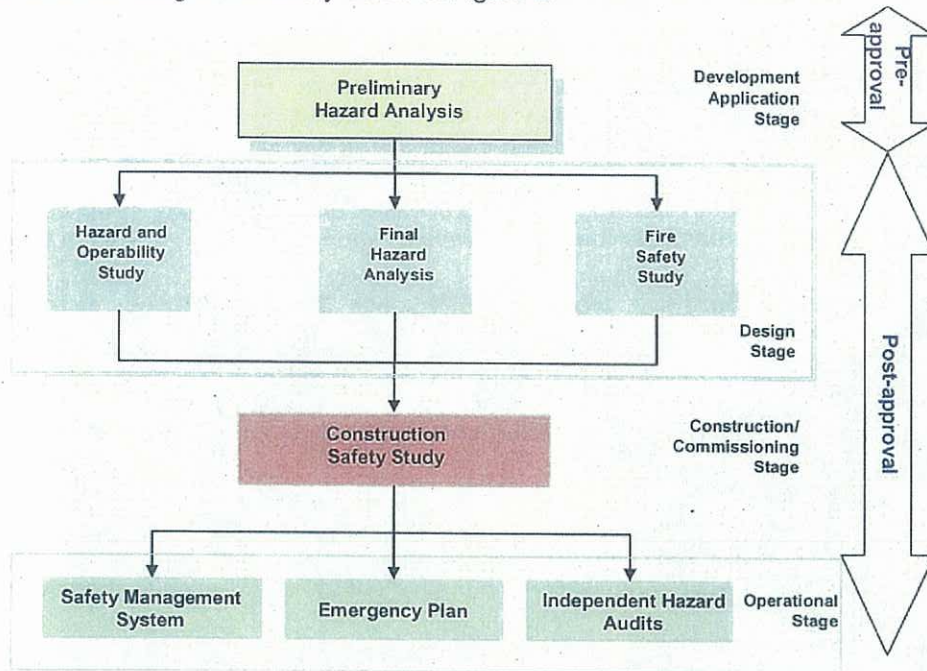


Figure 2: Planning Assessment of Hazards and Risk

The PHA is required at an early stage of the project and must be submitted with the development application. The PHA should demonstrate that the proposed development does not pose unacceptable risks to the surrounding land uses.

The suggested risk criteria in NSW for new developments and for existing land uses are published in Hazardous Industry Planning Advisory Paper (HIPAP) No 4. This advisory paper also provides guidance on the main principles for making a decision on applicability and suitability of a development at a certain location. The implementation of the risk criteria differentiates between existing land use situations and new situations in terms of applicability. The criteria impose tighter locational and technological standards for new developments than existing developments.

In the case of existing industry (such as Orica's Kooragang Island facility), compliance with a risk criterion is part of an overall strategy to mitigate existing risk levels by reducing both the risks and the number of people exposed to those risks.

Conditions of Planning Approval

If the assessment of the overall risk of the proposal is found to be acceptable and the environmental performance of the proposed development demonstrates that a development will not have significant impacts on the environment, the Department recommends conditional approval for the project.

A number of hazards-related conditions of approval are often imposed on development proposals considered to be potentially hazardous. The Proponent is required to develop and submit a number of safety related studies, including a Fire Safety Study and Emergency Plan, for approval by the Director General, during different stages of the life of the facility.

Attachment A - Location and Site Plans



Industrial Facilities at Kooragang Island, Newcastle

0 150 300 600 Metres



- | | |
|---------------------------------|--------------------------------|
| 1 Inditec Pivot | 6 Port Waratah Coal Service |
| 2 Cargills Bulk Liquid Facility | 7 Agriterminal |
| 3 Australian Cement | 8 Sawmillers Exporters Pty Ltd |
| 4 Kooragang Bulk Facilities | 9 Orica Australia Pty Ltd |
| 5 HiFert | |



Orica Ammonium Nitrate Facility, Kooragang Island
Existing and Proposed Layout



Orica Australia Pty Ltd
ACN 004 117 828

15 Greenleaf Road, Kooragang Island, NSW 2304
PO Box 80 Mayfield, NSW 2304 Australia
Tel 61 2 4908 8300
Direct Tel 61 2 4908 9100 Fax 61 2 4908 8110

<http://www.orica.com>

Facsimile

To Hamish Rutherford Date 15 August 2011
Company Office of Environment and Heritage
From Stuart Newman Total Pages 3
Subject Notification of Incident – 8 August 2011

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Dear Hamish,

Please find attached Orica Australia Pty Ltd's notification to the Office of Environment and Heritage under Part 5.7 of the Protection of the Environment Operations Act.

Incident Details

Date:	8 August 2011
Time:	~18:00.
Duration	~ 15 - 20 minutes
Location	Orica's Kooragang Island site, 15 Greenleaf Road, Kooragang Island, NSW.
Nature of incident and circumstances in which it occurred	<p>Based on current knowledge, it is considered that at around 18:00 on 8 August 2011 there was an airborne release of a sodium chromate containing solution from SP8 vent stack in Orica Kooragang Island's Ammonia Plant. This resulted in a dilute aqueous solution of sodium chromate landing in an area downwind of the stack.</p> <p>The airborne release was quickly detected by personnel in the Ammonia Plant and actions were immediately undertaken to stop the release. The duration of the event is considered to be approximately 15 - 20 minutes.</p> <p>As a result of the incident a quantity of the sodium chromate solution was collected in a holding tank, intermediate bulk containers (IBC's) and an effluent pit. A quantity was also discharged to the Ammonia Plant effluent system and was subsequently collected in two storage areas, the Demineralisation Plant Pond ("Demin Pond") and the Diversion Pond.</p> <p>At the time of the incident the Ammonia Plant had commenced reduction of the High Temperature Shift catalyst. This involves slowly increasing the temperature of the catalyst by passing steam through the catalyst bed. The steam that was passed through the catalyst bed was then discharged to the SP8 vent system. Whilst the</p>

	<p>exact mechanism is not clear, liquid, present in the process, dissolved a small quantity of chromium VI, which was present in the catalyst. This dilute aqueous solution containing sodium chromate was being collected at the time from drainage points within the vent system. Investigation is currently underway to determine how this condensate was discharged from SP8.</p>
<p>Nature, the estimated quantity or volume and the concentration of any pollutants involved</p>	<p>Preliminary investigations have been undertaken to estimate the potential quantity and concentration of chromium VI released. The preliminary results indicate that approximately 45kg of chromium VI was collected in the onsite storage tanks and ponds. The quantity discharged to air has not been able to be determined at this time.</p> <p>Testing has been undertaken on solutions which were collected in IBC's from the SP8 vent system during the incident, with chromium VI concentrations ranging from 658 – 7470mg/L, with an average of 3250mg/L. This concentration range is considered to reflect the upper range of concentration for the material discharged from SP8.</p>
<p>Location of the place where pollution is occurring or is likely to occur</p>	<p>Investigations on the 9 August 2011 identified potential fallout from the airborne release in an area of Stockton located downwind of the Ammonia Plant. The area of potential impact has not yet been fully defined but is expected to be contained to a small area of the Stockton peninsula.</p>
<p>Action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution</p>	<p>Actions taken in relation to the incident to date include the following:</p> <p>Offsite Actions</p> <p>Orica personnel commenced communication with potentially affected residents on Tuesday 9 August 2011, which was followed up by visits to residents in north Stockton on 10 and 11 August 2011, to discuss the incident with them and inspect their property for any sign of potential fallout material containing chromium VI. At residences where potential fallout material was identified an offer was made to the resident for Orica to undertake cleanup activities. A Cleanup Order was subsequently issued by OEH in relation to the extent of cleanup activities. Cleaning has continued consistent with the Cleanup Order.</p> <p>Onsite Actions</p> <p>People</p> <p>Approximately 27 people reported contact with fallout on the 8 August. Assistance was provided to these people to enable them to wash off any chromium containing solution. Initial follow up with these personnel has occurred, and Orica is engaged in further follow up. No acute health affects have been identified to date in this process.</p> <p>Plant</p> <p>Onsite actions have focussed on two activities; management of water borne chromium VI and cleanup activities to address the chromium VI containing fallout material.</p> <p>a) Water Management</p> <p>At approximately 18:40 Plant Technicians commenced diversion of the site effluent to the collection systems to ensure that the chromium VI solution was not discharged off site via Monitoring Point 23.</p> <p>Action was also undertaken to prevent chromium VI.</p>

containing solution still contained within the vent system from being discharged to the effluent system. In addition, a pump was installed to transfer Ammonia Plant effluent directly to a storage tank and a vacuum truck was used to recover chromium VI containing solution from the effluent system for storage.

Offsite disposal of chromium VI containing solution has been undertaken to an appropriately licenced facility using a licenced transport company. In addition, treatment of low concentration chromium VI containing solutions by sodium bisulphite has been undertaken to convert it to chromium III.

Stormwater drains from the affected areas have been plugged and vacuum trucks are on standby to recover stormwater from the affected areas to storage systems to minimise the potential for offsite discharge of chromium VI containing solution via the site stormwater system.

b) Plant Cleanup

Cleanup of affected plant and administration areas has commenced. This has involved the washing down of structures and collection of potentially contaminated water, followed by treatment of the ground with a ferrous chloride solution (to reduce the chromium VI to chromium III) followed by neutralisation with hydrated lime. The initial cleanup was completed on 13 August 2011 however further assessments will be undertaken to determine the requirement for additional cleanup activities.

Static air monitoring was undertaken during the cleanup operations and all results were below the detection level ($<0.002\text{mg/m}^3$).

Telephone Notification Details

Date and Time:	9/08/2011 at 10:28
OEH Officer:	Hamish Rutherford
Notified By:	Sherree Woodroffe

Regards,

Site Manager – Kooragang Island .