

Submission
No 23

INQUIRY INTO KOORAGANG ISLAND ORICA CHEMICAL LEAK

Organisation: Joint submission from:
Nature Conservation Council of NSW
Total Environment Centre

Date received: 8/11/2011



The voice for the environment since 1955



TOTAL ENVIRONMENT CENTRE INC

The Director
Select Committee on the Kooragang Island Orica chemical leak
Parliament House
Macquarie St, Sydney NSW 2000

7 November 2011

Dear Sir/Madam

Submission to the Select Committee on the Kooragang Island Orica chemical leak

The Nature Conservation Council of NSW (NCC) is the peak environment group for NSW, representing more than 100 environment groups from across the state. The Total Environment Centre (TEC) is an independent non-profit organisation, dedicated to campaigning for protection of the environment since 1972.

Thank you for the invitation to make a submission to the Select Committee. In light of the strong community interest in the Orica chemical leak, and the risks posed to public health and the natural environment as a result of the incident, we welcome parliamentary scrutiny of the events leading to the release of hexavalent chromium on 8 August 2011 and the response of the company and relevant government agencies.

However, it is our view that the events at Orica are symptomatic of broader problems with the regulation of industrial pollution in New South Wales. Noting that the Select Committee is empowered to consider 'related matters arising from the terms of reference', we urge the Committee to turn their attention to these broader challenges, and the opportunities for positive reform.

Our submission (**attached**) addresses the following broad themes:

- breaches of pollution licences by industrial facilities;
- licensed releases of industrial pollutants; and
- public access to information and involvement in relation to pollution matters.

In particular, our submission (a) documents the failures of our pollution control system and (b) recommends actions to deter pollution breaches, reduce industrial pollution and engage the community in pollution control.

Yours sincerely,

Pepe Clarke
Chief Executive Officer

Jeff Angel
Executive Director

OPPORTUNITIES FOR IMPROVING THE REGULATION OF POLLUTION IN NEW SOUTH WALES

1.0. Introduction

The incidents at Orica, and the response to those incidents, are symptomatic of broader systemic failings in our state's pollution control system.

Each year, industrial facilities across New South Wales release hundreds of millions of kilograms of pollution into our air, water and soil (**Appendix 1**).¹ Over the last decade, industrial facilities have self-reported thousands of breaches of pollution licences,² and compliance audits conducted by the Environment Protection Authority (EPA) routinely revealed unreported breaches.³ No one knows the cumulative impact on the environment and people's health – and there's no concerted action to do anything about it.

The EPA is responsible for regulating pollution from thousands of licensed facilities across the state.⁴ It is essential that the agency has the legal tools, financial resources, organisational culture and political support necessary to crack down on pollution breaches and drive sustained reductions in air, water and soil pollution.

The public response to the leak of hexavalent chromium from Orica's facility at Kooragang Island on 8 August, and subsequent pollution events, demonstrates the strength of community concern in relation to pollution. It is essential that the community receives reliable, timely information in relation to pollution risks and incidents and can have its voice heard about pollution reduction.

2.0. Breaches of pollution licences

2.1. Reported breaches of pollution licences

The public register established under the *Protection of the Environment Operations Act 1997* provides free public access to, *inter alia*, the following information in relation to pollution licences:

- details of each licence application
- details of each decision made in respect of any such licence application
- details of each licence issued
- details of each variation of the conditions of any such licence
- details of each decision to suspend, revoke or approve the surrender of any such licence
- details of each clean-up, prevention, prohibition or noise control notice or noise control notice issued
- details of any convictions in prosecutions under this Act instituted by that authority
- the results of civil proceedings before the Land and Environment Court
- a summary of any audit report in connection with a mandatory environmental audit
- the application fee and the annual licence fee (which includes the load based licensing fee).⁵

The public register also provides information about breaches of pollution licences. This breach information is based primarily on self-reporting by licensed facilities. Despite the complexity of the Register which would deter most people from accessing information – NCC found some alarming results.

NCC has conducted a review of self-reported licence breaches for Orica's facilities at Kooragang Island and Port Botany. Our review of reported licence breaches at the **Kooragang Island** facility (**Appendix 2**) revealed that:

- the facility has breached its licence every year since 2000, except 2004, with a total of 131 breaches
- these breaches included unlawful releases of arsenic, hexavalent chromium, nitrogen oxides and ammonia
- during the period 2000-2011, Orica was not issued with a single prevention, clean up or prohibition notice

¹ National Pollutant Inventory, www.npi.gov.au.

² POEO Public Register, www.environment.nsw.gov.au/poepo.

³ Compliance Audit Program, www.environment.nsw.gov.au/licensing/complianceaudit.htm.

⁴ List of licences, www.environment.nsw.gov.au/prpoeo/licences.htm.

⁵ POEO Public Register, www.environment.nsw.gov.au/poepo.

- Orica was prosecuted and convicted once, in 2005, and paid a fine of \$10,500.⁶

Our review of reported licence breaches at the Port Botany facility (**Appendix 3**) found that:

- Orica has breached its pollution licence 177 times since 2000
- the facility has breached its licence every year since 2000, with the exception of 2003
- the breaches include unlawful releases of ammonia, sulphur dioxide, vinyl chloride and acidic effluent
- Orica was not prosecuted for any of these breaches.

Our review of reported breaches at the Orica facility in Port Kembla revealed a similar pattern of breaches (**Appendix 4**).

Unfortunately, this pattern of breaches, and the limited enforcement response by the EPA, is not unusual. State owned corporations alone have been responsible for hundreds of breaches over the last decade. On 23 October, the *Sun-Herald* reported that Sydney Water, a state owned utility, had breached its pollution licences more than 1,000 times in the last five years.⁷

Every electricity utility in the state has breached its pollution licences on multiple occasions over the last decade.⁸ Macquarie Generation, Eraring Energy and Redbank were not prosecuted once during the period 2000-2011, despite numerous breaches. Delta Electricity was prosecuted for 'failure to minimise or prevent the emission of dust' in 2009, and received a fine of \$45,000.⁹

The failure of the EPA to take enforcement action in relation to pollution of the Coxs River by Delta Electricity forced the Blue Mountains Conservation Society to commence civil enforcement proceedings in the Land and Environment Court (see below). It is entirely unacceptable that a community organisation was forced to take legal action against an electricity utility to ensure compliance with national water quality standards.

Recommendation 1: There is a need for the EPA to review and strengthen its compliance protocols and procedures in relation to minor and moderate pollution breaches, to send a signal to industry that compliance and risk management procedures must be improved substantially, in line with community expectations.

Case Study: Pollution of the Coxs River by Delta Electricity

Despite knowing for several years that Delta was emitting pollutants into the Coxs River, the EPA failed to take any meaningful enforcement action. This resulted in a protracted civil enforcement action taken by the Blue Mountains Conservation Society (BMCS) in the public interest, resulting in a settlement in October 2011.

In June 2009 the Society instigated legal action against Delta Electricity over alleged pollution in the upper Coxs River below Wallerawang Power Station. This followed Streamwatch testing by local conservationists showing salinity, phosphate, turbidity and temperature at levels higher than natural background levels.

The water was then independently tested by Dr Ian Wright from the University of Western Sydney revealing of aluminium, arsenic, copper, nickel, zinc, boron and fluoride in the water. His report stated that: *"all results were assessed against the ANZECC (2000) water quality guidelines, particularly using guidelines for protection of aquatic ecosystems. It was determined that salt, copper, boron, and aluminium all exceeded guideline levels for ecosystem protection and were probably toxic to aquatic ecosystems"*.

BMCS brought this matter to the attention of the Sydney Catchment Authority, the Minister for Environment, and the Department of Environment and Climate Change. DECC advised in April 2008 that it did not intend to

⁶ Search for prosecutions, www.environment.nsw.gov.au/casesapp/searchcases.aspx.

⁷ O'Brien, N. 'Look who's polluting: Sydney Water's shame', *Sun-Herald* (23 October 2011).

⁸ POEO Register, www.environment.nsw.gov.au/prpoeo.

⁹ Prosecutions and civil proceedings, www.environment.nsw.gov.au/casesapp/searchcases.aspx.

prosecute Delta for water pollution offences. As the regulators were not taking any appropriate action, BMCS felt that it must take action itself.

Running this case had the potential to bankrupt BMCS, so their legal team argued for a "Protective Costs Order" to limit the costs upfront to \$20,000. This was successful and was a precedent for a "public interest" case in NSW (September 2009). The legal representatives of Delta Electricity lodged an appeal against this decision but their appeal was unsuccessful (October 2010).

Following two years of litigation, BMCS reached a settlement with Delta Electricity regarding pollution of the Coxs River. The key terms of the settlement were as follows:

1. Delta Electricity admitted that it has discharged waste waters containing the pollutants between May 2007 and August 2011, and that it has polluted waters within the meaning of section 120 of the Protection of Environment Operations Act 1997, without authorisation under its Licence except in relation to salt;
2. Delta Electricity agreed to submit an application to the EPA by 25 October 2011 to vary its Environment Protection Licence for its Wallerawang power station to specify maximum concentration levels for each of copper, zinc, aluminium, boron, fluoride, arsenic, salt and nickel in the waste water authorised to be discharged at the Wallerawang power station into the Coxs River; and
3. Delta Electricity agreed to submit an application to the EPA by 25 October 2011 to include a condition or conditions in its Licence which requires Delta to implement a program of works to be completed by the end of 2015, subject to government approvals, for the full treatment of cooling tower blow down water from Wallerawang power station pursuant to a pollution reduction program with the EPA.¹⁰

2.2. Unreported breaches of pollution licences

EPA compliance audits consistently reveal substantial non-compliance with pollution licence conditions.¹¹

The 2005 environmental compliance report on **liquid chemical storage, handling and spill management** identified 127 unreported breaches at 61 facilities. These breaches related to air and water pollution, soil contamination and emergency management. Only 27% of licensed premises audited had fully complied with the conditions of their pollution licences.¹²

The 2008 compliance and performance review for **industrial estates** found numerous examples of non-compliance, including breaches in relation to stormwater management, air pollution, chemical and waste management, incident management, emergency responses plans and monitoring. Seventeen percent (17%) of these breaches were categorised as 'code red' (high risk).

In 2011 compliance and performance review on **management of chlorinated solvents** found dozens of breaches in relation to handling and movement of chlorinated solvents, storage of chlorinated solvents and emergency management.¹³

The 2009 compliance and performance review on **industry monitoring** found multiple monitoring breaches, including:

- not monitoring effluent volume, not calibrating volume monitoring equipment or not using the correct unit of measure and sampling method to ensure the accuracy of data collected;

¹⁰ Blue Mountains Conservation Society, www.bluemountains.org.au/delta.html.

¹¹ Compliance audit program, www.environment.nsw.gov.au/licensing/complianceaudit.htm.

¹² Department of Environment and Conservation (2005), www.environment.nsw.gov.au/resources/licensing/ecrchemicalsa05589.pdf.

¹³ Office of Environment and Heritage (2011), www.environment.nsw.gov.au/resources/licensing/110642chlorinatedsolvents.pdf.

- not collecting representative soil and effluent quality samples to enable the proper assessment of the impact of effluent reuse on the utilisation area;
- not monitoring the concentration of pollutants at the required frequency and not undertaking groundwater monitoring at all locations, which would help determine the environmental impact over time from activities undertaken at the premises
- not collecting dust monitoring samples in accordance with the specified sampling method and not selecting the locations of dust monitoring gauges in accordance with the specified standard, which would provide a full understanding of the environmental impact from airborne dust

This compliance review also found that a number of facilities had not complied with reporting requirements, submitted reports late or failed to submit reports.¹⁴

Another startling finding is that the same failures were found after a 5 year period with a revisit of the coal mining and solvents industries by the EPA. Despite announcing its intention to improve compliance (through training sessions, fact sheets and its website) the EPA had failed to obtain significant improvement. **(Appendix 5)**

Recommendation 2:

2.1 The effectiveness of the EPA's response to industry audits must be upgraded and the Committee should suggest investigation of ways to benchmark its methods and performance.

2.2 Further given that pollution breaches are often unreported, it is recommended that compliance audits are conducted on a more regular basis, that the findings of the audit for each facility are made publicly available on the internet and that compliance action is consistently taken in relation to identified breaches.

2.3. Prosecutions and court ordered penalties

If a corporation is prosecuted for breaching a pollution licence, the maximum penalty available under the *Protection of the Environment Operations Act 1997* is \$1,000,000, plus \$120,000 per day for continuing breach. The EPA does not have the resources to routinely prosecute minor breaches, so prosecution is ordinarily reserved for more serious breaches.

In 2009-2010, the EPA completed 134 prosecutions, including 55 pollution related prosecutions under the *Protection of the Environment Operations Act 1997*. The total fines and other financial penalties ordered for pollution related offences was \$860,500, representing an average fine of \$15,935 per conviction.

Recommendation 3: Given the seriousness with which the community views pollution, EPA prosecutors should seek higher penalties for pollution offences, including custodial sentences for company directors. It may also be appropriate for the Land and Environment Court to introduce sentencing guidelines for pollution offences.

2.4. Penalty infringement notices

Penalty notices may be issued by the EPA, pursuant to the *Protection of the Environment Operations Act 1997*. Penalty notices should be used much more frequently for offences that are not able to be prosecuted, due to constraints on the EPA's resources.

The maximum penalty payable for a penalty notice issued for failure to comply with a condition of a pollution licence is only \$1,500 for a corporation. This is less than the maximum on-the-spot fine for speeding in a motor

¹⁴ DECCW (2010), www.environment.nsw.gov.au/resources/licensing/09695indmon.pdf.

vehicle.¹⁵ By contrast, Orica's net profits for 2009-10 were \$1,354 million. In the same year, the Executive Director of Orica was paid \$7 million, and the executive management team was paid \$22.6 million.¹⁶

Recommendation 4: The maximum penalties that can be imposed using a penalty notice should be increased substantially, to provide a stronger deterrent for polluting industry.

3.0. Total volume of pollution from industrial facilities

Each year, industrial facilities across New South Wales release hundreds of millions of kilograms of pollution into our air, water and soil.¹⁷

It is important to recognise the role that the EPA has played in reducing emissions of some key toxic pollutants from industrial facilities over the last decade. Nonetheless, significant challenges remain, with our communities and natural environment still routinely exposed to a wide range of harmful pollutants from point and non-point sources.

In October 2011, NCC conducted a review of key industry pollution sources in New South Wales, based on data available on the National Pollutant Inventory (**Appendix 1**). The review examined industrial point sources of the pollutants involved in recent incidents at the Orica facilities at Kooragang Island and Botany:

- mercury and compounds
- arsenic and compounds
- hexavalent chromium compounds.

The review also examines the following pollutants, identified by the National Pollutant Inventory (NPI) as the most commonly reported substances emitted by industry in NSW:

- sulfur dioxide
- oxides of nitrogen
- particulate matter 10.0 um
- carbon monoxide
- total volatile organic compounds.

The data presented in this report is obtained from the National Pollutant Inventory, and can be independently verified by reference to the NPI website.¹⁸ NPI data is based on self-reporting by polluting facilities. The figures presented in this report relate to 2009-2010 reporting period.

For information about the health and environmental impacts of these pollutants, please refer to: www.npi.gov.au/substances/factsheets.html.

Our key findings are presented here, to place the emissions from Orica in context, and to illustrate the scale of the pollution control challenges facing New South Wales.

3.1. Industrial pollution by facility

Large industrial facilities contribute a disproportionate share of toxic pollution in our state. For example, the **Bluescope Steelworks** at Port Kembla:

- is the state's largest source of air pollution by mercury
- is the state's largest source of air pollution by hexavalent chromium

¹⁵ \$1,915 for exceed speed limit by 45km/hr, www.rta.nsw.gov.au/rulesregulations/penalties/speeding.html.

¹⁶ Orica Annual Report 2010, <http://orica.onlinereports.info/2010businessoverview>.

¹⁷ National Pollutant Inventory, www.npi.gov.au.

¹⁸ National Pollutant Inventory, www.npi.gov.au.

- is the state's largest source of air pollution by carbon monoxide
- responsible for water pollution by arsenic
- released 7.9 million kilograms of nitrogen oxides in 2009-10
- released 7.5 million kilograms of sulphur dioxide in 2009-10
- released 1.7 million kilograms of particulate matter in 2009-10.
- Released 189.6 million kilograms of carbon monoxide in 2009-10.

Individual **coal mines** and **coal fired power** stations appear at the top of the list for:

- **arsenic** to water (Tahmoor Coal Mine)
- **nitrogen oxides** to air (Bayswater Power Station, followed by 5 more power stations)
- **sulphur dioxide** to air (Bayswater Power Station, followed by 4 more power stations).

The largest single source of water pollution by mercury is the **North Head Sewage Treatment Plant**, which accounts for 95% of this type of pollution in NSW. This facility is operated by Sydney Water, a state owned corporation.

The **Norske Skog Papermill** near Albury is the largest source of arsenic emissions to air; and, the largest source of chromium VI releases to land, accounting for 99.9% of such releases.

3.2. Industrial pollution by sector

Coal fired power stations are a very large source of pollution. The most polluting power stations are all state owned corporations. Of the power stations listed in our report, only Redbank Power and Appin CSM Power Station are privately owned.

Electricity generation is the largest source of air pollution by mercury, oxides of nitrogen and sulphur dioxide. The most polluting power stations in the state are all operated by state-owned corporations.

Coal mining is the largest source of water pollution by arsenic. Mining for metal ores and coal mining are the largest source of air pollution by arsenic. Metal manufacturing is the largest source of air pollution by chromium VI, following by electricity generation by coal fired power stations.

Recommendation 5: Reducing pollution must be a high level priority for government. Substantial, sustained reductions in pollution load indicators for air and water must be a key performance indicator for the EPA.¹⁹

Recommendation 6: The NSW Government must make a commitment to dramatically reduce pollution from state owned corporations over the current term of government. State owned enterprises must be industry leaders, not laggards.

Recommendation 7: The fees and thresholds for the load-based licensing system should be increased, with a view to strengthening the scheme (for example, by increasing the rate at which load-based licensing fees increase over time).

Recommendation 8: Pollution reduction programs should be used more often, consistent with an overarching aim of reducing and eliminating key pollution sources.

Recommendation 9: The NSW Government should commission an independent review of world's best practice regulatory frameworks for pollution reduction, to identify efficient, effective mechanisms for promoting innovation and investment in pollution reduction measures.

¹⁹ The reduction targets set in the 2011-12 budget papers are inadequate and do not reflect community expectations in relation to pollution reduction: [www.budget.nsw.gov.au/ data/assets/pdf_file/0020/18254/bp3_07prem.pdf](http://www.budget.nsw.gov.au/data/assets/pdf_file/0020/18254/bp3_07prem.pdf) (p.7-12).

4.0. Cumulative impacts of pollution on local communities and the environment

The cumulative impact of pollution from multiple sources is poorly regulated in New South Wales. This is clearly illustrated by long-standing, unresolved community concerns about the health impacts of particulate pollution in the Upper Hunter, due to the cumulative impact of multiple open-cut coal mines in the region. Additionally pollution comes from other sources which are not licensed, resulting in a cumulative load on the environment and people's health.

There is an urgent need to develop a robust regulatory framework for dealing with cumulative pollution impacts. Key elements of this framework may include:

- clearly defined threshold levels for the receiving environment, based on the best available science in relation to health and environmental impacts;
- binding caps on total pollution loads for airsheds and water bodies, to ensure that licensed facilities do not exceed threshold levels;
- integration between strategic planning, development assessment and pollution control, to manage the cumulative impacts of existing and emerging pollution sources in a strategic manner; and
- active monitoring of receiving environments to ensure compliance with threshold levels and identify impacts on human health and natural ecosystems.

Recommendation 10: Constrain EPA discretion by prohibiting the setting of licence conditions that would result in exceedence of ANZECC air and water quality standards.

Recommendation 11: For every receiving environment in which pollution levels exceed ANZECC standards, implement pollution reduction programs to reduce pollution levels to safe levels within 5 years.

Recommendation 12: Establish an expert working group to develop an effective regulatory framework for cumulative pollution impacts, including strategic planning, precinct planning and emissions trading.

5.0. Public participation and access to information in relation to pollution matters

We all have the right to know about the health and environmental effects of pollution. Information about pollution risks should be made more accessible to the public, through a transparent and open system of pollution control.

Ensuring that pollution risks are clearly and actively communicated to the public will help to ensure that the local residents know how to respond in the event of a serious incident. Transparency and public participation in pollution control helps to hold industry accountable and strengthens the position of the pollution regulator, by ensuring that community expectations are reflected in licensing and enforcement decisions.

Government can make pollution control more open and transparent by creating and promoting user-friendly information tools and inviting public comment for all renewals and variations of pollution licences. The current Public Register is difficult to navigate and while better than the previous situation of minimal information that prevailed in the 1990s – it must be dramatically improved.

Further there needs to be a strong community voice on the EPA Board as recommended by the O'Reilly Report. 'Business' has a representative – so too should the 'community' . It's not an excuse to suggest it would be difficult to find a person to handle such a broad brief, as the business or community representative would have to develop networking capacity. Nor do we believe the advisory committee process is a substitute as

such committees unless well resourced, with the power of initiative and research, and effective chairs , can become useful, ongoing instruments.

The EPA should also report annually on the effectiveness of its community consultation, in particular in the way it handles complaints; plain English explanations of technical issues; and specific responses to proposals for pollution reduction.

Recommendation 13: Take immediate measures to develop a culture of transparency in the EPA, with a strong presumption in favour of disclosure (for example, facility level compliance audit reports to be made available online, as well as in the EPA library).

Recommendation 14: Substantially improve the ease of access to the Public Register.

Recommendation 15: Develop and implement an active communication strategy, using a variety of communication channels, to promote public understanding of pollution risks and technical issues, help local residents prepare for emergencies, and promote public involvement in pollution control decisions.

Recommendation 16: Reinstate the role of community and local council representatives on the EPA Board, to enhance accountability and ensure that community perspectives are reflected in the Board's deliberations.

Recommendation 17: Ensure that the quality and effectiveness of community engagement, including community consultation committees, is monitored and reported.

6.0 CULTURAL CHANGE IN THE EPA

Legislative change can only go so far. The attitudes and capacity of the bureaucrats are also essential drivers of change.

In our view and as evidenced above, the pollution reduction culture of the EPA has fossilised and needs a shake-up. This can be partly achieved through the government's proposed changes to the legislative framework for the EPA, but must also be driven by the new Board and Chair. The skills of the EPA staff need to be strengthened to allow better appreciation and translation of community concerns into real pollution reduction gains.

APPENDIX 1 – REVIEW OF MAJOR INDUSTRIAL POLLUTION SOURCES IN NEW SOUTH WALES (2009-2010)

Prepared by the Nature Conservation Council of NSW

1.0. Introduction

This report reviews industrial point sources of the pollutants involved in recent incidents at the Orica facilities at Kooragang Island and Botany:

- mercury and compounds
- arsenic and compounds
- hexavalent chromium compounds.

The report also reviews the following pollutants, identified by the National Pollutant Inventory (NPI) as the most commonly reported substances emitted by industry in NSW:

- sulfur dioxide
- oxides of nitrogen
- particulate matter 10.0 um
- carbon monoxide
- total volatile organic compounds.

2.0. Information Sources

The data presented in this report is obtained from the National Pollutant Inventory, and can be independently verified by reference to the following website: www.npi.nsw.gov.au.

NPI data is based on self-reporting by polluting facilities.

The figures presented in this report relate to 2009-2010 reporting period.

3.0. Health and Environment Impacts

For information about the health and environmental impacts of these pollutants, refer to: www.npi.gov.au/substances/factsheets.html.

4.0. MERCURY

4.1. AIR POLLUTION

The largest sources of mercury pollution to air are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Mercury and compounds. Emissions to air by sector.

Source	Air (kg)
Electricity Generation [261]	241.1
Basic Ferrous Metal Manufacturing [211]	218.1
Cement, Lime, Plaster and Concrete Product Manufacturing [203]	48.2
Waste Treatment, Disposal and Remediation Services [292]	30.1
Basic Chemical Manufacturing [181]	28.5
Coal Mining [060]	23.9
Water Supply, Sewerage and Drainage Services [281]	
Petroleum and Coal Product Manufacturing [170]	13.2
Ceramic Product Manufacturing [202]	12.8

Table 2. Mercury and compounds. Emissions to air by facility.

Facility Name	Air (kg)
BlueScope Steel Port Kembla Steelworks [Port Kembla-NSW]	168.0
Liddell Power Station [Muswellbrook-NSW]	55.0
Bayswater Power Station [Muswellbrook-NSW]	53.9
Onesteel Waratah [Waratah-NSW]	42.0
Eraring Power Station [Eraring-NSW]	42.0
Vales Point Power Station [Manning Park-NSW]	36.0
Berrima Cement Works [New Berrima-NSW]	32.3
Sterihealth NSW Pty Ltd [Silverwater-NSW]	30.0
Mount Piper Power Station [Portland-NSW]	29.0
Wallerawang Power Station [Wallerawang-NSW]	20.0
Qenos Olefines and Site Utilities Plants [Matraville-NSW]	19.7
Kandos Cement Plant and Mine [Kandos-NSW]	8.4
Orica Australia - Chlorine Plant & Groundwater Treatment Plant [Matraville-NSW]	7.9
Boral Bricks Badgerys Creek [Badgerys Creek-NSW]	6.9
Caltex Kurnell Refinery [Kurnell-NSW]	5.8
Corrimal Coke Works [Corrimal-NSW]	5.6
Coalcliff Coke Works [Coalcliff-NSW]	5.5
Maldon Cement Works [Picton-NSW]	5.4
Tomago Aluminium Smelter [Tomago-NSW]	5.2

4.2. WATER POLLUTION

The largest sources of mercury pollution to water are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Mercury and compounds. Emissions to water by sector.

Source	Water (kg)
Water Supply, Sewerage and Drainage Services [281]	24.00
Coal Mining [060]	1.06
Basic Ferrous Metal Manufacturing [211]	0.16
Electricity Generation [261]	0.07
Other Mining Support Services [109]	0.07

Table 2. Mercury and compounds. Emissions to water by facility.

Facility Name	Water (kg)
North Head Sewage Treatment Plant [Manly-NSW]	24.00
Springvale Colliery [Lidsdale-NSW]	0.66
Angus Place Colliery [Lidsdale-NSW]	0.23
BlueScope Steel Port Kembla Steelworks [Port Kembla-NSW]	0.16
Tahmoor Coal Mine [Tahmoor-NSW]	0.15
Eraring Power Station [Eraring-NSW]	0.07
Port Kembla Coal Terminal [Port Kembla-NSW]	0.07
Caltex Kurnell Refinery [Kurnell-NSW]	0.03
Kooragang Coal Terminal [Kooragang Island-NSW]	0.01
Clarence Colliery [Clarence-NSW]	0.01

5.0. ARSENIC

5.1. AIR POLLUTION

The largest sources of arsenic pollution to air are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Arsenic and compounds. Emissions to air by sector.

Source	Air (kg)
Metal Ore Mining [080]	765.4
Coal Mining [060]	593.9
Pulp, Paper and Paperboard Manufacturing [151]	458.8
Electricity Generation [261]	152.1
Glass and Glass Product Manufacturing [201]	84.1

Table 2. Arsenic and compounds. Emissions to air by facility.

Facility Name	Air (kg)
Norske Skog Albury Papermill [Ettamogah-NSW]	455.9
Cowal Operations [West Wyalong-NSW]	259.9
Straits Hillgrove Mine [Hillgrove Via Armidale-NSW]	196.8
Cadia Valley Operations [Orange-NSW]	178.2
Owens Illinois Sydney Plant [Penrith-NSW]	84.0
Hunter Valley Operations [Lemington Via Singleton-NSW]	70.8
Tomago Aluminium Smelter [Tomago-NSW]	57.0
Bulga Coal Mine [Singleton-NSW]	56.0
Anglo Coal Drayton Management Pty Limited [Muswellbrook-NSW]	51.0
Ravensworth [Ravensworth Via Singleton-NSW]	50.0
BlueScope Steel Port Kembla Steelworks [Port Kembla-NSW]	47.0
Liddell Power Station [Muswellbrook-NSW]	41.0
Glendell and Ravensworth East [Ravensworth Via Singleton-NSW]	37.0
Perilya Broken Hill Mine [Broken Hill-NSW]	36.8
Eraring Power Station [Eraring-NSW]	33.7
Northparkes Mines [Goonumbla Via Parkes-NSW]	32.8
Tritton Mines [Hermidale-NSW]	32.2
Wallerawang Power Station [Wallerawang-NSW]	31.0
Liddell Coal Operations [Via Ravensworth, Via Singleton-NSW]	30.7
Wilpinjong Coal Mine [Ulan-NSW]	30.2

5.2. WATER POLLUTION

The largest sources of arsenic pollution to water are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Arsenic and compounds. Emissions to water by sector.

Source	Water (kg)
Coal Mining [060]	146.0
Petroleum and Coal Product Manufacturing [170]	57.0
Electricity Generation [261]	13.9
Fertiliser and Pesticide Manufacturing [183]	11.1
Other Wood Product Manufacturing [149]	4.3

Table 2. Arsenic and compounds. Emissions to water by sector.

Facility Name	Water (kg)
Tahmoor Coal Mine [Tahmoor-NSW]	89.0
Caltex Kurnell Refinery [Kurnell-NSW]	57.0
Appin Mine [Wilton-NSW]	32.1
Eraring Power Station [Eraring-NSW]	13.9
Orica Kooragang Island Site [Kooragang Island-NSW]	11.1
Mount Thorley Warkworth Operations [Mount Thorley Via Singleton-NSW]	11.1
West Cliff Colliery [Appin-NSW]	9.0
Koppers Wood Products - Grafton [Trenayr Via Grafton-NSW]	4.3
Dendrobium Coal Mine [Mount Kembla-NSW]	3.4
Port Kembla Coal Terminal [Port Kembla-NSW]	2.1

6.0. CHROMIUM VI

6.1. AIR POLLUTION

The largest sources of hexavalent chromium pollution to air are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Chromium VI and compounds. Emissions to air by sector.

Source	Air (kg)
Basic Ferrous Metal Manufacturing [211]	90
Electricity Generation [261]	43
Basic Non-Ferrous Metal Manufacturing [213]	29
Pulp, Paper and Paperboard Manufacturing [151]	13
Petroleum and Coal Product Manufacturing [170]	11

Table 2. Chromium VI and compounds. Emissions to air by facility.

Facility Name	Air (kg)
BlueScope Steel Port Kembla Steelworks [Port Kembla-NSW]	69.0
Tomago Aluminium Smelter [Tomago-NSW]	29.0
Coalcliff Coke Works [Coalcliff-NSW]	13.5
Norske Skog Albury Papermill [Ettamogah-NSW]	12.8
Eraring Power Station [Eraring-NSW]	11.4
Liddell Power Station [Muswellbrook-NSW]	10.0
Corrimal Coke Works [Corrimal-NSW]	9.7
Bayswater Power Station [Muswellbrook-NSW]	8.7
Alcoa Rolled Products Yennora [Yennora-NSW]	7.9

6.2. SOIL CONTAMINATION

The largest sources of hexavalent chromium pollution to land are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Chromium VI and compounds. Emissions to land by sector.

Source	Land (kg)
Pulp, Paper and Paperboard Manufacturing [151]	143
Waste Treatment, Disposal and Remediation Services [292]	0.09

Table 2. Chromium VI and compounds. Emissions to land by facility.

Facility Name	Land (kg)
Norske Skog Albury Papermill [Ettamogah-NSW]	143
Tharbogang Landfill [Tharbogang, Griffith-NSW]	0.09

7.0. OXIDES OF NITROGEN

The largest sources of oxides of nitrogen to air are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Oxides of nitrogen. Emissions to air by sector.

Source	Air (kg)
Electricity Generation [261]	158,615,231
Coal Mining [060]	24,961,880
Basic Ferrous Metal Manufacturing [211]	8,644,517
Cement, Lime, Plaster and Concrete Product Manufacturing [203]	3,288,453
Petroleum and Coal Product Manufacturing [170]	2,695,904
Metal Ore Mining [080]	2,208,316
Glass and Glass Product Manufacturing [201]	1,656,492
Basic Chemical Manufacturing [181]	1,523,157
Fertiliser and Pesticide Manufacturing [183]	796,767

Table 2. Oxides of nitrogen. Emissions to air by facility.

Facility Name	Air (kg)
Bayswater Power Station [Muswellbrook-NSW]	38,426,439
Eraring Power Station [Eraring-NSW]	32,641,292
Mount Piper Power Station [Portland-NSW]	24,000,000
Liddell Power Station [Muswellbrook-NSW]	23,272,829
Vales Point Power Station [Manning Park-NSW]	21,000,000
Wallerawang Power Station [Wallerawang-NSW]	14,000,000
BlueScope Steel Port Kembla Steelworks [Port Kembla-NSW]	7,927,779
Mt Arthur Nth Coal Mine / Bayswater Colliery [Muswellbrook]	4,789,099
Bulga Coal Mine [Singleton-NSW]	2,511,731
Munmorah Power Station [Doyalson-NSW]	2,400,000

8.0. SULPHUR DIOXIDE

The largest sources of volatile organic compounds to air are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Sulphur dioxide emissions to air by sector.

Source	Air (kg)
Electricity Generation [261]	227,198,936
Basic Non-Ferrous Metal Manufacturing [213]	12,719,144
Basic Ferrous Metal Manufacturing [211]	7,854,373
Petroleum and Coal Product Manufacturing [170]	5,502,188
Basic Chemical Manufacturing [181]	1,249,690

Table 2. Sulphur dioxide emissions to air by facility.

Facility Name	Air (kg)
Bayswater Power Station [Muswellbrook-NSW]	73,408,802
Liddell Power Station [Muswellbrook-NSW]	39,654,401
Mount Piper Power Station [Portland-NSW]	35,000,000
Eraring Power Station [Eraring-NSW]	29,155,628
Wallerawang Power Station [Wallerawang-NSW]	25,000,000
Vales Point Power Station [Mannering Park-NSW]	20,000,000
Tomago Aluminium Smelter [Tomago-NSW]	9,028,300
BlueScope Steel Port Kembla Steelworks [Port Kembla-NSW]	7,498,915
Hydro Aluminium Kurri Kurri Smelter [Loxford-NSW]	3,623,980
Munmorah Power Station [Doyalson-NSW]	2,900,000
Caltex Kurnell Refinery [Kurnell-NSW]	2,843,522
Shell Clyde Refinery [Rosehill-NSW]	2,054,314
Redbank Power [Warkworth-NSW]	2,012,001
Continental Carbon Kurnell [Kurnell-NSW]	1,023,206
Shoalhaven Starches Bomaderry [Bomaderry-NSW]	785,534
Owens Illinois Sydney Plant [Penrith-NSW]	406,597
Coalcliff Coke Works [Coalcliff-NSW]	315,062
Corrimal Coke Works [Corrimal-NSW]	227,597
Harwood Sugar Mill and Refinery [Harwood-NSW]	207,945
Unimin Charbon Lime Manufacturing Facility [Charbon-NSW]	192,152

9.0. PARTICULATE MATTER 10 µm

The largest sources of particulate matter (10 µm) to air are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Particulate matter (10 µm). Emissions to air by sector.

Source	Air (kg)
Coal Mining [060]	59,221,883
Metal Ore Mining [080]	13,940,100
Electricity Generation [261]	3,005,370
Basic Ferrous Metal Manufacturing [211]	1,887,981
Sheep, Beef Cattle and Grain Farming [014]	1,238,971
Ceramic Product Manufacturing [202]	945,471
Other Non-Metallic Mineral Mining and Quarrying [099]	933,657
Construction Material Mining [091]	746,245
Cement, Lime, Plaster & Concrete Product Manufacturing [203]	528,170
Petroleum and Coal Product Manufacturing [170]	524,880

Table 2. Particulate matter (10 µm). Emissions to air by facility.

Facility Name	Air (kg)
Cadia Valley Operations [Orange-NSW]	9,564,459
Bulga Coal Mine [Singleton-NSW]	8,653,412
Hunter Valley Operations [Lemington Via Singleton-NSW]	6,681,808
Mount Thorley Warkworth Operations [Mount Thorley Via Singleton-NSW]	5,754,052
Anglo Coal Drayton Management Pty Limited [Muswellbrook-NSW]	3,848,806
Glendell and Ravensworth East [Ravensworth Via Singleton-NSW]	3,527,455
Mt Owen Mine [Ravensworth-NSW]	2,984,994
Liddell Coal Operations [Via Ravensworth, Via Singleton-NSW]	2,929,005
Mt Arthur North Coal Mine and Bayswater Colliery [Muswellbrook-NSW]	2,641,665
Ravensworth [Ravensworth Via Singleton-NSW]	2,600,000
Integra Coal Mine (Open Cut) [Singleton-NSW]	2,100,000
Wilpinjong Coal Mine [Ulan-NSW]	1,879,894
BlueScope Steel Port Kembla Steelworks [Port Kembla-NSW]	1,722,175
Bengalla Operations [Muswellbrook-NSW]	1,637,039
Tarrawonga Coal Mine [Boggabri-NSW]	1,482,625
Werris Creek No 2 Coal Mine [Werris Creek-NSW]	1,372,992
Rocglen Coal Mine [(Via) Gunnedah-NSW]	1,294,656
Northparkes Mines [Goonumbla Via Parkes-NSW]	1,223,939
Bloomfield Colliery [Ashtonfield-NSW]	1,109,309
Cowal Operations [West Wyalong-NSW]	1,016,366

10.0. VOLATILE ORGANIC COMPOUNDS

The largest sources of volatile organic compounds to air are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Total VOC. Emissions to air by sector.

Source	Air (kg)
Coal Mining [060]	2,883,167
Mineral, Metal and Chemical Wholesaling [332]	1,236,692
Petroleum and Coal Product Manufacturing [170]	1,139,027
Electricity Generation [261]	1,067,048
Other Wood Product Manufacturing [149]	928,338
Basic Chemical Manufacturing [181]	720,542
Other Basic Chemical Product Manufacturing [189]	614,153

Table 2. Total VOC. Emissions to air by facility.

Facility Name	Air (kg)
Caltex Kurnell Refinery [Kurnell-NSW]	819,265
Bulga Coal Mine [Singleton-NSW]	671,082
Borg Panels Pty Ltd [Oberon-NSW]	652,240
Thales Mulwala [Mulwala-NSW]	608,297
Amcor Flexibles Regents Park [Regents Park-NSW]	569,292
Glendell and Ravensworth East [Ravensworth Via Singleton-NSW]	430,729
Qenos Alkathene and Alkatuff Plants [Matraville-NSW]	396,875
Wilpinjong Coal Mine [Ulan-NSW]	355,585
Mt Arthur North Coal Mine and Bayswater Colliery [Muswellbrook-NSW]	277,382
Shell Clyde Refinery [Rosehill-NSW]	272,390
BlueScope Steel Port Kembla Steelworks [Port Kembla-NSW]	240,305
Bayswater Power Station [Muswellbrook-NSW]	216,913
CSA Mine [Cobar-NSW]	183,756
Shell Tamworth Petroleum Depot [West Tamworth-NSW]	169,398
Eraring Power Station [Eraring-NSW]	165,221
Liddell Power Station [Muswellbrook-NSW]	146,483
Newcastle Terminal [Carrington-NSW]	140,537
Appin CSM Power Station [Appin-NSW]	139,965
Mt Owen Mine [Ravensworth-NSW]	127,548

11.0. CARBON MONOXIDE

11.1. AIR POLLUTION

The largest sources of volatile organic compounds to air are summarised in the tables below, by sector (Table 1) and by facility (Table 2).

Table 1. Carbon Monoxide emissions to air by sector.

Source	Air (kg)
Basic Ferrous Metal Manufacturing [211]	193,293,504
Basic Non-Ferrous Metal Manufacturing [213]	54,332,850
Coal Mining [060]	15,215,347
Electricity Generation [261]	9,051,288
Sugar and Confectionery Manufacturing [118]	2,172,327
Cement, Lime, Plaster and Concrete Product Manufacturing [203]	1,850,683
Ceramic Product Manufacturing [202]	1,630,428
Metal Ore Mining [080]	1,449,514
Petroleum and Coal Product Manufacturing [170]	1,129,072
Other Wood Product Manufacturing [149]	578,977

Table 2. Carbon Monoxide emissions to air by facility.

Facility Name	Air (kg)
BlueScope Steel Port Kembla Steelworks [Port Kembla-NSW]	189,598,051
Tomago Aluminium Smelter [Tomago-NSW]	41,222,000
Hydro Aluminium Kurri Kurri Smelter [Loxford-NSW]	12,872,450
Bulga Coal Mine [Singleton-NSW]	2,500,636
Mt Arthur North Coal Mine and Bayswater Colliery [Muswellbrook-NSW]	2,325,106
Onesteel Waratah [Waratah-NSW]	2,231,000
Bayswater Power Station [Muswellbrook-NSW]	1,809,631
Glendell and Ravensworth East [Ravensworth Via Singleton-NSW]	1,617,363
Eraring Power Station [Eraring-NSW]	1,374,560
Liddell Power Station [Muswellbrook-NSW]	1,206,303
Hunter Valley Operations [Lemington Via Singleton-NSW]	1,055,730
Mount Thorley Warkworth Operations [Mount Thorley - NSW]	1,050,161
Vales Point Power Station [Mannering Park-NSW]	850,000
Mount Piper Power Station [Portland-NSW]	830,000
Condong Sugar Mill & Cogeneration Plant [Condong-NSW]	806,055
Berrima Cement Works [New Berrima-NSW]	783,340
Mt Owen Mine [Ravensworth-NSW]	770,602
ANZSMB, Mills & Coating - Springhill [Port Kembla-NSW]	736,302
Broadwater Sugar Mill & Cogeneration Plant [Broadwater-NSW]	697,128
OneSteel Sydney Steel Mill [Rooty Hill-NSW]	671,900

APPENDIX 2 - SUMMARY OF NON-COMPLIANCE WITH POLLUTION LICENCE CONDITIONS BY ORICA AUSTRALIA PTY LTD AT ITS KOORAGANG ISLAND FACILITY FOR THE PERIOD 2010-2011.

Compilation prepared by the Nature Conservation Council of NSW (NCC), based on publicly available information on the POEO Public Register: www.environment.nsw.gov.au/prpoeoapp.

The facility has breached the terms of its licence **every year** since 2000, except 2004, with a total of **131 breaches**. These breaches have included unlawful releases of arsenic (2006, 2007, 2009), hexavalent chromium (2005), nitrogen oxides and ammonia. During the period 2000-2011, the EPA did not issue Orica with a single prevention, clean up or prohibition notice.

Licence number: 828

Annual Return Start: 01 Apr 2010

Annual Return End: 31 Mar 2011

Date Received: 27 May 2011

Licence Condition number	Type of non-compliance	No. of incidents
L3.1	Exceedance of 100th percentile concentration limit at Point 23 in respect of temperature for 0.25% of the year due to periodic discharge of effluent with elevated temperature. A condensate purifier was installed to reduce temperature.	1
M2.1	Failure to collect stormwater samples in respect of Points 10, 11, 12, 13, 14 and 15 during discharge as required as there was no rainfall events when laboratory staff were available on site during these months.	3
L1.1	Loss of containment of nitric acid from the No 1 Nitric Acid Plant on 19 October 2010.	1
M3.1	Sampling planes for Point 16 & 21 do not comply with requirements of the Australian Standard due to irregular stack walls. Investigations are under way to design compliant sampling plains to enable sampling to be undertaken.	1
L2.1	Nitrogen oxide mass discharge exceeded the Load Limit due to reformer stack recycling of purge gas with the Ammonia Plant to primary reformer combustion system. A scrubbing system is being installed in July 2011 and will prevent a recurrence.	1
L3.1	Exceedance of 100th percentile concentration limit at Point 20 in respect of NOx. A scrubbing system is being installed in July 2011 to prevent the recurrence of this non compliance.	1

Licence number: 828

Annual Return Start: 01 Apr 2009

Annual Return End: 31 Mar 2010

Date Received: 18 May 2010

Licence Condition number	Type of non-compliance	No. of incidents
M2.1	Effluent sampler failed on 2 occasions due to program & equipment failure.	2
L3.1	Elevated level of arsenic in effluent - result of 0.1mg/L compared with limit of 0.05mg/L. Report submitted to	1

	DECCW.	
R2.1	Notification of incident by phone to Regional Office rather than through Environment Line. DECCW office was contacted as the notification occurred during normal business hours. Discussed with DECCW Regional Operations Officer.	3
L3.1	Temperature exceeded 100 percentile limit for 0.2% of the time.	2
P1	Power to premises was disrupted due to works being undertaken in the area, which resulted in ammonia odours being discharged from Nitric Acid Plants 1 & 2 upon startup.	2
M2.1	No. 2 Nitric Acid Plant Stack NOx analyser fault - issues with zero function resulted in invalid data.	1
M2.1	Failure to collect stormwater samples during rainfall events outside of laboratory hours.	1

Licence number: 828
 Annual Return Start: 01 Apr 2008
 Annual Return End: 31 Mar 2009
 Date Received: 25 May 2009

Licence Condition number	Type of non-compliance	No. of incidents
P1	Discharge of Ammonia vapour from Ammonia Plant Vent Stack.	2
L2	Monitoring Point 20 - Nitrogen oxide mass discharge of 701,713 kg exceeded the Load Limit of 644,950kg.	1
L3.1	Monitoring Point 20 - Reformer Stack concentration of 0.48mg/Nm3 (NOx as NO2) which is above the licence limit of 0.35mg/Nm3.	1
L3.1	Monitoring Point 23 - Exceedence of effluent temperature limit during licence year.	8
M2.1	Monitoring Points 10,11,12,13 - Failure to collect stormwater samples during rain events.	2
M2.1	Monitoring Point 14 - Failure to collect stormwater samples during rain events.	2
M2.1	Effluent sampler failed to operate on two occasions.	2

Licence number: 828
 Annual Return Start: 01 Apr 2007
 Annual Return End: 31 Mar 2008
 Date Received: 23 May 2008

Licence Condition number	Type of non-compliance	No. of incidents
M2.1	Effluent sampler failed to operate on 7 occasions.	7
L3.3	Arsenic limit exceeded.	1
L3.3	Oil and grease limit exceeded.	1
M6.1	Main effluent flow meter failed.	1
M2.1	Nitric Acid Plant 3 NOx analyser failure	5

L1.1	Discharge of process water to stormwater system.	2
M2.1	Failure to collect stormwater samples during rain event.	2

Licence number: 828
Annual Return Start: 01 Apr 2006
Annual Return End: 31 Mar 2007
Date Received: 30 May 2007

Licence Condition number	Type of non-compliance	No. of incidents
L2.1	Exceedence of annual limit for Nitrogen (Total) (Estuarine) discharged from Monitoring Point 1. The annual load of nitrogen discharged from Monitoring Point 1 was 514,226kg compared to licence limit of 400,000kg.	1
L3.1	Exceedence of Oil & Grease limit at Monitoring Point 1 (17mg/L).	1
L3.1	Arsenic limit in effluent exceeded. Licence limit of 0.05 mg/L compared with the daily result 0.07 mg/L recorded 31/3/07.	1
L3.1	Exceedence of effluent temperature (43 deg C) for 1.1% of the licence period.	1
L3.1	Exceedence of NOx concentration level at Monitoring Point 20 (Reformer Stack), with concentration of 0.78g/m3 recorded on 6/9/06 compared to the licence limit of 0.35g/m3.	1
L3.6	Exceedence of the 99%-ile limit for NOx at Monitoring Point 3 (No.1 Nitric Acid Plant). Licence allows concentration of 400ppm to be exceeded during start-up and shutdown for 87.6hrs, however, it was exceeded by 236hrs due plant operating issues.	1
M2.1	Oil and Grease sampling in effluent at Monitoring Point 1 undertaken on a weekly basis, not bi-weekly as per licence requirements during weeks commencing 1/5/06 and 8/5/06.	2
M2.1	24 hour composite effluent samples at Monitoring Point 1 were not collected on the required dates - 27/5/06, 8/11/06, 24/1/07 and 19/3/07 due to power/instrument failure or operator error.	4
M2.1	NOx analyser instrument for No.1 Acid Plant Stack Nitrogen Oxide Analyser was not operating at 100% capacity during the period 15/11/06 - 20/11/06. It was operating at 98.5% during this period due to a technical fault in the instrument.	1
U1 Obj 4.1	Failure of the First Flush Stormwater system, due to faulty design. Diversion units were damaged by groundwater pressure which resulted in groundwater ingress overloading the system. Design issues rectified and system repaired.	1

Licence number: 828
Annual Return Start: 01 Apr 2005
Annual Return End: 31 Mar 2006

Date Received: 19 May 2006

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
L2.1	Exceedance of annual limit for Nitrogen (Total) (Estuarine) discharged from monitoring point 1.	1
L3.1	Exceedance of: Oil & Grease; pH; chromium; Total Suspended Solids; Total Nitrogen; NOx level 0.7 g/m3 and 97.8% compliance with temperature limit of 43 degrees C	8
M2.2	Water samples not analysed by NATA accredited laboratory	1
3.1(c)	Installation of effluent concentrator not completed by due date.	2
4.1	First flush system not completed by due date	2

Licence number: 828

Annual Return Start: 01 Apr 2003

Annual Return End: 31 Mar 2004

Date Received: 01 Jun 2004

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
L3.1	10/1/04 TSS 474 mg/l	0
L3.1	27/2/04 TSS 82 mg/l	0
L3.1	7/3/04 TSS 52 mg/l	0
L3.1	26/1/04 N-Tot 2395 mg/l limit 2000 mg/l	0
L3.1	17/12/03 N-Tot 2054mg/l	0
L3.1	2/11/03 Temp 44.3DegC, Limit 43DegC, breach due to discharge of plant concentrate	0
L3.1	18/5/03 Temp 43.5DegC Plant condensate	0
L3.1	20/5/03 Temp 43.5DegC	0

Licence number: 828

Annual Return Start: 01 Apr 2002

Annual Return End: 31 Mar 2003

Date Received: 30 May 2003

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
L6.1	Noise complaint AR wrongly reported a breach of L6.1	0
L7.1	7/2/03 Complaint about NH3 odour	0
L3.1	Elevated discharge temperature on 51 days	0
L3.1	13/11/02 Elevated Zn in effluent - suspect cooling tower as source 5.4 mg/l limit 5.0 mg/l.	0
L3.1	26/11/02 TSS 54 mg/l, 10/3/03 TSS 56 mg/l Limit 50 mg/l	0
M2.1	Samples not collected DP10 Nov 2002 and Jan 2003.	0
M2.1	Samples not collected DP 11 Nov 20002 and Jan 2003	0
M2.1	Samples not collected for DP 12 Nov 2002 and Jan 2003	0

M2.1	Samples not taken DP 13 Nov 2002 and Jan 2003	0
M2.1	Samples not taken DP 14 Nov 2002 and Jan 2003	0
M2.1	No samples collected DP 15, Nov 2002 and Jan 2003	0
M2.1	Samples no taken DP 16 Nov 2002 and Jan 2003	0
M2.1	No samples taken DP 17 Nov 2002 and Jan 2003	0

Licence number: 828
 Annual Return Start: 01 Apr 2001
 Annual Return End: 31 Mar 2002
 Date Received: 30 May 2002

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
R1.1	Reported non compliances ranging from mechanical/calibration fault in monitoring equipment at various discharge points and times in the year to no flow at discharge points.	

Licence number: 828
 Annual Return Start: 01 Apr 2000
 Annual Return End: 31 Mar 2001
 Date Received: 30 May 2001

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
M2	On line monitoring instruments off-line for maintenance.	0
L3	Fifteen exceedences of discharge limits reported.	0
L3	Eight exceedences of NOx emission limits for the nitric acid plant.	0

APPENDIX 3 - SUMMARY OF NON-COMPLIANCE WITH POLLUTION LICENCE CONDITIONS BY ORICA AUSTRALIA PTY LTD AT ITS PORT BOTANY FACILITY FOR THE PERIOD 2010-2011.

Licence No: 2148

ORICA AUSTRALIA PTY LTD

16-20 BEAUCHAMP ROAD, MATRAVILLE, NSW, 2036

LGA: BOTANY BAY **Catchment:** Sydney Coast & Georges River

Licence number: 2148

Annual Return
Start: 21 Jul 2009

Annual Return End: 20 Jul 2010

Date Received: 20 Sep 2010

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
M7.1	Point 12 - Wind data was not recorded on the computer control system due to data transmission failure. The weather station itself was operational. Alternate wind data was recorded at nearby Qenos operations. Improved maintenance.	2
M2	Point 9 - FTIR off line to troubleshoot malfunction	3
M2	Point 14-BOD result not available for 24 hour composite due to sample misallocation.	1
M2	Point 16 - Discharge water temperature not recorded on 9-12 December 2010 due to transmitter failure. 3.5 ML discharged	2
M2	Point 16 - Water temp discharge limit exceeded.	3

Licence number: 2148

Annual Return
Start: 21 Jul 2008

Annual Return End: 20 Jul 2009

Date Received: 18 Sep 2009

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
M7	GTP WEATHER STATION WAS OFF-LINE FOR 24 HOURS DUE TO LIGHTNING STRIKE. IT WAS REPAIRED UPON DISCOVERY	1
L3	THE HIGHEST VALUE FOR SOLID PARTICLES WAS 42.2MG/M3 MAXIMUM LIMIT IS 20MG/M3	1
M4	A SAMPLE WAS LOST IN TRANSIT BY TESTING LABORATORY. GTP WAS INFORMED OF THE MISSING SAMPLE BUT TOO LATE FOR ANOTHER SAMPLE TO BE COLLECTED. CONSEQUENTLY ONLY 45 SAMPLES WERE ANALYSED FOR BOD INSTEAD OF 46 SAMPLES	2
L3	OXIDISED NITROGEN EXCEEDED THE LIMIT OF 0.1MG/L BY 0.01MG/L	2
L3	WATER DISCHARGE TEMPERATURE EXCEEDED THE LIMITS OF 15-25 C	4
O2	MINOR LEAK FROM BIP CONTAINMENT LINE EXTRACTION	1

	WELL PUMP HEADER ONTO THE GROUND IN THE IMMEDIATE VICINITY OF THE PUMP	
L1	CONTRACTOR WAS OBSERVED HOSING SALT RESIDUE ON 2ND AVENUE THAT RUNS INTO NO2 CARPARK AT BIP WHICH ULTIMATELY DRAINS TO DENISON STREET	1
M5	A MEMBER OF THE COMMUNITY TRIED CONTACTING THE COMMUNITY HOTLINE BUT ENCOUNTERED A MALFACTION. THE TEMPORARY MALFUNCTION WAS DUE TO AN UPGRADE OF THE TELEPHONE SYSTEM.	1

Licence number: 2148

Annual Return Start: 21 Jul 2007

Annual Return End: 20 Jul 2008

Date Received: 15 Sep 2008

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
G2	No monitoring point signage erected as required at Points 3, 4 and 7 for the entire reporting period.	10
M6.2 /M2.1	No continuous, quarterly or daily monitoring was conducted at Point 8 as the SSU was off-line.	10
E5.1.1(e)	No LDAR monitoring was carried out within the GTP.	10
L3	Exceedance of temperature limits at Point 11 in discharge waters from the GTP (15-25 degrees C 21/7/07-4/4/08, revised to 10-30 degrees C for 5/2/08-21/7/08) - a total of 3,073 exceedances (based on continuous readings at 5 min intervals).	10
O1.1(b)	Effluent overflowed from effluent pit to the Site stormwater system - 20/8/07.	1
L3.7	Point 10 - The 873 degrees C min temp. occurred during trials being undertaken to prove performance of the thermal oxidiser at reduced temperature (down to 875 degrees C). EPA approval required a trial at 875 degrees C. (24/8/07)	1
L3.3	Point 11 - Chloramine concentrations (expressed as 'total residual chlorine') exceeded stormwater discharge limits. Reported to Pollution Line - Incident No.106960 (17/10/07, 4/4/08, 26/5/08, 27/5/08, 5/6/08).	5
O2.1	Positive Legionella count in ChlorAlkali plant cooling (13/11/07).	1
O2	Sodium hypochlorite leaked from faulty pit to containment bund that then leaked to stormwater (24/11/07).	1
O2	Sodium hypochlorite overflowed from a tank under manual control to its bund that then leaked to stormwater (29/11/07).	1
M7	Routine inspection of data from the GTP weather station identified that it was out of service. Orica is required to record wind speed, direction and sigma theta (30/11/07-20/12/07).	10
M2.1	Point 9 - On-line monitoring of VOC components by the installed FTIR instrument has experienced interference by	10

	moisture. This was corrected by means of an in-line drier.	
L3	Point 11 - (11/12/07) a BOD exceedance (12mg/L cp. limit of 10mg/L) was recorded for the 24 hour composite collected during 10/11 Dec 07. The laboratory result was unavailable until 19/12/07.	1
L3.3	Sulphide is not a licensed parameter at Point 11, however this information has been included under the general requirement of Condition L3.3. During 2 periods sulphide was found to be present in treated water. (late Jan - mid Feb 08 and April 08).	10
O1.1(b)	Incorrect mass of waste pickling acid receipted into on-line tracking system (24/1/08).	1
O1.1(b)	Waste pickling acid receipted onto incorrect Transport Certificate (31/1/08).	1
U2.2	Cond. U2.2 required Orica to determine the range of dilution of ammonia concentrations in the stormwater canal. A key Amcor instrument was not working correctly and took some time to repair and for data to become available (22/2/08).	1
O1.1/O6.1	Chlorine boundary detector alarms activated after low pH plant effluent mixed with chlorinated brine sampling line effluent (26/2/08)	1
O1.1/O6.1	Chlorine alarms activated along boundary with railway. Emission traced to power failure caused by pigeon (12/4/08).	1
O1.1	Following a complete power failure and the restoration of computer controls, a sodium hypochlorite tank overflowed into its bund, which then leaked to the stormwater drainage system (13/4/08).	1
O1.1(b)	25 tonnes of 75% sulphuric acid waste dispatched to Victoria for recycling after expiry of Consignment Approval (5/6/08 and 3/7/08).	2

Licence number: 2148

Annual Return Start: 21 Jul 2006

Annual Return End: 20 Jul 2007

Date Received: 20 Sep 2007

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
L3.3	Dioxin/furan level in GTP stack emissions exceeded licence limits for 7 of the 24 tests conducted. NOx and TSP levels exceeded limits on 1 occasion each.	7
M2.1	Approved sampling frequency and units of measure not used in assessing compliance. Approved method for H2S, VOCs not used in assessing compliance. Temperature measurements at Point 16 have not always been reliable or accurate.	1
L3.3	Ammonia levels in GTP treated water discharged to stormwater exceeded Licence limits for 19 of the 41 samples tested; pH readings exceeded limits for 10 of the	19

41 samples; BOD on one occasion; and Total Nitrogen on two occasions.

M6.1	Flow measurements at Point 16 have not always been reliable or accurate.	1
L3.3	Some correctly reported temperatures at Point 16 did not comply with the approved temperature range.	1
M2.1	Conductivity measurements at Point 15 have not always been conducted using an on-line instrument.	1
O1.1	GTP Co emissions exceeded licence limits during start up. Boiler sight glass failed at GTP, releasing steam with some noise.	1
L1.1	Minor raw groundwater spill to Foreshore Road due to leaky pump non-return valve at the Secondary Containment Area.	1
L3.3	Oxidised nitrogen levels in treated water discharged to stormwater exceeded Licence limits.	1
O1.1	Acidic effluent from GTP overflowed two occasions. Recovered & pumped to BIP site effluent system. None reached off-stormwater drains.	2
L3.2	GTP CO emissions exceeded Licence limits during start-up.	1
O1.1(b)	Load of waste sulphuric acid from ChlorAlkali Plant rejected by Veolia, Unanderra after being dispatched without being booked in.	1
O1.1	Minor raw groundwater spill to Foreshore Road due to leaky pump non-return valve at the Secondary Containment Area (1 occasion) and biological attack on pipework (1 occasion)	1
E3.1	Environmental Assessment (EA) for Car Park Waste Encapsulation remediation not submitted to Dept Planning til July07. EA was on public exhibit from 26 July to 31 August. Remediation can't commence until proposal assessed & approved.	1
L6.4	Calculated acoustic emission from the GTP to the nearest affected residences exceed the limits imposed by L6.4. A calculated average contribution of 47dB(A) compared to limit 35dB(A) L Aeq 15 mins.	1
L3.6	Operating the Thermal Oxidiser at 900 degrees C, which is below the lower licence limit of 950, as part of the Commissioning Plan for dioxin minimisation.	1
L3.6/7	Operating Heat Exchanger E6103 such that the 'temperature combined' was below the licence limit of 450 degrees C and 'Temperature individual' was below licence limit of 420 degrees during and separate to "Commissioning trials for dioxin minimisation"	1
L1.1	L1.1 requires compliance with s120 of POEO Act. Orica notes discharge of chloramine at Point 11 during period, prior to licence limit being set for total residual chlorine, may fall within the reporting requirements of Part C of the Annual Return	1
E12	Licensee failed to submit independent auditor's report with Annual Return, as per requirements of E12. Annual return	1

due by 19 Sep 07. Draft (incomplete) auditor's report submitted 8 Oct 07 and final submitted 7 Dec 07.

Licence number: 2148
 Annual Return Start: 21 Jul 2005
 Annual Return End: 20 Jul 2006
 Date Received: 20 Sep 2006

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
L3.3	VOC emissions from Vapour Emission Capture System of SSU exceeded the limits specified in the licence	1
O1.1	Failure of steam control valves resulted in VOC emissions to exceed limits specified in licence. Failure to maintain equipment.	1

Licence number: 2148
 Annual Return Start: 21 Jul 2004
 Annual Return End: 20 Jul 2005
 Date Received: 08 Sep 2005

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
O1.1	On 11/03/05, there was a minor emission of chlorine associated with a leak from a chlorine drum during testing. Boundary chlorine alarms were activated, but there were no other off-site effects	1
M2.1	Emissions of VOC and Vinyl Chloride (VCM) exceeded licence limits due to interference in the monitoring equipment. It is fixed now.	3

Licence number: 2148
 Annual Return Start: 21 Jul 2003
 Annual Return End: 20 Jul 2004
 Date Received: 13 Sep 2004

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
O4.1	Mistake made in assessment of stabilised waste, which was then disposed of to landfill. Discovered 22/1/04 and reported to EPA and landfill operator. Waste recovered and returned.	1

Licence number: 2148
 Annual Return Start: 21 Jul 2001
 Annual Return End: 20 Jul 2002
 Date Received: 19 Sep 2002

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
O1.1	14/4/02 at 9:21pm, failure of a pressure controller lead to an emission of chlorine.	0
O2.1	4/7/02, false fire alarm was activated following the installation of a new fire alarm system and revised configuration. Local fire brigade attended	0
O1.1	11/7/02, hypochloric acid storage tank developed a crack, allowing acid to leak into the bund.	0
M2.1	Due to OH&S reasons, the licensee has not conducted the monitoring for mercury at point 1 in accordance with the EPA's approved methods.	0
M2.1	Due to OH&S reasons monitoring for mercury at point 2 was not conducted in accordance with the EPA's approved methods.	0
M2.1	For OH&S reasons monitoring for hydrogen chloride was not conducted in accordance with the EPA's approved methods.	0
M2.1	Monitoring at point 5 was not conducted.	0
M2.1	Monitoring at point 6 was not conducted	0

Licence number: 2148
 Annual Return Start: 21 Jul 2000
 Annual Return End: 20 Jul 2001
 Date Received: 30 Aug 2001

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
O1.1	On 18 December 2000, a tanker being loaded with 33% HCl was overfilled. The excess acid (~5L) was entirely contained with the installed bund and subsequently transferred to the FeCl Plant for recycling.	0
O1.1	On 15 January 2001, emission of chlorine from a road tanker in the Orica Chlorine Plant sodium hypochlorite loading bay. A dedicated FCl iso tanker was nominated for a hypochlorite load by the transport contractor.	0
M2.1	Monthly monitoring of the Hg emissions from point 1 are required in the lic., 2 samples were not analysed - (1) hydrogen vent was not on-line at time of sampling, (2) sampling not undertaken because employee that usually does sampling was on leave.	0
M2.1	Monthly monitoring of Hg emissions from pt 2 is required in the lic. 1 sample was not undertaken as the person who usually undertakes the task was on leave and the relief	0

	person misinterpreted the analysis schedule (same as Non-compliance no. 3)	
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M2.1	Standard EPA sampling methods as specified in the table must be used when undertaking monitoring in accordance with the licence. Non EPA approved sampling methods were used due to OH&S reasons for Hg and HCl monitoring. (pt1, 2, 4)	0
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Licence number: 2148
 Annual Return Start: 21 Jul 1999
 Annual Return End: 20 Jul 2000
 Date Received: 19 Sep 2000

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
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M2.1	The monitoring methods used in the very early part of the licensing period 21 July 2000 - 2001 were undertaken in accordance with the methods outlined in the old format of the licence 2148 because the methods in the new licence had not been settled.	0
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APPENDIX 4 - SUMMARY OF NON-COMPLIANCE WITH POLLUTION LICENCE CONDITIONS BY ORICA CHEMNET AT ITS PORT KEMBLA FACILITY FOR THE PERIOD 2010-2011.

Licence No: 549

ORICA CHEMNET

GATE 1, FORESHORE ROAD, PORT KEMBLA, NSW, 2505

LGA: WOLLONGONG **Catchment:** Illawarra Coast

Licence number: 549

Annual Return Start: 01 Oct 2008

Annual Return End: 30 Sep 2009

Date Received: 06 Nov 2009

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
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L3.3	SO2 licence limit was exceeded. SARP stack exceeded due to a faulty isolation valve and SMBS exceeded limit while producing a batch of SBS liquor due to failure of caustic dosing pump on 21 January 2009.	1
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Licence number: 549

Annual Return Start: 01 Oct 2007

Annual Return End: 30 Sep 2008

Date Received: 17 Nov 2008

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
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L3	SO2 exceedance on SMBS Tail Gas Scrubber stack for duration of 6 minutes due to faulty pH probe on 21 July 2008.	1
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L3	During start-up of Spent Acid Regeneration Plant (SARP) the concentration of SO2 exiting stack exceeded limit for duration <5 seconds on 25 April 2008.	1
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Pt4	Only 43 of 52 grab samples for Total Suspended Solids at MP4 taken that are required by licence, as main plant off-line for approximately 3 months.	9
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Pt1	Only 8 of 12 tests completed for SO3 at SARP stack. Not conducted during April as Acid plant off-line; not conducted October 07 due to safety issues; June & September samples missed due to scheduling issues related to plant on-line time.	4
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Licence number: 549

Annual Return Start: 01 Oct 2006

Annual Return End: 30 Sep 2007

Date Received: 05 Nov 2007

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
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Pt 2 Lic Point 2 - (Marked 2 SMBS Plant Stack) Whilst running SMBS plant to produce a batch of SBS liquor the **licence limit for sulphur dioxide concentration was exceeded** to a max magnitude of 1365 mg/m³ for a duration of 5 minutes. (23/4/07) 1

Licence number: 549
 Annual Return Start: 01 Oct 2005
 Annual Return End: 30 Sep 2006
 Date Received: 23 Nov 2006

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
L3	WHILE STARTING SARP FOLLOWING SEVERAL DAYS SHUT DOWN DISCHARGE SO2 CONCENTRATION EXCEEDED LICENCE CONCENTRATION LIMIT -MAGNITUDE 8229MG/M3 FOR A DURATION OF 3 MIN, 9/10/06	1
L3	FRONT END SO2 PLANT TRIPPED TO PUMP FAILURE EXCEED SMBS PLANT MAGNITUDE 770MG/M3 FOR 1 MIN; 15/12/05	1
L3	PT 1 - SARP OPERATOR HAD ENVIRONMENTAL EXCEDENCE ON THE SARP STACK WHILE TRYING TO PUT SULPHUR ONTO THE BURNER DUE TO A FAILURE OF THE SULFUR METER TO MEASURE FLOW MAG 8196MG/M3 FOR 4 MIN, 17/9/06	1
L3	PT 6 - EFFLUENT DISCHARGED OUT OF PH RANGE - PH MEASURED 5.8 LIMIT 6.5-8.5- PH MEASURED 11.2 PH MEASURED 3.8 PH MEASURED 4.9 PH MEASURED 9.1 PH MEASURED 9.6, 20/9/06; 10/8/06; 20/6/06; 8/5/06; 25/4/06;	6

Licence number: 549
 Annual Return Start: 01 Oct 2004
 Annual Return End: 30 Sep 2005
 Date Received: 09 Nov 2005

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
LDP 2	LDP 2 (SMBS Plant) - Coordinator isolated tail gas scrubber pump by mistake resulting in exceedance of Stack SO2 emission limit of 560mg/m3 . Magnitude of peak = 1086 mg/m ³ for duration of 3 min. 13 November 2004. Plant shutdown, purged and restarted	1
LDP 2	LDP 2 (SMBS) - Scrubber pump lost amps resulting in low flow - lead to high SO2 load to tail gas scrubber and eventual licence exceedence on the SMBS stack. Magnitude 1277 mg/m ³ duration 3 min. 17 Jan 05. Plant shutdown, emergency system operated	1
LDP 1	LDP 1 (SARP Plant) - After purging SARP to SMBS plant for 50 min then joining SARP to Exit stack, A1-235 Analyser spike to 3559 mg/m ³ . Duration of 30 sec. 21 January 2005. Instantaneous spike - no short or long term effects.	1

LDP 1	LDP 1 (SARP) - While changing SMBS Blower set point from 2300m3/hr, operator entered 22 in error resulting in increased SO2 flow to SARP and eventual SARP SO2 concentration emission limit exceedence . Magnitude 3150 mg/m3, duration 30 sec. 2 July 05	1
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Licence number: 549

Annual Return Start: 01 Oct 2003

Annual Return End: 30 Sep 2004

Date Received: 11 Nov 2004

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
Pt 6	Not all samples taken in reporting period	1
LD4	Rerouting of effluent stream from LD6 to LD4 increased effluent over licence limit.	1
SARP PT 1	Power disruption to site caused drive motors to trip causing fugitive SO2 at ground level on 10 October 2003	1
SARP PT 1	Following restart of main blower (BO1) a spike of SO2 was registered on the main stack analyser which exceeded licence limit on 21 January 2004	1

Licence number: 549

Annual Return Start: 01 Oct 2002

Annual Return End: 30 Sep 2003

Date Received: 28 Nov 2003

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
LP1	1/10/02 SARP: SO2 exceedance of 1,000 ppm limit . SMBS vS driver for the blower tripped. Fault signal installed.	0
LP1	2 x SARP SO2 exceedance of 1,000ppm limit . Minor plant process upset on 2 & 8 October 2002. Sulfur meter replaced.	0
LP1	10/02/02 SARP: exceedance of 1,000ppm limit due to minor plant process upset. Change of work procedures.	0
LP1	11/10/02 SARP: SO2 exceeded 1,000ppm limit . Minor plant process upset. Plant trip analyses conducted. Reduction strategy implemented	0
LP1	16/11/02 SARP: SO2 exceeded 1,000ppm limit . Minor plant process upset. Replaced and relocated flow monitor	0
LP1	19/11/02 SARP: SO2 exceedance of 1,000ppm limit . Gas blower BO1 tripped by high vibration monitor reading. Unit replaced.	0
LP1	21/11/02 SARP: SO2 exceedance of 1,000ppm limit . Converter temperature problem - stack valve slightly open. Valve permanently closed.	0
LP1	21/11/02 SARP: SO2 limit of 1,000ppm exceeded . Minor plant process upset. Upgrade of monitoring procedure.	0

LP1	20/12/02 SARP: Exceed limit of 1,000ppm. Plant tripped - low acid flow over drying tower. Increased frequency of level indicator inspection and calibration	0
LP1	31/12/03 SARP: Exceed limit of 1,000ppm. Air line to feed solenoid valve dislodged. Air line upgraded and replaced.	0
LP5	19/01/03 Tank Farm: Acid seeping from base of Tank P3 into bunded area. Leaking tank emptied and decontaminated. Other redundant tanks in area decontaminated.	0
LP5	22/01/03 Tank Farm: pH of 2.5. Acid from tank leak by-passing bund drain line. Lime placed in bunded area to block drain line. Tanks emptied and decontaminated.	0
LP2	31/01/03 SMBS: Exceed limit of 200ppm. Caustic to tail gas scrubber ran out. Supply pump repaired.	0
LP1	31/01/03 SARP: SO2 exceeded 1,000ppm limit. Feed line failed in drain after shutdown - surge at restart. Operating procedure modified and supply system and valves repaired.	0
LP2	13/2/03 SMBS: SO2 emission exceeded 200ppm limit 5 times in 1 hour. Caustic dosing flow reduced due to foreign material in pump. Plant shut down and pump repaired.	0
LP1	22/2/03 SARP: Exceedance when plant tripped due to loss of drying acid flow over drying tower. Level repaired.	0
LP1	29/3/03 SARP: Exceedance of SO2 1,000ppm limit. Operator error under start up conditions. Procedures reviewed and operator counselled.	0
LP1	12/04/03 SARP: Exceedance of SO2 1,000ppm limit. Pre-heater high temperature as a result of faulty thermocouple. Thermocouple replaced, procedure updated to carefully monitor plant start up.	0
LP1	18/04/03 SARP: Exceedance of 1,000 limit - low flow over tower tripped plant. BO1 blower restart to purge plant. Level tube on absorbing acid replaced.	0
LP2	18/07/03 SMBS: Exceed SO2 limit of 200ppm. Caustic dosing pump failed to deliver adequate volume. Increase caustic pumpout.	0
LP2	18/07/03 SMBS: Exceedance of 200ppm limit - caustic dosing failed, emergency system failed. No restart until new system emergency pump installed.	0
LP1	21/08/03 SARP: Emission limit of 1,000 exceeded. Faulty make-up water valve. Replaced water supply valve to cooling tower. New Scrubber Plant under investigation.	0
LP1	24/08/03 SARP: Power disruption from high winds. Tripped humidifier pump resulting in exceedance of SO2 limit. Restarted pump and plant without feeds to purge. Plant left off-line until power situation stabilised.	0
LP1	25/08/03 SARP: SO2 exceedance of 1,000ppm limit. Pre heater trip not configured to trip plant feeds, insufficient monitoring of plant start-up. New Scrubber Plant under investigation.	0
LP2	28/09/03 SMBS: Exceed SO2 limit of 200ppm. Failure of caustic dosing and emergency dosing systems. Plant remained down until dosing pump repaired and emergency system re-designed.	0

Licence number: 549
 Annual Return Start: 01 Oct 2001
 Annual Return End: 30 Sep 2002
 Date Received: 28 Nov 2002

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
Pt 1	36 x exceedance Spent Acid Regeneration Plant Stack in licence period. Exceedance of stack SO2 limit of 1000 ppm.	0
Pt 2	4 x exceedance of Sodium Metabisulfate Plant Stack. Exceedance of stack SO2 limit of 200 ppm.	0

Licence number: 549
 Annual Return Start: 01 Oct 2000
 Annual Return End: 30 Sep 2001
 Date Received: 03 Dec 2001

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
L3.1	5 x exceedance of short duration excursion of SO2 exceeded limit at Licence Point 02.	0
L3.1	43 x exceedance of SO2 from SARP at Point 1.	0
R1	Not all non compliances were detailed on annual return.	0

Licence number: 549
 Annual Return Start: 01 Oct 1999
 Annual Return End: 30 Sep 2000
 Date Received: 20 Dec 2000

<u>Licence Condition number</u>	<u>Type of non-compliance</u>	<u>No. of incidents</u>
-	LD3 - Ocean Outfall - 14/4/00 pH 6.3 retested & >6.5	0
-	LD4 - Tank 7 Effluent Pit - 5/5/00: pH 8.6 retested & <8.5	0
-	LD1 - Sarp Stack: exceedance on 12 Dec 99 - 20 min; 1 April 2000 - 50 min; 11 June 2000 - 10 min; 1 July 2000 <10 min	0

APPENDIX 5 -

TOTAL ENVIRONMENT CENTRE

POLLUTION LICENCE COMPLIANCE AUDITS - WHAT THEY REALLY TELL US

The Office of Department of Heritage has been conducting strategic environmental compliance audits of pollution licences, for a number of years.²⁰ These are undertaken for selected industry sectors deemed to pose a risk of significant environmental harm. Most recently the department launched another series of audits into 42 high risk facilities following the outrage over the Orica incidents.

The intention of such audits is to require remediation action and educate about best practice. Noticeably the department reports positively on itself and the fact it has done the audits.

In regard to categorising non-compliance, the department explains:

Non-compliances assessed as 'code red' suggest they are of considerable environmental significance and therefore must be dealt with as a matter of priority. 'Code orange' risk assessments for non-compliance still pose a significant risk of harm to the environment, but can be given a lower priority than red risk assessments. A non-compliance assessed as 'code yellow' suggests that it could receive a lower priority but should still be addressed.

While noting that most non-compliances are 'yellow', Total Environment Centre has briefly reviewed key compliance audits and found disturbing issues that require urgent government attention and reform of the pollution licensing regime and culture in the department.

Key examples

1. Dust from coal mines

Two audits have been completed in 2004 (which also examined other matters) and 2010. Both found numerous problems with dust management. Various measures were proposed.

2. Management of Chlorinated Solvents

This was carried out in 2011 and the department reports:

The issues identified are similar to those found in the 2005 environmental compliance program on liquid chemical storage, handling and spill management practices (DEC 2005a; DEC 2005b; DEC 2006b).

In response to the 2005 findings the department initiated training courses and fact sheets on its website, and which it says it will continue.

²⁰ See - <http://www.environment.nsw.gov.au/licensing/complianceaudit.htm>

Unanswered questions

1. Given the large range of non-compliances that were found in the various reviews and clearly not reported to the department over a number of years – what is the estimate of incidents of environmental harm that would have occurred and were also not reported? The number must be significant.
2. Given that the reviews only looked at some industries – what is an estimate of non-compliances and consequent non reporting of environmental harm in total?
3. Why have 2 key industries not been brought up to scratch despite a lapse of 6 years? Are there problems with the resources or culture in the department; the legal effectiveness of the licences; or do companies treat the department and licences as token pieces of paper?
4. In view of the undoubted large number of unreported incidents of code 'yellow' environmental harm and the pollution already allowed by the licences (often not insignificant), what is the cumulative impact of this pollution on the environmental and people's health? Does the department retain any ongoing studies of key environmental indicators to inform it of the local and catchment level pollution?

28 September 2011