PO Box 173 Bangalow
NSW 2479 Australia
info@ntn.org.au

NSW Legislative Council Select Committee Inquiry
Kooragang Island Orica chemical leak

Submission prepared by:

Dr Mariann Lloyd-Smith, NTN Senior Advisor
Joanna Immig, Coordinator, National Toxics Network

November 2011

National Toxics Network Inc.

The National Toxics Network (NTN) was constituted in 1993 and has charity status. It is a community-based network of experts working on a wide range of toxic chemical pollution issues across Australia, New Zealand and the South Pacific. NTN representatives sit on various national advisory bodies and community consultative committees in relation to international chemical conventions, hazardous waste, contaminated sites, and industrial, agricultural and veterinary chemical regulation.

NTN is the Australian focal point for the International Persistent Organic Pollutants Elimination Network (IPEN) and also participates in the work of the international Pesticide Action Network (PAN). NTN is a supporting member group of the Australian Environment Network (AEN), Climate Action Network Australia (CANA) and the Lock the Gate Alliance.

For further details about the National Toxics Network please visit www.ntn.org.au

Dr Mariann Lloyd-Smith

Mariann Lloyd-Smith is a Director of the research group, BioRegion Computer Mapping & Research Pty Ltd (BRCM) and the Co Chair of the International POPs Elimination Network (IPEN), a public interest chemical safety network, representing 800 organisations in over 100 countries.

Mariann gained her PhD from the Faculty of Law at the University of Technology (UTS), Sydney and has worked in the area of chemicals policy and waste management for over two decades. For ten years, Mariann was the coordinator of the National Toxics Network Inc. and now serves as one of its Senior Advisors. Mariann has published widely on chemical issues and was an author of Australia's national management plans for POPs waste.

Mariann was a member of the National Advisory Body on Scheduled Waste, used as a model of participatory democracy in chemical issues. She has been instrumental in the development and implementation of a range of information systems to support environmentally sound chemical management, including the co-development of the model for Australia's National Pollutant Inventory. Mariann is a member of the Technical Advisory Group for the national industrial chemical regulator, NICNAS - National Industrial Chemical Notification and Assessment Scheme. Trained as a negotiator in chemical disputes, she has assisted residents with their negotiations over contaminated land and has participated in the international negotiating committees for the Stockholm, Rotterdam and Basel Conventions, the Intergovernmental Forum on Chemical Safety and the Strategic Approach to International Chemical Management (SAICM).

Mariann has presented at UNITAR capacity building and training workshops, both in Geneva and in the Pacific region. Dr Lloyd-Smith is a member of the UN Expert Group on Climate Change and Chemicals.

For further information contact Dr Mariann Lloyd-Smith: biomap@oztoxics.org

Overview

The National Toxics Network (NTN) welcomes the opportunity to make a submission to the NSW Legislative Inquiry into the Kooragang Island Orica chemical leak.

We strongly believe however that the Terms of Reference for the Inquiry are too narrow and will not provide the framework required to fully investigate the reckless culture of this corporation and how it has continued to pollute over many years from all of its facilities in NSW in full view of the regulator.

NTN strongly suggests the Terms of Reference for the inquiry into the Orica Chemical Leak should encompass all leaks, spills and breaches of Orica pollution licenses in all of its facilities across NSW.

NTN believes the systemic failure of the regulator shows there is a strong need for a review of the state's pollution laws, how they are monitored and enforced. It may also indicate the regulator is under resourced and not able to ensure industrial pollution is adequately kept in check in NSW.

The inquiry should also examine how environmental pollution licenses and increased monitoring and enforcement could prevent the risk of toxic incidents happening again in the future.

The NSW Government should undertake a full assessment of its oversight of hazardous industries, the pollution laws that regulate them and, the resources needed to monitor and enforce pollution license requirements. Further consideration should also be given to the planning laws and location of hazardous industries and their proximity to residents.

Introduction

Orica is a large multinational corporation that manufactures various chemical products. It is the largest supplier of mining explosives in the world. Initially called ICI with its arm the Imperial Chemical Industries of Australia and New Zealand (ICIANZ), in July 1997, ICI Australia became an independent Australasian company. In February 1998, ICI Australia changed its name to Orica.

Orica has three distinct businesses:

- The Orica Mining Services division is the global market leader in the supply and servicing of commercial explosives and blasting systems to the mining, quarrying and infrastructure sectors.

- Orica Chemicals is the leading global supplier of sodium cyanide for use in gold extraction, and Australia and New Zealand's largest supplier and trader of chemical products to mining, water treatment and other industrial markets.

- Minova is the global leading manufacturer and supplier of strata support systems, ventilation, water control and geotechnical solutions to underground mining and tunneling markets.

Orica's revenue in 2010 was Aust.$6.5 billion. In 1998, Orica subdivided the Botany Industrial Park (BIP), which is the third largest industrial complex of its type in Australia. Orica now has facilities in Botany, Rhodes Peninsula, Villawood,

Kooragang at Newcastle, Kwinana in WA and Laverton North in the Western Melbourne.

Addressing the Culture of the Corporation

There is a long history of community concerns around the lack of transparency with which Orica has continued to operate. In the 1980s, the company failed to notify residents in over 500 homes around their Botany chemical facility that they lived in high-risk area. When the assessment was repeated in the early 1990s, the NSW Government discovered that the risk to residents from the ICI chlorine plant was even greater than it originally thought. Nevertheless, those living in the acute hazard zone were not informed of either the risk, nor the risk assessments carried out by the company. In 2004, residents informed the ABC Background Briefing program, they still didn't know what to do in case of emergency at the Botany Industrial Park.

Orica was also silent about its groundwater contamination at Botany. It wasn't until 2003 that it was revealed the cancer-causing chemical, Ethylene Dichloride (EDC), had leaked from tanks at Orica's Botany plant over a long period of time, significantly contaminating the Botany aquifers at very high levels.

While Orica had been detecting EDC in their bore water monitoring in the area since 1989, production of EDC did not cease until 1998. EDC has the potential to cause cancer, affect reproductive and developmental health, and is suspected of being capable of causing heritable genetic and chromosomal mutations.

By the mid 1990s, Orica also acknowledged that other contaminants including tetrachloroethylene (PCE) and trichloroethylene (TCE), were increasing at the monitoring point at the Penrhyn Estuary, which empties into Botany Bay and at other monitoring points for the northern plume.

Despite being aware of this extensive contamination of aquifers since the late 1980s, the company made no public announcement until well over a decade later.

It was in 2004, when residents in the affected area were formally contacted by the then NSW EPA and the Department of Infrastructure Planning and Natural Resources advising them not to use bore water. More than 1000 Botany households have now been warned to avoid all contact with bore water in the area after the plume of pollution spread into groundwater under their homes.

Orica built a Groundwater Treatment Plant, which uses a 'pump and incineration process'. This dinosaur technology was opposed by NGOs at the time due to concerns about dioxin emissions. Since opening in 2006, the plant has been intermittently shut down due to breeches of its dioxin guidelines.

Orica's Kooragang Island Facility

Orica's Kooragang Island facility has also experienced over a decade of breaches to its industrial pollution license. The NSW Environmental Protection Agency website identifies that the facility has breached its pollution license at least 130 times since 2000, including unlawful releases of arsenic in 2009 and hexavalent chromium in 2006. A release of wastewater containing arsenic levels above the allowed license

concentrations into the Hunter River occurred a little more than a week after the hexavalent chromium leak in 2011.

Only on one occasion was the company prosecuted. In November 2005 the Land and Environment Court of New South Wales found ORICA AUSTRALIA PTY LIMITED guilty of breaching its Environment Protection License, In July 2004 Orica discharged wastewater containing about 683 kilograms of nitric acid into the Hunter River over 6.5 hours. The company was fined $10,500.

Orica has also had spills and leaks from the Botany site, including the recent extended leak of mercury vapour, which continued for 9 hours before being picked up by monitoring equipment. Mercury is highly toxic to humans, particularly children.

Orica's Kooragang Island Facility Chromium VI Leak

In 2007, when seeking approval for the expansion of its existing Ammonium Nitrate Production Facility on Kooragang Island[1] Orica said they were *"committed to becoming a business that does no harm to people and would adopt zero waste.*" Yet for an estimated 30 minutes in 2011, sodium chromate, a form of hexavalent chromium used as a catalyst to produce ammonium, was emitted into the air.

Orica has still not released detailed information on either how the Chromium VI was released, nor how it became aware that it had been released. A representative of the company told the community they were unaware of the identity of all chemicals emitted in the leak incident. Only Orica can assess whether they understood the geographic extent or environmental impact of the leak.

Orica is not required by law to provide a public inventory of what is stored at their facilities, so no independent assessment is possible to determine the potential impacts on the community or the environment of the chemicals stored or used at the Kooragang Island facility. This situation could be easily remedied by requiring companies to provide inventories of hazardous substances stored on site, such as required by the New Jersey's Worker and Community Right To Know Act 1983. [2]

The potential environmental health impacts on the community from the Chromium VI leak should also be viewed in relation to the cumulative effects of all leaks, spills and emissions from the Kooragang facility and the general emissions of industry in the area.

Chemical emissions from the Kooragang Island facility reported by Orica to the National Pollutant Inventory (NPI)[3] for the year 2009-10 NPI include:

Ammonia (total)	550,000 kg
Carbon monoxide	150,000 kg
Oxides of Nitrogen	790,000 kg
Particulate Matter 10.0 um	170,000 kg
Particulate Matter 2.5 um	120,000 kg
Total Volatile Organic Compounds	110,000 kg

[1] The expansion included an additional Nitric Acid Plant (NAP4); additional Ammonium Nitrate Plant (ANP3); Modification to Ammonia Plant; more storage for nitric acid, solid ammonium nitrate and ammonium nitrate solution and an upgrade of existing infrastructure.

[2] New Jersey's *Worker and Community Right To Know Act* 1983 requires companies to file reports on the amount of toxic chemical used, produced, brought onsite, shipped off-site as waste or product, held in inventory and released to the environment.

[3] www.npi.gov.au

These are significant releases of air contaminants in such close proximity to residents. Nearly 300 tonnes of particulate air pollution is emitted from the facility each year. This form of air pollution is associated with lung damage, heart disease and cancer. Particulate matter 2.5 um in size is capable of carrying toxic chemical contaminants deep into the lungs providing a clear route of exposure to other air born chemicals.

Finding: The chromium VI pollution incident while significant in itself also needs to be investigated in the context of the ongoing pollution incidents and pollution load for the community living in close proximity to the facility.

Orica's Notification to Government and the Local Community

Orica waited many hours before notifying the government of the leak, although it appears Orica complied with legal requirement under its License 828.

"R2 Notification of environmental harm - The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment ***as soon as practicable*** *after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act."*

The time defined 'as soon as practicable' is a soft requirements and leaves far too much opportunity for a self-interested assessment of any pollution incident.

The International Agency for Research into Cancer (IARC) lists hexavalent chromium as a human carcinogen *via inhalation*. Its exposure effects include skin irritation and respiratory problems with long-term exposure being associated with increased risk of cancer, particularly lung cancer.[4]

Given the toxicity of the chemical pollutant there was an onus on the company to alert the local community immediately. Both Orica and the NSW Government publically stated there was "very little risk to the community" from the incident. And yet at the time no assessment of public or environmental exposure had taken place and no baseline health data been collected, In essence, the statement was wishful thinking.

Sampling later showed that fallout had affected the north end of Stockton over 1km away with estimates of about 70 homes in Stockton affected. While Orica's lack of notification of its neighbours was simply unacceptable and demonstrates a reckless attitude to public safety and environmental health, the NSW Government's lack of notification for a further extensive time period was also unforgiveable. It has placed at risk, public confidence in NSW pollution laws and management, and may have resulted in long-term adverse impacts to people's health and the environment.

Finding: The timing of public announcements by both Orica and the NSW Minister for the Environment were neither appropriate nor adequate given the scale and type of leak.

Orica's Emergency Response Plan

The lack of adequate notification is also concerning given there are clear requirements for an Emergency Response Plan to be in place and to be acted upon.

Orica's license states:

[4] The International Agency for Research into Cancer (IARC) http://www.iarc.fr/

"O5.1 The licensee must maintain, and implement as necessary, a current emergency response plan for the premises. The licensee must keep the emergency response plan on the premises at all times. The emergency response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment."

Orica's Ammonium Nitrate factory is one the NSW 46 Major Hazardous Facilities list so its Emergency Response Plan should have been developed according the 'NSW Hazardous Industry Planning Advisory Paper No 1 Emergency Planning January 2011 for Neighboring Facilities and the Community' (Section 3.3.2).

The Advisory Paper states that the Emergency Response Plan *"should identify the facility's strategy for protecting people during an emergency. It should address the provision of advice to people on-site and off-site as to the appropriate action to be taken when there is a threat to their safety and health."*

The Advisory Paper also provides a list of protective actions that can include stand-by alerts, partial evacuations, full evacuation, or the use of shelters and havens. The document also states that there needs to be an effective warning system for the neighboring community who could be affected by the emergency with members of the community needing to be aware of the action to be taken when the warning is activated.

Importantly the Advisory Paper also states that the *"operator must ensure that information on safety measures and the appropriate response in the case of an emergency is provided to the community, without their having to request it."*

Finding: Orica's Emergency Response Plan was not adequate with respect to this and other incidents. The community was not informed of the plan and what to do in case of emergency.